Lower Duwamish Waterway
RM 3.8 to 4.2 West
Sea King Industrial Park

Summary of Existing Information and Identification of Data Gaps

Prepared for

DEPARTMENT OF
ECOLOGY
State of Washington

Toxics Cleanup Program
Northwest Regional Office
Washington State Department of Ecology
Bellevue, Washington

Prepared by

SAIC®
From Science to Solutions

Science Applications International Corporation
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

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List of Acronyms

2LAET	second lowest apparent effects threshold
AEI	Advance Electroplating, Inc.
AET	apparent effects threshold
AST	aboveground storage tank
bgs	below ground surface
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as SuperFund)
CIC	Chiyoda International Corporation
CKD	cement kiln dust
CNE	Certificate of No Exposure
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CRI	Concrete Restoration Inc.
CSCSL	Confirmed and Suspected Contaminated Sites List
CSL	Cleanup Screening Level
CSO	combined sewer overflow
DMR	Discharge Monitoring Report
DW	dry weight
EAA	Early Action Area
ECHO	Enforcement and Compliance History Online
Ecology	Washington State Department of Ecology
EF	Enforcement Final
EOF	Emergency Overflow
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FSID	Facility Site Identification
GIS	Geographic Information Systems
HPAH	high molecular weight polycyclic aromatic hydrocarbon
HWG	hazardous waste generator
HWMA	Hazardous Waste Management Activity
HWTF	Hazardous Waste Transfer Facility
HWTR	Hazardous Waste and Toxics Reduction
IRA	Independent Remedial Action
ISGP	Industrial Stormwater General Permit
ISIS	Integrated Site Information System
KCIW	King County Industrial Waste
LAET	lowest apparent effects threshold
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LPAH	low molecular weight polycyclic aromatic hydrocarbon
LQG	Large Quantity Generator
LSC	Local Source Control

List of Acronyms (continued)

LUST	leaking underground storage tank
MEK	methyl ethyl ketone
METRO	Municipality of Metropolitan Seattle
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mgy	million gallons per year
MOU	Memorandum of Understanding
MTCA	Model Toxics Control Act
NFA	No Further Action
ng/kg	nanograms per kilogram
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCES	NRC Environmental Services
OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PARIS	Permitting and Reporting Information System
PBT	persistent bioaccumulative toxins
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PEI	Penberthy Electromelt International
PGG	Pacific Groundwater Group
PPA	Prospective Purchaser Agreement
ppm	parts per million
PSC	Puget Sound Coatings
PSCAA	Puget Sound Clean Air Agency
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RM	river mile
RSVP	Revised Site Visit Program
RTI	Repair Technology Inc.
SAIC	Science Applications International Corporation
SCAP	Source Control Action Plan
SCS	Security Contractor Services, Inc.
SCS	State Cleanup Site (in Section 5.30.7)
SCWG	Source Control Work Group
SD	storm drain
SHA	site hazard assessment
SIC	Standard Industrial Classification
SKCDPH	Seattle-King County Department of Public Health

List of Acronyms (continued)

SMS	Sediment Management Standards
SPCC	spill prevention, control, and countermeasure
SPIP	South Park Industrial Properties, LLC
SPU	Seattle Public Utilities
sq ft	square foot
SQS	Sediment Quality Standard
SR	State Route
SVOC	semivolatile organic compound
SW GP	Stormwater General Permit
SWMU	solid waste management unit
SWPPP	Stormwater Pollution Prevention Plan
TBT	tributyltin
TCDD	total tetrachlorodibenzo-p-dioxin
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	toxic equivalency
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSD	Treatment, Storage, and Disposal
TSS	total suspended solids
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VCP	Voluntary Cleanup Program
VCS	Voluntary Cleanup Site
VES	vapor extraction system
VOC	volatile organic compound
WAC	Washington Administrative Code
WDOH	Washington Department of Health
WPCC	Water Pollution Control Commission
WWTP	wastewater treatment plant

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1.0 Introduction

1.1 Background and Purpose

This *Summary of Existing Information and Identification of Data Gaps* report (Data Gaps Report) pertains to River Mile (RM) 3.8 to 4.2 West[1] (Sea King Industrial Park), one of 24 source control areas identified as part of the overall cleanup process for the Lower Duwamish Waterway (LDW) Superfund Site (Figure 1). It summarizes readily available information regarding properties in the Sea King Industrial Park source control area. The purpose of this Data Gaps Report is to:

- Identify chemicals of potential concern in sediments near the Sea King Industrial Park source control area.
- Identify and describe potential adjacent or upland sources of contaminants that could be transported to sediments.
- Evaluate potential contaminant migration pathways to RM 3.8 to 4.2 West sediments.
- Identify critical data gaps that should be addressed in order to assess the potential for recontamination of sediments and the need for source control.
- Determine what, if any, effective source control is already in place.

The LDW consists of 5.5 miles of the Duwamish Waterway as measured from the southern tip of Harbor Island to just south of the Norfolk Combined Sewer Overflow (CSO). The LDW flows into Elliott Bay in Seattle, Washington. The LDW was added to the U.S. Environmental Protection Agency (USEPA or EPA) National Priorities List in September 2001 due to the presence of chemical contaminants in sediment. The key parties involved in the LDW site are EPA, the Washington State Department of Ecology (Ecology), and the Lower Duwamish Waterway Group (LDWG), which is composed of representatives from the City of Seattle, King County, the Port of Seattle, and The Boeing Company. In December 2000, EPA and Ecology signed an agreement with the LDWG to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the LDW site.

EPA is leading the effort to determine the most effective cleanup strategies for the LDW through the RI/FS process. Ecology is leading the effort to investigate upland sources of contamination and to develop plans to reduce contaminant migration to waterway sediments.[2] The LDWG collected data during the Phase I Remedial Investigation (RI) that were used to identify candidate locations for early cleanup action. Seven candidate early action areas (EAAs or Tier 1 sites) were identified. Ecology's *Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007* (Ecology 2007g) and *Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008* (Ecology 2008l) identified another 16 areas where source control actions may be necessary. The Sea King Industrial Park source control area was identified as one of these areas. One additional source control area was added by Ecology in 2010, for a total of 24 source control

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[1] River miles as defined in this report are measured from the southern tip of Harbor Island.

[2] EPA and Ecology signed an interagency Memorandum of Understanding (MOU) in April 2002 and updated the MOU in April 2004. The MOU divides responsibilities for the site. EPA is the lead agency for the sediment RI/FS, while Ecology is the lead agency for source control issues (EPA and Ecology 2002, 2004).

areas. Subsequently, Ecology and EPA redefined the boundaries of the source control areas, generally defined by stormwater drainage basins. The seven candidate EAAs and 17 additional source control areas are shown on Figure 1. Figure 2 shows the extent of the S 96th Street Storm Drain (S 96th Street SD) basin. The outfall for the S 96th Street SD drainage basin, Outfall 2100(A), is located within the Sea King Industrial Park source control area (Figure 3). Some facilities in the S 96th Street SD basin are also located within the 8th Avenue S CSO drainage basin (Figure 4), which discharges to the LDW within in the Riverside Drive source control area. Data gaps addressing discharges from the 8th Avenue S CSO were discussed in the Riverside Drive Data Gaps Report (SAIC 2012a).

Ecology is the lead agency for source control for the LDW site. Source control is the process of finding and eliminating or reducing releases of contaminants to LDW sediments, to the extent practicable. The goal of source control is to prevent sediments from being recontaminated after cleanup has been undertaken.

The LDW Source Control Strategy (Ecology 2004a) describes the process for identifying source control issues and implementing effective controls for the LDW. The plan is to identify and manage potential sources of sediment recontamination in coordination with sediment cleanups. Source control will be achieved by using existing administrative and legal authorities to perform inspections and require necessary source control actions.

The strategy is based primarily on the principles of source control for sediment sites described in EPA's *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites* (USEPA 2002), and the *Washington State Sediment Management Standards* (SMS) (Washington Administrative Code [WAC] 173-340-370[7] and WAC 173-204-400). The Source Control Strategy involves developing and implementing a series of detailed, area-specific *Source Control Action Plans* (SCAPs).

Before developing a SCAP, Ecology prepares a Data Gaps Report for the source control area. Findings from the Data Gaps Report are reviewed by LDW stakeholders and are incorporated into the SCAP. This process helps to ensure that the action items identified in the SCAP will be effective, implementable, and enforceable. As part of the source control efforts for the Sea King Industrial Park source control area, Ecology requested Science Applications International Corporation (SAIC) to prepare this Data Gaps Report.

1.2 Report Organization

Section 2.0 of this report provides background information on the Sea King Industrial Park source control area, including location, physical characteristics, chemicals of concern (COCs), and pathways by which contaminants may reach sediments. Sections 3.0 through 5.0 describe potential sources of contaminants and data gaps that must be addressed in order to develop and implement a SCAP for the source control area. Section 6.0 provides a summary, and Section 7.0 lists the documents cited in this report. Appendix A provides sediment sampling data for the sediments near the Sea King Industrial Park source control area. Appendix B provides a review of historical aerial photographs of the source control area and Appendix C provides a summary of soil and groundwater data collected at facilities within the Sea King Industrial source control area.

Information presented in this report was obtained from the following sources:

- Ecology Northwest Regional Office Central Records;
- Washington State Archives;
- EPA files;
- Seattle Public Utilities (SPU) business inspection reports;
- Ecology Underground Storage Tank (UST) and Leaking Underground Storage Tank (LUST) lists;
- Ecology Facility/Site Database;
- Ecology Integrated Site Information System (ISIS) Database;
- Washington State Confirmed and Suspected Contaminated Sites List (CSCSL);
- Ecology Water Quality Permitting and Reporting Information System (PARIS);
- EPA Enforcement and Compliance History Online (ECHO);
- EPA Envirofacts Warehouse;
- King County Geographic Information Systems (GIS) Center Parcel Viewer, Property Tax Assessor Records, and iMap;
- GIS shape files produced by SPU and King County; and
- Historical aerial photographs.

Information collected from the Facility/Site Database, ISIS, ECHO, EPA Envirofacts Warehouse, and King County property tax assessor records was current as of December 2012. Recent updates to these databases may not be reflected in this report.

1.3 Scope of Report

This report documents readily available information relevant to potential sources of contaminants to sediments adjacent to the Sea King Industrial Park source control area, including outfalls, adjacent properties, and upland properties within the S 96th Street SD basin.

Atmospheric deposition occurs when air pollutants enter the LDW directly or through stormwater. Air pollutants may be generated from point or non-point sources. Point sources include industrial facilities; air pollutants may be generated from painting, sandblasting, loading/unloading of raw materials, and other activities, or through industrial smokestacks. Nonpoint sources include dispersed sources such as vehicle emissions, aircraft exhaust, and off-gassing from common materials such as plastics. Air pollutants may be transported over long distances by wind and can be deposited to land and water surfaces by precipitation or particle deposition.

Contaminants originating from nearby properties and streets may be transported through the air and deposited at RM 3.8 to 4.2 West or in areas that drain to the LDW. Although chemical deposition from air directly to the LDW probably occurs, this mechanism is not likely to result in sediment concentrations above local background levels. Secondary impacts of air sources on the stormwater pathway to receiving waters and sediment are not well understood; additional information is needed. Recent and ongoing atmospheric deposition studies in the LDW area are summarized in the LDW Source Control Status Report (Ecology 2007g and subsequent updates). Ecology will continue to monitor these efforts.

Information presented in this report is limited to the Sea King Industrial Park source control area, direct discharges to the sediments adjacent to the source control area, and potential adjacent and upland contaminant sources. Source control with regard to any contaminated sediments left in place will be important to address as part of the remedial action selection process for sediments adjacent to the Sea King Industrial Park source control area.

Chemical data have been compared to relevant regulatory criteria and guidelines, as appropriate. The level of assessment conducted for the data reviewed in this report is determined by the source control objectives. The scope of this Data Gaps Report does not include data validation or analysis that exceeds what is required to reasonably achieve source control.

2.0 RM 3.8 to 4.2 West (Sea King Industrial Park)

The Sea King Industrial Park source control area, as defined by Ecology, is located along the western side of the LDW Superfund Site from RM 3.8 to 4.2, measured from the southern end of Harbor Island (Figure 1). Although identified as the Sea King Industrial Park source control area, this source control area includes Boeing South Park, tenants of Sea King Industrial Park, KRS Marine, Duwamish Yacht Club, Delta Marine, and additional upland properties (Table 1). Discussion of Hamm Creek discharging between RM 4.2 and 4.3 West will be included in this report as it pertains to historical modifications to the S 96th Street SD basin.[3] The full extent of the Sea King Industrial Park source control area is shown on Figures 5 through 11. Properties located directly adjacent to the LDW that could affect sediments from RM 3.8 to 4.2 West include (Figures 5 and 6):

- Boeing South Park
- Sea King Industrial Park
    - USEPA Warehouse
    - Ultrapak Printing Inc./Colorgraphics
    - Sound Propeller Systems Inc.
    - Diamond Painting
    - International Painting
    - Protective Coating Consultants Inc.
- KRS Marine
- Duwamish Yacht Club
- Delta Marine

Fifty-one upland properties could potentially affect RM 3.8 to 4.2 West sediments (Figures 5 through 11). These properties are listed in Table 1. The parcels associated with these adjacent and upland facilities are identified on Figure 12; parcels identified with like colors are occupied by the same facility.

2.1 Site Description

General background information on the LDW is provided in the Phase I RI Report (Windward 2003), which describes the history of dredging/filling and industrialization of the Duwamish River and its environs, as well as the physiography, physical characteristics, hydrogeology, and hydrology of the area.

The upland areas adjacent to the LDW have been industrialized for many decades; commercial and industrial operations occur near the Sea King Industrial Park source control area.

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[3] A Data Gaps report that evaluates the potential for sediment recontamination associated with the present day Hamm Creek Storm Drain basin is in preparation.

Commercial and industrial operations include shipbuilding, painting, metal plating and finishing, sandblasting, intermodal transport, construction, and asphalt production.

In the late 1800s and early 1900s, extensive topographic modifications were made to the Duwamish River to create a straightened channel; many of the current sideslips are remnants of old river meanders.

Groundwater in the Duwamish Valley alluvium is typically encountered within about 3 meters (10 feet) of the ground surface and under unconfined conditions (Windward 2003). The general direction of groundwater flow is toward the LDW, although the direction may vary locally depending on the nature of the subsurface material, and temporally, based on proximity to the LDW and the influence of tidal action. High tides can cause temporary groundwater flow reversals, generally within 100 to 150 meters (300 to 500 feet) of the LDW (Booth and Herman 1998). Groundwater flow near the Sea King Industrial Park source control area is generally toward the LDW.

Bottom sediment composition is variable throughout the LDW, ranging from sands to mud. Typically, the sediment consists of slightly sandy silt with varying amounts of organic detritus. Coarser sediments are present in nearshore areas adjacent to storm drain discharges (Weston 1999); finer grained sediments are typically located in remnant mudflats and along channel side slopes. Sediments within Sea King Industrial Park source control area consists of approximately 45 to greater than 80 percent fines (dry weight [DW]). Total organic carbon (TOC) in this area ranges from less than 0.39 to 3.39 percent TOC (Appendix A) (Windward 2003, 2005b, 2005c, 2007a, 2007b, 2010b).

In an effort to more thoroughly understand and evaluate historical facility operations and development in the Sea King Industrial Park source control area, SAIC reviewed historical aerial photographs from 1936 to 2004. These photographs represent conditions during roughly each decade. The aerial photographs and complete descriptions are provided in Appendix B.

- 1936 – The land area in the Sea King Industrial Park source control area appears to be primarily farmland with some residential housing. Development along the shoreline appears to be limited. Present day arterial roads and residential streets are fairly well developed.
- 1946 – Increased development has occurred along the waterway. The land areas for present day Delta Marine and Sea King Industrial Park facilities were developed between 1936 and 1946. A 1996 King County report indicates the facilities are meat packing and storage businesses, gas stations, and related automotive repair stations (King County 1996a). Farmland at the present day Boeing South Park facility appears to have been cleared and graded. Barracks or apartment buildings appear to be present on the Sea King Industrial Park property.
- 1956 – The area adjacent to the LDW remains relatively similar to activities from the 1946 photograph. Increased development has occurred along 14th Avenue S. Areas west of 14th Avenue S continue to be used for farmland.
- 1969 – A significant amount of industrial development has occurred adjacent to the LDW and central section of the source control area. The area occupied by the current day South 93rd Business Park and Delta Marine appears to be used for automobile storage and or wrecking operations. The land area for the Boeing South Park is paved and several

building structures are present. State Route 99 and Des Moines Memorial Drive S are fully constructed, including the cloverleaf. The land area directly east of West Marginal Way S appears to be under construction. Buildings and possible industrial operations are present between 8th Avenue S and 10th Avenue S, north of S 96th Street.

- 1980 – The Duwamish Yacht Club, Delta Marine, and South 93rd Business Park, ICON Materials Asphalt Plant, former Morgan Trucking Inc, and Mason Dixon Intermodal are fully developed in the 1980 aerial photograph. The buildings present on the current Sea King Industrial Park property from previous photographs have been demolished and the land has been graded for development. The Markey Property (currently Simplex Grinnell/Sherwin Williams/NRC Environmental Services) appears to have been graded and/or filled.
- 1990 – The Sea King Industrial Park facility is fully developed. Global Intermodal Systems/ITEL Terminals occupies the area north of Delta Marine. Upland facilities in the eastern section of the source control area remain largely unchanged from previous years.
- 2004 – Operations and facilities remain largely unchanged from previous years.

2.2 Chemicals of Concern in Sediment

COCs in sediment associated with the Sea King Industrial Park source control area were identified based on sediment sampling conducted between 1997 and 2011.

2.2.1 Sediment Investigations

Sediment samples have been collected adjacent to the Sea King Industrial Park source control area as part of the investigations listed below and in Table 2. Data and information from the investigations performed between 1997 and 2005 were compiled by Windward for the LDW RI (Windward 2003). Concentrations of COCs in surface sediment samples detected above screening levels are presented in Table 3. Chemicals detected in subsurface samples did not exceed screening levels. Chemicals detected in surface and subsurface sediment samples are presented in Appendix A.

- **Duwamish Yacht Club Sediment Characterization**

  In 1989, sediment samples were collected from five locations within the Duwamish Yacht Club marina.[4] The sediments were analyzed for metals, semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), pesticides, polychlorinated biphenyls (PCBs), sulfides, and TOC (Herrera 1994). Additional information from this investigation is included in Section 4.4.4.

- **South 96th Street Water Quality Engineering Report (Herrera 1994)**

  One surface sediment sample was collected adjacent to Outfall 2100(A) on April 27, 1993. The sample was analyzed for conventional pollutants, metals, and polycyclic aromatic hydrocarbons (PAHs).

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[4] Limited information regarding this investigation was available for review. These samples are not shown on Figures 13a through 13c. The analytical data were not available; thus, these samples have not been included in Appendix A tables or in Tables 2 and 3.

- **Boeing Site Characterization (Exponent 1998)**

  Boeing collected eight surface samples in the vicinity of the Sea King Industrial Park source control area in October 1997. Samples were analyzed for PCBs, metals, trace elements, phthalates, and SVOCs including PAHs, chlorinated benzenes, and phenols.

- **Duwamish Waterway Sediment Characterization Study (NOAA 1998)**

  Twelve surface sediment samples were collected adjacent to the source control area in 1997. All seven samples were analyzed for TOC, PCBs, and polychlorinated terphenyls.

- **EPA Site Inspection, Lower Duwamish River (Weston 1999)**

  Ten surface sediment samples were collected adjacent to the source control area in August and September 1998. The samples were analyzed for TOC, PCBs, SVOCs, PAHs, and metals. A subset of samples were analyzed for dioxins/furans, organometals, VOCs, and pesticides.

- **Dredge Material Characterization – Duwamish Yacht Club (Windward 2003)**

  Six sediment samples were collected adjacent to the Duwamish Yacht Club in March 1999. The samples were analyzed for PCBs, SVOCs, metals, pesticides, and tributyltin (TBT).[5] Additional information from this investigation is included in Section 4.4.4.

- **Chemical Analyses of Benthic Invertebrate and Clam Tissue Samples and Co-Located Sediment Samples (Windward 2005a)**

  One surface sediment sample was collected adjacent to the source control area in August 2004. The sample was analyzed for TOC, PCBs, SVOCs, metals, organometals, and pesticides.

- **LDW RI Phase II Round 1 & 2 (Windward 2005b, 2005c)**

  In January and March 2005, nine surface sediment samples were collected adjacent to the Sea King Industrial Park source control area. All samples were analyzed for TOC, PCBs, PAHs, phthalates, other SVOCs, metals, and VOCs. A subset of samples was analyzed for organometals and pesticides.

- **LDW Phase II RI Subsurface Sediment Sampling (Windward 2007a)**

  In February 2006, two subsurface sediment samples were collected from one coring location adjacent to the source control area. The samples were analyzed for TOC, PCBs, SVOCs, metals, and pesticides.

- **LDW RI Phase II 2009/2010 Surface Sediment Sampling Results for Dioxins and Furans and Other Chemicals (Windward 2010a)**

  In December 2010, one surface sediment sample and one beach sediment composite sediment sample were collected adjacent to the Sea King Industrial Park source control

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[5] Limited information regarding these samples was available for review; the samples are not shown on Figures 13a through 13c.

area. The surface sample was analyzed dioxins/furans; the beach composite sample was analyzed for PCBs, SVOCs, metals, and dioxins/furans.

- **Surface Sediment Sampling at Outfalls in the Lower Duwamish Waterway (SAIC 2011)**

  In March 2011, nine surface sediment samples were collected adjacent to the Sea King Industrial Park source control area. All samples were analyzed for TOC, PCBs, PAHs, phthalates, SVOCs, and metals. One sample was analyzed for dioxins/furans.

Sediment sampling results are listed in Appendix A, Table A-1 and A-2, for chemicals detected in surface sediments and subsurface sediments, respectively. Sampling locations and analyses are listed in Table 2 and are shown in Figures 13a, 13b, and 13c.

Few sediment samples have been collected from the portion of the LDW between the southern portion of KRS Marine and the Duwamish Yacht Club. Additional sampling data are needed to assess contaminant levels, if any, in sediments adjacent to this portion of the Sea King Industrial Park source control area.

2.2.2 Identification of Chemicals of Concern

A COC is defined in this report as a chemical that is present in sediments near to the Sea King Industrial Park source control area at concentrations above regulatory criteria, and is therefore of particular interest with respect to source control. These COCs are the initial focus of the evaluation of potential contaminant sources.

The Washington SMS (Chapter 173-204 WAC) establish marine Sediment Quality Standard (SQS) and Cleanup Screening Level (CSL) values for some chemicals that may be present in sediments. Sediments that meet the SQS criteria (i.e., are present at concentrations below the SQS) have a low likelihood of adverse effects on sediment-dwelling biological resources. However, an exceedance of the SQS numerical criteria does not necessarily indicate adverse effects or toxicity, and the degree of SQS exceedance does not correspond to the level of sediment toxicity. The CSL is greater than or equal to the SQS and represents a higher level of risk to benthic organisms than the SQS levels. The SQS and CSL values provide a basis for identifying sediments that may pose a risk to some ecological receptors.

A chemical was identified as a COC for the Sea King Industrial Park source control area if it was detected in surface or subsurface sediment at concentrations above the SQS in at least one sample. A comparison of sample results to the SQS and CSL values is provided in Appendix A, and those chemicals that were detected at concentrations above their respective SQS/CSL values are listed in Table 3 for surface sediments. Chemicals detected in subsurface sediment samples adjacent to the Sea King Industrial Park source control area did not exceed SQS/CSL. For non-polar organics, the measured DW concentrations were organic carbon (OC) normalized to allow comparison to the SQS/CSL, unless the TOC concentration was less than or equal to 0.5 percent or greater than or equal to 4.0 percent. OC normalization is not considered appropriate for TOC concentrations outside of this range (Michelsen and Bragdon-Cook 1993, as cited in Windward 2010b). For samples with TOC concentrations outside this range, analytical results for non-polar organics were compared to the lowest apparent effects threshold (LAET) and the second lowest apparent effects threshold (2LAET), as identified in the LDW RI (Windward 2010b). The LAET and 2LAET are functionally equivalent to the SQS and CSL, respectively. Chemicals detected in sediment for which no SQS/CSL values are available may be identified as COCs on a case-by-case basis.

Chemicals with concentrations above the SQS in surface sediment samples are listed below. Chemicals were present in sediment samples at concentrations slightly exceeding the SQS. The greatest exceedance occurred in surface sample LDW-SSSP3-A for zinc.

Chemicals Detected at Concentrations Above the SQS/CSL	Surface Sediment	
	> SQS	> CSL
Metals		
Mercury	●	
Zinc	●	●
PAHs		
Benzo(g,h,i)perylene	●	
Dibenzo(a,h)anthracene	●	
Phthalates		
Butyl benzyl phthalate	●	
Other SVOCs		
Benzyl alcohol	●	
PCBs		
PCBs (total)	●	

Exceedance factors, which are a measure of the degree to which maximum detected concentrations exceed the SQS/CSL values, are listed in Table 3.

Results for these chemicals are discussed in more detail below.

Metals

Mercury exceeded the SQS in one sample, DR210, collected downstream of Outfall SP3 (Figure 13b). Zinc exceeded the SQS and CSL in one sample, LDW-SSSP3-A, collected adjacent to Outfall SP3 (Figure 13b).

Arsenic was detected in 44 of the 47 sediment samples analyzed for arsenic; concentrations in sediment did not exceed the SMS or LAET/2LAET criteria. Arsenic in 33 samples exceeded the LDW background level of 7 milligrams per kilogram (mg/kg) DW (AECOM 2012).

Phthalates

Butyl benzyl phthalate exceeded the SQS at sample location DR258, collected upstream of Outfall SP1 (Figure 13b).

PAHs

PAHs were detected in 39 of the 47 sediment samples analyzed for PAHs. Benzo(g,h,i)perylene and dibenzo(a,h)anthracene exceeded SQS in sample 96-8, collected adjacent to Outfall 2100(A) (Figure 13c). The carcinogenic PAHs (cPAH) toxic equivalency (TEQ) in 31 samples containing

PAHs exceeded the LDW background level of 8.9 micrograms per kilogram (µg/kg) (AECOM 2012).

PCBs

Total PCB concentrations exceeding the SQS were detected in five surface sediment samples. These samples were collected offshore from the Boeing South Park facility (R20, DR210, LDW-SSSP1-U, and LDW-SS122) and offshore from Delta Marine at the southern boundary of the source control area (WIT258) (Figures 13b and 13c).The greatest total PCB concentration was observed in surface sample LDW-SSSP1-U.

PCBs were detected in 46 of 58 samples analyzed for PCBs. The total PCB concentrations in all 46 samples exceeded the LDW background level of 6.5 µg/kg (AECOM 2012).

Other SVOCs

Benzyl alcohol exceeded the SQS and CSL at one sample location, LDW-SSSP3-A. LDW-SSSP3-A is located adjacent to Outfall SP3 (Figure 13b).

Other COCs

Although no SQS have been promulgated, pesticides are considered potential COCs for the Sea King Industrial Park source control area. Concentrations of pesticides including dichloro-diphenyldichloroethane, dichlorodiphenyltrichloroethane, dichlorodiphenyldichloroethylene, hexachlorobenzene, and methoxychlor were detected in nine surface sediment samples. Concentrations of pesticides were detected most frequently at surface sample location DR284 (Figure 13c).

Organotin compounds are persistent bioaccumulative toxins (PBTs) and are generally considered COCs for LDW sediments. Tributyltin (TBT) is used as the indicator chemical for organotin compounds. The mean concentration of TBT in the LDW is 90 mg/kg DW (AECOM 2012). Organotin compounds were detected at six sampling locations near the Sea King Industrial Park source control area. Between 1998 and 2005, concentrations of TBT were detected in eight samples, with the greatest concentration, 0.012 mg/kg DW, observed at location DR210 (Figure 13b). Since the maximum TBT concentration in sediments near the Sea King Industrial Park source control area is more than three orders of magnitude below the mean TBT concentration in LDW sediment, organotin compounds are not considered COCs for the sediments near the Sea King Industrial Park source control area.

Dioxins and furans are considered potential COCs within the Sea King Industrial Park source control area. These compounds were detected in four sediment samples at concentrations that exceed LDW background TEQ for dioxins and furans as described in *Lower Duwamish Waterway Remedial Investigation Report* (Windward 2010b). Dioxin/furan TEQs ranged from 1.3 nanograms per kilogram (ng/kg) DW to 22.7 ng/kg DW (Table A-1b).

Although not explicitly addressed in the SMS, VOCs in pore water may cause adverse effects on benthic invertebrates and other aquatic biota and are therefore considered additional COCs for source control efforts in the LDW.

2.2.3 Chemicals of Concern

As described above, COCs were identified based on the results of sediment sampling conducted between 1997 and 2011. Chemicals that exceeded the SQS in at least one surface sediment sample offshore of the Sea King Industrial Park source control area are considered COCs.

The following chemicals are considered COCs for the Sea King Industrial Park source control area with regard to potential sediment recontamination:

- Metals: arsenic, mercury, and zinc;
- Butyl benzyl phthalate;
- PAHs: benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and cPAHs;
- benzyl alcohol;
- PCBs;
- Pesticides; and
- Dioxins/furans.

2.3 Potential Pathways to Sediment

Potential sources of sediment recontamination associated with the Sea King Industrial Park source control area include storm drain outfalls, and discharges from adjacent and upland properties. Transport pathways that could contribute to the recontamination of sediments within the source control area following remedial activities include direct discharges via outfalls, surface runoff (sheet flow) from adjacent properties, bank erosion, groundwater discharges, air deposition, and spills directly to the LDW. These pathways are described below and are discussed in more detail in Sections 3.0 through 5.0.

2.3.1 Direct Discharges via Outfalls

Direct discharges may occur from public or private storm drain systems, CSOs, and emergency overflows (EOFs). There is one public outfall, five private outfalls, and four unresolved outfalls within the Sea King Industrial Park source control area. EOFs and CSO are not present within the Sea King Industrial Park source control area. Additionally, a Hamm Creek discharges adjacent to the southern source control area boundary.

Upland areas within the LDW are served by a combination of separated storm/sanitary systems and combined sewer systems. Storm drains convey stormwater runoff collected from pervious surfaces (yards, parks) and impervious surfaces (streets, parking lots, driveways, and rooftops) in the drainage basin. In the LDW, there are both public and private storm drain systems. Most of the waterfront properties are served by privately owned systems that discharge directly to the waterway. Upland areas are served by a combination of private and publicly owned systems. Typically, private onsite storm drain systems discharge to the public storm drain in the street, which conveys runoff from private property and public rights-of-way to the LDW.

The sanitary sewer system collects municipal and industrial wastewater from throughout the LDW area and conveys it to King County’s West Point wastewater treatment plant (WWTP), where it is treated before being discharged to Puget Sound. The smaller trunk sewer lines, which collect wastewater from individual properties, are owned and operated by the individual municipalities (e.g., cities of Seattle and Tukwila) and local sewer districts. The large interceptor system that collects wastewater from the trunk lines is owned and operated by King County. A King County interceptor extends along the west side of State Route (SR) 99.

Some areas of the LDW are served by combined sewer systems, which carry both stormwater and municipal/industrial wastewater in a single pipe. These systems were generally constructed before about 1970 because it was less expensive to install a single pipe rather than separate storm and sanitary systems. Under normal rainfall conditions, wastewater and stormwater are conveyed through this combined sewer pipe to a wastewater treatment facility. During large storm events; however, the total volume of wastewater and stormwater can sometimes exceed the conveyance and treatment capacity of the combined sewer system. When this occurs, the combined sewer system is designed to overflow through relief points, called CSOs. The CSOs prevent the combined sewer system from backing up and creating flooding problems.

A mixture of untreated municipal/industrial wastewater and stormwater can potentially be discharged through CSOs to the LDW during these storm events. The city's CSO network has its own National Pollutant Discharge Elimination System (NPDES) permit; the county's CSOs are administered under the NPDES permit established for the West Point WWTP.

An EOF is a discharge that can occur from either the combined or sanitary sewer systems that is not necessarily related to storm conditions and/or system capacity limitations. EOF discharges typically occur because of mechanical issues (e.g., pump station failures) or when transport lines are blocked; pump stations are operated by both the city and county. Pressure relief points are provided in the drainage network to discharge flow to an existing storm drain or CSO pipe under emergency conditions to prevent sewer backups. EOF events are not covered under the city's or county's existing CSO wastewater permits.

There are 14 CSOs/EOFs in the LDW (Table 4). The S 96th Street SD is located almost entirely within the 8th Avenue S CSO basin, which discharges to the LDW in the Riverside Drive source control area. Discharges from the 8th Avenue S CSO are addressed in the Riverside Drive Data Gaps Report (SAIC 2012a).

Annual stormwater discharge volumes are usually substantially higher than annual CSO discharges because storm drains discharge whenever it rains, while CSOs only occur when storm events exceed the system capacity. Annual stormwater discharges to the LDW have been estimated at approximately 4,000 million gallons per year (mgy) compared to less than 65 mgy from the county CSOs and less than 10 mgy from the city CSOs (Windward 2010b).

To minimize the frequency and volume of CSO events, the county uses different CSO control strategies to maximize system capacity. An automated control system manages flows through the King County interceptor system so that the maximum amount of flow is contained in pipelines and storage facilities until it can be conveyed to a regional WWTP for secondary treatment. In some areas of the system, where flows cannot be conveyed to the plant, the overflows are sent to CSO treatment facilities for primary treatment and disinfection prior to discharge. County CSOs discharge untreated wastewater only when flows exceed the capacity of these systems (King County 2009d).[6]

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[6] City CSOs are generally smaller and flows are not treated prior to discharge.

As a result, some areas may overflow to different outfalls at different times, depending on the route that the combined stormwater/wastewater has taken through the county conveyance system. Furthermore, some industrial facilities in the LDW basin may discharge stormwater to a separated system and industrial wastewater to a combined system, or a conveyance that begins as a separated system may discharge to a combined system further downstream along the flow path.

Although COCs from individual industrial and commercial facilities within the CSO basin are significantly diluted, the cumulative effects of CSO events could contribute to recontamination of the sediments adjacent to source control areas. Industrial and commercial facilities discharging industrial wastes and/or stormwater to the combined sewer system are therefore considered to represent potential, but relatively minor, sources of sediment recontamination.

Large spills of hazardous substances and waste materials containing COCs may be transported to a storm drain and therefore have the potential to impact sediment in the LDW. There is a potential for spills of COCs from many of the industrial and commercial businesses from upland properties as well as from trucks and trains transporting hazardous substances and waste materials. Spills that occur in upland properties could enter the onsite or public storm drain system and be discharged to the LDW. Spill prevention is a major element of the business inspections conducted by SPU, King County, and Ecology. Many businesses are required to have spill prevention plans. In the event of a spill, Ecology and SPU respond to and investigate spill incidents.

When preparing a Data Gaps Report for a source control area, all properties that potentially discharge to that source control area (whether through a CSO/EOF or a separated storm drain) are identified to the extent that the boundaries of the drainage basin are known. However, for areas where drainage basins overlap, a property review is performed only if the property has not already been included in a previously published Data Gaps Report. Exceptions include situations where contaminants may be transported to the current source control area via a transport pathway that was not applicable for the earlier evaluation.

The Source Control Work Group (SCWG)[7] compares analytical results from storm drain solids samples to the SQS and apparent effects threshold (AET). Petroleum hydrocarbon results are compared to Model Toxics Control Act (MTCA) Method A cleanup standards. Although these regulatory standards are not applicable to storm drain solids, the SCWG uses these values as a benchmark to describe storm drain solids quality (SPU 2010i). In this document, values described above (SQS/CSL, LAET/2LAET, and MTCA Method A) that are used for comparison to storm drain solids data are referred to as “storm drain screening values.” It should be emphasized that none of these values are applied as cleanup levels to storm drain or combined sewer solids. 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.

2.3.2 Surface Runoff (Sheet Flow)

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

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[7] The SCWG is composed of Ecology, King County, the Cities of Seattle and Tukwila, the Port of Seattle, and EPA.

2.3.3 Spills to the LDW

Near-water and overwater activities have the potential to impact adjacent sediment from spills directly to the LDW of material containing COCs. Commercial and industrial properties adjacent to the LDW within the Sea King Industrial Park source control area conduct overwater activities. Accidental spills during loading/unloading operations may result in transport of contaminants to sediment. Facilities that conduct overwater activities include the KRS Marine, Duwamish Yacht Club, and Delta Marine.

2.3.4 Groundwater Discharges

Contaminants in soil resulting from spills and releases to adjacent properties may be transported to groundwater and subsequently released to the LDW and the Sea King Industrial Park source control area. Soil and groundwater contamination has been documented at several properties within the Sea King Industrial Park source control area.

Concentrations of chemicals in soil and groundwater were compared to draft soil-to-sediment or groundwater-to-sediment screening levels (SAIC 2006). These screening levels were initially developed to assist in the identification of upland properties that may pose a potential risk of recontamination of sediments at Slip 4. The screening levels incorporate a number of conservative assumptions, including the absence of contaminant dilution and ample time for contaminant concentrations in soil, sediment, and groundwater to achieve equilibrium. In addition, the screening levels do not address issues of contaminant mass flux from upland media to sediments, nor do they address the area or volume of sediment that might be affected by upland contaminants. Because of these assumptions and uncertainties, these screening levels are most appropriately used for one-sided comparisons. If contaminant concentrations in upland soil or groundwater are below these screening levels, then it is unlikely that they will lead to exceedances of the SMS. However, upland concentrations that exceed these screening levels *may or may not* pose a threat to marine sediments; additional property-specific information must be considered in order to make such an assessment. While not currently considered COCs in sediment, these chemicals may warrant further investigation, depending on property-specific conditions, to evaluate the likelihood that they will lead to exceedances of the SMS.

Soil and groundwater contaminated by petroleum hydrocarbons have been identified at several properties within the Sea King Industrial Park source control area. Where these contaminants are present in the subsurface, naturally occurring arsenic in soil can be mobilized and migrate into groundwater (Harter and Rollins 2008). Arsenic is a COC for LDW sediments.

Five seep locations were identified during the Windward seep reconnaissance survey. The Sea King Industrial Park source control area was identified as an area with higher general seepage levels, with the exception of the area around RM 4.1 West, where Hamm Creek discharges to the LDW (Windward 2004). Seep 41 and Seep 39 were selected for chemical analysis (Figures 13b and 13c). Copper was detected in Seep 39 at a concentration 3 times the Marine Chronic Water Quality Standard of 3.1 micrograms per liter (µg/L).

2.3.5 Bank Erosion

The banks of the LDW shoreline are susceptible to erosion by wind and surface water, particularly in areas where banks are steep. Shoreline armoring and the presence of vegetation reduce the potential for bank erosion. Banks within the Sea King Industrial Park source control area are composed of riprap, vegetation, wharfs, and exposed soil. Facilities with exposed soil along the shoreline include Boeing South Park, Sea King Industrial Park, KRS Marine, Duwamish Yacht Club, and Delta Marine. Contaminants in exposed soils along the banks could be released directly to sediments via erosion.

In May 2011, six bank soil samples were collected near the Sea King Industrial Park property (Figure 13b). Soil samples were analyzed for metals, PCBs, PAHs, other SVOCs, total petroleum hydrocarbons (TPH), TBT, polybrominated diethyl ethers, pesticides, and dioxins/furans. Chemical concentrations in the bank soil samples did not exceed SMS. Concentrations of arsenic, total cPAHs, PCBs, and dioxin/furan TEQ exceeded LDW Natural Background concentrations but did not exceed the LDW Remedial Action Levels (Appendix A, Tables A-4a and A-4b) (Hart Crowser 2012).

2.3.6 Atmospheric Deposition

Atmospheric deposition occurs when air pollutants enter the LDW directly or through stormwater. Air pollutants may be generated from point or non-point sources. Point sources include industrial facilities; air pollutants may be generated from painting, sandblasting, loading/unloading of raw materials, and other activities, or through industrial smokestacks. Non-point sources include dispersed sources such as vehicle emissions, aircraft exhaust, and off-gassing from common materials such as plastics. Air pollutants may be transported over long distances by wind and can be deposited to land and water surfaces by precipitation or particle deposition. Several properties within the Sea King Industrial Park source control area are currently regulated as a point source of air emissions. These properties are listed below:

Facility	PSCAA Facility Registration No.
Ace Galvanizing Inc.	11695
Aero-Lac Inc.	10436
Allied Body Works Inc.	10071
Container Care International	10438
Delta Marine Industries Inc.	28365
Gary Merlino Construction Co.	13270G
Icon Materials	21300
Industrial Automation Inc.	18101
Puget Sound Coatings Machinists DSR	11860
Repair Technology Inc.	10029
RMC Inc.	29297
T & H Autobody	17303
Top Hat Mini Mart	10555G

Contaminants originating from nearby properties and streets may be transported through the air and deposited at RM 3.8 to 4.2 West or in areas that drain to the LDW. Although chemical deposition from air directly to the LDW probably occurs, this mechanism is not likely to result in sediment concentrations above local background levels. Secondary impacts of air sources on the stormwater pathway to receiving waters and sediment are not well understood; additional information is needed. Recent and ongoing atmospheric deposition studies in the LDW area are summarized in the LDW Source Control Status Report (Ecology 2007g and subsequent updates). Ecology is currently conducting an air deposition scoping study to inventory known point sources and make recommendations on how to address air deposition for source control.

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3.0 Potential for Sediment Recontamination from Outfalls

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

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

Within the Sea King Industrial Park source control area, ten outfalls discharge to the LDW. One outfall is public and five outfalls are private. The sources and contributions to four outfalls are unresolved.

3.1 Public Outfalls

As described in Section 2.3.1, public outfalls include public storm drains, CSOs, EOFs, and creeks. One public storm drain outfall discharges to the LDW within the Sea King Industrial Park source control area:

Outfall No.	Outfall Name	Location	Pipe Diameter/Material	Outfall Type
2100(A)	S 96th Street SD	4.2 W	72-in. corrugated metal pipe	King County SD

Source: LDW Phase 2 RI Final (Windward 2010b, Appendix H)

Lateral storm drain lines, open ditches, culverts, and wetlands connect several of the surrounding facilities to the main line of the S 96th Street SD. The S 96th Street SD basin discharges to the LDW via Outfall 2100(A) (Windward 2010b).

Historically, Hamm Creek South Fork was connected to Outfall 2100(A). Hamm Creek South Fork is identified as sub-basin 6 on Figure 14. In 2000, King County and the U.S. Army Corps of Engineers completed a 2,000-foot natural channel that redirected the Hamm Creek South Fork to discharge to the LDW via the Hamm Creek outlet, which is immediately south of Delta Marine (King County 2000b). Discharges from Hamm Creek will be addressed in the Restoration Areas Data Gaps Report (SAIC 2013).

3.1.1 S 96th Street SD Basin (Outfall 2100(A))

Historical documents reviewed for the production of this report referred to the drainage basin discharging to the LDW at Outfall 2100(A) as both the Hamm Creek Watershed and S 96th Street drainage system. For the purpose of this report, the drainage basin will be described as the S 96th

Street SD basin to remain consistent with previous data gaps reports, SCAPs, and LDW Source Control Status Reports.

The S 96th Street SD basin is composed of two major drainage and conveyance systems known as the S 95th Street and S 96th Street systems. The conveyance and drainage system is composed of open ditches, culverts, wetlands, and piped storm drains. The drainage and conveyance systems merge at S 95th Street, east of SR 99. Flow is conveyed 500 feet eastward and discharges to the LDW via Outfall 2100(A) (Herrera 1994). The drainage and conveyance systems are divided into the following sub basins:

Sub Basin	Drainage and Conveyance System	Area	Land Use
1	S 95th Street	584 acres	60% residential, 25% commercial/industrial, 15% open space
2	S 96th Street	114 acres	60% residential, 25% commercial/industrial, 15% open space
3	S 95th Street	230 acres	60% residential, 20% commercial/industrial, 20% open space
4	S 95th Street	119 acres	93% residential, 5% commercial/industrial, 2% open space
5	S 95th Street	60 acres	30% residential, 25% commercial/industrial, 45% open space

The S 95th Street drainage and conveyance system collects flows from sub-basins 1, 2, 4, and 5 (Figure 14). The sub-basins converge at 8th Avenue S and S 96th Street. Flow is conveyed eastward along S 96th Street via culverts and open ditches to the S 95th Street Wetland (Figures 4 and 15a). The S 95th Street Wetland is seasonally flooded and saturated by overflows from the S 95th Street ditch and the seasonally high groundwater table. Flows are then piped via two 48-inch pipelines to the SR 99 Cloverleaf Wetland (Figures 4 and 15a). The Cloverleaf Wetland is located at the cloverleaf formed by on ramps and off ramps serving SR 99 at 14th Avenue S. The Cloverleaf Wetland also receives runoff from approximately 1,600 linear feet of SR 99 north of the wetland. Stormwater runoff and shallow groundwater contribute to the seasonally flooded and saturated hydrology of the Cloverleaf Wetland. The Cloverleaf Wetland is piped eastward under SR 99 via two 48-inch drainpipes. A drainage pipe from the South 93rd Business Park connects to the 48-inch drainpipes. The 48-inch drainpipes connect to a 72-inch pipeline and discharge to the LDW via Outfall 2100(A) (Figure 15a). Groundwater discharge contributes year-round base flow to the sub-basins in the S 95th Street drainage system (Herrera 1994).

The S 96th Street drainage and conveyance system collects flows from sub-basin 2 and conveys the flow eastward under SR 99 via a 36-inch pipeline. After crossing SR 99, the flow is conveyed via a 60-inch pipeline under the Delta Marine property and discharges to the LDW via Outfall 2100(A) (Figure 15a) (Herrera 1994).

The 1994 S 96th Street Water Quality Engineering Report compared groundwater level measurements with reported elevations of the storm drainage system. Groundwater in the drainage basin would be expected to discharge into existing drains throughout the drainage area beginning several hundred feet east of SR 509. The rate and direction of groundwater flow into the drainage system in this area is likely to be highly variable (Herrera 1994).

There are 112 facilities within the S 96th Street SD basin (Table 1):

- 55 of these facilities have an active EPA ID number.

- 11 facilities are listed on Ecology's CSCSL (6 of these facilities have received a No Further Action [NFA] determination from Ecology).
- 28 facilities are covered under a NPDES Permit.
- 3 facilities have received a King County Industrial Waste discharge authorization or permit.
- 18 facilities are listed on Ecology's UST and/or LUST lists.

Current facilities are presented on Figures 5 through 11. Ecology assigned a Facility/Site ID number to one roadway location in the S 96th Street SD basin within the Sea King Industrial Park source control area. Facility/Site ID information indicates that Ecology issued a construction stormwater general permit to the Washington State Department of Transportation between July 2009 and January 2011. The general permit was issued for construction projects that discharge stormwater to state waters. Ecology assigned a Facility/Site ID for the disposal of abandoned containers at the corner of S 96th Street and 4th Avenue S. These facilities are not discussed further in this report and are not listed on figures.

The southern portion of the Sea King Industrial Park facility, KRS Marine, Duwamish Yacht Club, and Delta Marine are located adjacent to the LDW as well as within the S 96th Street SD basin; therefore, these properties, along with Boeing South Park, are discussed in Section 4.0 of this Data Gaps Report. The remaining facilities are upland facilities in the source control area and are discussed in Section 5.0 of this Data Gaps Report.

3.1.2 Environmental Investigations

Several environmental investigations have been performed for the S 96th Street SD basin. Sample locations are presented on Figures 15a through 15c. A summary of chemicals that exceeded soil, groundwater, storm drain, and freshwater screening levels are presented in Tables 5 through 8. A summary of all chemicals detected in environmental media from these investigations is included in Appendix C, Tables C-1 through C-4.

S 96th Street Drainage Ditch Investigation (1986–1987)

On January 24, 1986, Ecology observed a King County maintenance crew removing oil-contaminated soil from the S 96th Street drainage ditch located between Des Moines Way and 10th Avenue S. King County transported the excavated material to stockpile areas on 17th Place S and a Port of Seattle property located at 16th Avenue S. Ecology collected a water sample and a composite soil sample from the excavation. The soil sample had elevated levels of TPH concentrations. Arsenic, lead, and cadmium concentrations exceeded MTCA cleanup levels for soil. Ecology issued the following corrective actions (Ecology1986b; E&E 1987a):

- Collect and contain material removed from the ditch to prevent human exposure and further release to the environment.
- Sample material remaining in the ditch to determine extent and degree of contamination, including PCBs analysis.
- Remove and dispose of all contaminated soils.

King County covered sediments that had been excavated and stockpiled at the 17th Place S location. Four soil samples were collected from the stockpiled soil at 17th Place S and analyzed for metals, SVOCs, PCBs, pesticides, and EP Toxicity (Toxicity Characteristic Leaching Procedure [TCLP] metals). Metals and PAHs were detected below MTCA cleanup levels. PCBs were not detected in the soil samples. Two background soil samples were collected from the surrounding area. Metals and PAH concentrations were detected at similar levels as in the stockpiled soil samples. PCB concentrations detected in one background sample were the below MTCA Method A cleanup level. Soil that was transported to the Port of Seattle property was mixed with dozens of truckloads of soil from other sources and could not be isolated (E&E 1987a).

Between 1986 and 1987, King County conducted an investigation to evaluate possible environmental contamination of soils associated with a portion of the S 96th Street drainage ditch, located between Des Moines Way S and 10th Avenue S. Sample locations were not available for review. Soil samples were collected at 6-inch intervals and vertically composited at four locations. Soil samples from three locations were analyzed for TCLP metals; one sample (K-1) was analyzed for PAHs and PCBs due to the presence of an oil sheen found while sampling (E&E 1987a).

TCLP metals were below detection limits (E&E 1987b). The Aroclor 1254 concentration in sample K-1 (collected near former Clarklift [Figure 15b]) was below the MTCA Method B cleanup level for PCBs. Concentrations of benzo(a)anthracene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene in sample K-1 were detected above MTCA cleanup levels; total cPAHs were 985 mg/kg DW. Aroclor 1254, benzo(a)anthracene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd)pyrene, and pyrene concentrations exceeded the soil-to-sediment screening levels (Table 5). Sample locations from this investigation were not available for review and are not presented on the Data Gaps Report figures.

S 96th Street Water Quality Engineering Report (1994)

In 1993, a water and sediment quality monitoring program was conducted for the S 96th Street SD basin (Herrera 1994). Sample locations are presented on Figure 15a.

Groundwater and Surface Water Results

Seven water quality monitoring stations were established to collect grab samples from Hamm Creek conveyance system and stormwater from the S 96th Street industrial area. Surface water samples were collected during storm events and base flow conditions. Water samples were analyzed for TPH, metals, and conventionals. One groundwater sample was collected at a spring located near the S 96th Street drainage ditch south of Selland Auto Transport. The groundwater sample was analyzed for TPH, metals, and conventionals (Herrera 1994). Concentrations of metals exceeded freshwater acute and chronic water quality standards during base and storm flows. Surface water sample results are summarized in the table below and in Table 7:

Chemicals Detected at Concentrations in Surface Water Samples	Sample Event		Freshwater Acute Water Quality Standards (µg/L)[a]	Freshwater Chronic Water Quality Standards (µg/L)
	Base Flow	Storm Flow		
TPH (µg/L)	ND	300 - 420	-	-
Metals (µg/L)				
Cadmium	8.0	4.0	0.82	0.37

Chemicals Detected at Concentrations in Surface Water Samples	Sample Event		Freshwater Acute Water Quality Standards (µg/L)[a]	Freshwater Chronic Water Quality Standards (µg/L)
	Base Flow	Storm Flow		
Chromium	8.0	9.0 – 55	-	-
Copper	5.0 – 15	4.3 – 38	4.6	3.5
Lead	0.9 – 3.3	7.9 – 47.8	14	0.54
Zinc	16 – 85	17 – 365	35	32

a – Surface Water ARAR – Aquatic Life – Fresh/Acute – Ch. 173-201A WAC
b – Surface Water ARAR – Aquatic Life – Fresh/Chronic – Ch. 173-201A WAC
ND – Not detected above screening levels

In the groundwater sample, concentrations of TPH, cadmium, chromium, copper, and lead were detected below MTCA cleanup levels and the draft groundwater-to-sediment screening levels (Table 6).

The report concluded the base flow results and the metals values from the spring sample indicated the base flow and groundwater to be relatively clean. Elevated pH levels were attributed to impacts from a cement kiln dust (CKD) pile. The cadmium source in the north fork Hamm Creek was unknown. TPH did not appear to be a COC in base or storm flows (Herrera 1994).

Storm Drain Solids, Dirt Drainage Ditch, and LDW Sediment Results

Storm drain solids samples were collected during baseflow from storm drain structures and dirt drainage ditches at 14 locations within the S 96th Street SD basin and analyzed for TPH, PAHs, metals, and conventionals. One sediment sampling station, 96-8, was located offshore of Outfall 2100(A).

Storm drain solids samples collected from lined culverts and drainage ditches were compared to the storm drain screening values. These samples are 96-9, 96-10, 96-11, 96-12, 96-15, and 96-18. Concentrations of chemicals exceeding the storm drain screening values are provided in Table 8. Several LDW sediment COCs were detected in the samples at concentrations exceeding the storm drain screening values; these COCs are listed below. Sediment COCs that exceeded the SMS in sediment samples collected near the Sea King Industrial Park source control area are indicated by a check mark.

Chemical	>SQS/LAET/ MTCA Method A	>CSL/2LAET	Sediment COC?
Metals			
Cadmium	●	●	
Copper	●	●	
Lead	●		
Zinc	●	●	✓
PAHs			
Acenaphthene	●	●	
Benzo(a)anthracene	●	●	
Benzo(a)pyrene	●		
Benzo(g,h,i)perylene	●	●	✓
Chrysene	●		

Chemical	**>SQS/LAET/ MTCA Method A**	**>CSL/2LAET**	**Sediment COC?**
Dibenzo(a,h)anthracene	●	●	✓
Fluoranthene	●	●	
Fluorene	●	●	
Indeno(1,2,3-cd)pyrene	●	●	
Phenanthrene	●	●	
HPAHs, total	●		
LPAHs, total	●	●	
Petroleum Hydrocarbons			
TPH	●		

All chemicals listed in the table, with the exception of TPH, are sediment COCs for the LDW Superfund Site. Individual chemical concentrations are provided in Table 8.

Storm drain solids samples collected from dirt drainage ditches were compared to MTCA cleanup levels for soil and the draft soil-to-sediment screening levels for saturated soil. These samples are 96-3, 96-14, 96-16, and 96-19 (Table 5). Several LDW sediment COCs were detected in the samples at concentrations exceeding MTCA cleanup levels and the draft soil-to-sediment screening levels; these COCs are listed below. Sediment COCs that exceeded the SMS in sediment samples collected near the Sea King Industrial Park source control area are indicated by a check mark.

Chemical	**>MTCA Cleanup Levels**	**>Draft Soil-to-Sediment Screening Levels**	**Sediment COC?**
Metals			
Arsenic	●		✓
Cadmium	●	●	
Copper		●	
Lead		●	
Silver		●	
Zinc		●	✓
PAHs			
Acenaphthene		●	
Acenaphthylene		●	
Dibenzo(a,h)anthracene		●	✓
Naphthalene		●	
cPAHs, total	●		✓
Petroleum Hydrocarbons			
TPH	●		

All chemicals listed in the table, with the exception of TPH, are sediment COCs for the LDW Superfund Site. Individual chemical concentrations are provided in Table 5.

In general, concentrations of metals and PAHs from the S 96th Street SD basin fell within the range of concentrations and followed the relative distribution patterns found in street dust in south Seattle and Bellevue. Comparison results indicated nonpoint sources associated with roadway runoff. Concentrations of PAHs in sediments collected from a manhole at the intersection of the S 95th Street ditch and 10th Avenue S(96-11) were characterized by high concentrations of low molecular weight polycyclic aromatic hydrocarbons (LPAHs) and high molecular weight polycyclic aromatic hydrocarbons (HPAHs) relative to typical street dust levels (Herrera 1994).

Petroleum hydrocarbons were detected at all storm drain solids and dirt drainage ditch sampling locations. Concentrations ranged from 370 mg/kg DW to 24,000 mg/kg DW. The greatest TPH concentration was detected in the sample collected from 96-16, at 24,000 mg/kg DW (Figure 15a).

One sediment sampling station, 96-8, was located offshore of Outfall 2100(A) (Figures 13b and 15a). Zinc, benzo(g,h,i)perylene, and dibenzo(a,h)anthracene concentrations exceeded SQS (Table 3).

The three main sources of metals-contaminated storm drain solids were the S 96th Street industrial area upstream of the S 95th Street ditch at 10th Avenue S, the junkyard at All City Auto Wrecking near the southern cell of the SR 99 cloverleaf, and the S 93rd Business Park. Sources of PAHs were attributed to the area upstream of the Hamm Creek south fork at SR 99 and the industrial area served by the S 95th Street drain including the pipeline that drains SR 99 (Figure 15a). TPH contamination observed throughout the S 96th Street SD basin was attributed to spills and leaks of lubricating and hydraulic oils (Herrera 1994).

The engineering report included a discussion about nonpoint source pollution control alternatives. Phase I included a basin-wide source control plan and water quality and sediment monitoring plan. Phase II included installation of a pipeline along S 96th Street to divert high flows from the Hamm Creek north and middle forks around the industrial areas. Phase III included completion of a regional stormwater treatment system (Herrera 1994). Phase I was completed in February 1999 and is described below under *S 96th Street Source Control Project (1999)*. Additional information about whether or not Phases II and III have been implemented was not available for review.

Soil and Groundwater Quality Assessment (1991–1995)

Between November 1991 and January 1995, a soil, sediment, and groundwater quality assessment was conducted for the S 96th Street drainage ditch between 8th Avenue S and Des Moines Memorial Drive S. The assessment was conducted along with a supplemental geotechnical study to address design considerations of expanding the width of the roadway. Between 1991 and 1995, 38 soil borings and 11 monitoring wells were completed and sampled along S 96th Street, as presented in Figure 15b. Soil samples were generally collected at depths of 1, 2.5, and 5 feet, and at 5-foot intervals below 5 feet. Thirty-four drainage ditch soil samples were collected from the drainage ditch along S 96th Street, as presented in Figure 15c (Hong West 1995). Soil and groundwater results are summarized in Tables 5 and 6.

Des Moines Memorial Drive S and S 96th Street

In 1991, nine soil borings (BH-14 through BH-20, MW-4 and MW-5) were completed near the intersection of Des Moines Memorial Drive S and S 96th Street (Figure 15b). Selected samples were analyzed for TPH, benzene, toluene, ethylbenzene, and xylenes (BTEX), SVOCs, VOCs, metals, and pH. Concentrations of TPH, SVOCs, and VOCs in soil samples were detected below MTCA cleanup levels. Metals were not detected.

In December 1993, ten additional soil samples from four boring (PH-1 through PH-4) installations were collected near Clarklift and analyzed for pH (Figure 15b). Two samples had elevated pH levels above 12.5 pH units (Hong West 1995).

10th Avenue S and S 96th Street

In 1991, eight soil borings (BH-4, BH-5, BH-8 through BH-12, and MW-3) were completed near the intersection of 10th Avenue S and S 96th Street (Figure 15b). Select samples were analyzed for TPH, BTEX, metals, and SVOCs, which were detected below MTCA cleanup levels (Appendix C, Table C-1). Due to elevated TPH concentrations that were detected in two samples collected from MW-3, PCB analysis was performed. Concentrations of PCBs in two soil samples collected from boring MW-3 exceeded the MTCA Method A cleanup level.[8]

In 1993, ten additional samples from five borings (PCB-1 through PCB-5) were collected near MW-3 (Figure 15b) (Hong West 1995). Concentrations of PCBs were below the MTCA Method A cleanup level, but exceeded the draft soil-to-sediment screening level in samples PCB-1B and PCB-2A (Table 5).

8th Avenue S and S 96th Street

In 1991, four soil borings (BH-1 through BH-3 and MW-1) were completed in the area near 8th Avenue S and S 96th Street (Figure 15b). Soil samples were analyzed for TPH, SVOCs, VOCs, and total metals. Concentrations of TPH, SVOCs, and VOCs were detected below MTCA cleanup levels. Metals were not detected in soil (Hong West 1995).

Groundwater Monitoring Results (1991)

Groundwater was encountered at depths ranging from 2.5 to 15 feet bgs. Concentrations of trichloroethene (TCE) and tetrachloroethene (PCE) in groundwater collected from MW-1 exceeded MTCA cleanup levels. Arsenic and lead concentrations in all four monitoring wells (MW-1, MW-3 through MW-5) exceeded MTCA Method A cleanup levels; mercury and zinc concentrations exceeded the draft groundwater-to-sediment screening levels. Hexavalent chromium concentrations in MW-1 and MW-4 exceeded MTCA Method B cleanup levels (Hong West 1995). Copper concentrations exceeded the draft groundwater-to-sediment screening level in wells MW-1 and MW-4; cadmium in well MW-4 and chromium in well MW-1 also exceeded the draft groundwater-to-sediment screening levels.

Drainage Ditch Soil Samples

In November 1993, soil samples DS-1 through DS-34 (Figure 15c) were collected from the drainage ditches along the intersection of Des Moines Memorial Drive S and S 96th Street, and the north and south sides of S 96th Street. Ditch soil samples were analyzed for TPH, cPAHs, total metals, and TOC. Total PAH concentrations in samples from the north S 96th Street ditch ranged from 25 mg/kg DW to greater than 500 mg/kg DW. Total PAH concentrations in samples from the south S 96th Street ditch ranged from 8 mg/kg DW to greater than 500 mg/kg DW (Hong West 1995). Arsenic concentrations in 30 of the 34 samples exceeded the MTCA Method B cleanup level for soil. Cadmium concentrations in 23 of the 34 samples exceeded the MTCA

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[8] These data were not included in the Hong West 1995 report and are not presented in the Data Gaps Report tables.

Method A cleanup level and the draft soil-to-sediment screening level. Copper concentrations in 29 of the 34 samples exceeded the draft soil-to-sediment screening level. Lead concentrations in two samples and mercury in one sample exceeded MTCA cleanup levels and the draft soil-to-sediment screening levels. In addition to these exceedances, concentrations of cadmium (3 additional samples), lead (20 additional samples), and mercury (5 additional samples) also exceeded the draft soil-to-sediment screening levels. Petroleum hydrocarbon concentrations exceeded the MTCA Method A cleanup level in six samples (Table 5). Individual PAH concentrations were not available for review.

In December 1993, four drainage ditch sidewalls samples (DSG-9, DSG-12, DSG-18, and DSG-22) were collected from seep locations in the south S 96th Street ditch. Sidewall samples were analyzed for TPH, PAHs, and total metals (Hong West 1995). Arsenic and cadmium concentrations exceeded MTCA cleanup levels for soil in all four samples. Cadmium concentrations also exceeded the draft soil-to-sediment screening level. Concentrations of copper (3 samples), lead (2 samples), mercury (1 sample), zinc (4 samples) and phenanthrene (1 sample) exceeded the draft soil-to-sediment screening levels. In addition petroleum hydrocarbon and benzene concentrations exceeded MTCA cleanup levels (Table 5).

Groundwater Monitoring Results (1994)

In 1993 and 1994, seven additional groundwater monitoring wells, MW-101 through MW-107, were installed (Figure 15b). In January 1994, groundwater samples were collected from wells installed in 1991 (MW-1, MW-3 through MW-5) and the newly completed wells. Concentrations of chromium, methylene chloride, TCE, and PCE in MW-1 exceeded MTCA Method A cleanup levels. Methylene chloride detections were attributed to laboratory contamination during sample analysis (Hong West 1995). Chromium and mercury concentrations in well MW-1 and zinc concentrations in well MW-106 exceeded the draft groundwater-to-sediment screening levels (Table 6).

The assessment identified five potential sources as contributing to soil and groundwater contamination in the area (Hong West 1995):

- Disposal practices and/or contaminated fill;
- Offsite sources of petroleum contamination;
- Imported CKD fill contributing to high pH in soils;
- Drainage ditch soil and surface water with low level BTEX, metals, and TPH concentrations; and
- VOCs in groundwater migrating from west of 8th Avenue S.

The assessment determined soil and groundwater quality problems would impact construction of S 96th Street improvements and the associated storm drain network. The impacts could be minimized by limiting volume of subsurface materials disturbed during construction. Areas of the ditch with soft compressible soils were to be covered with geotextile and road ballast to provide protection from differential settlement (Hong West 1995).

S 96th Street Groundwater Assessment (1996)

A pilot study for the S 96th Street drainage area was conducted to provide an understanding of groundwater flow, groundwater and soil quality, and historical sources of potential contamination. The pilot study was to be expanded to other areas of the LDW. The assessment reviewed 56 subsurface boring logs from 11 reports published between 1988 and 1995. Soil and groundwater contaminants included metals (including arsenic, cadmium, chromium, lead, nickel, and zinc), VOCs, halogenated and non-halogenated solvents, high pH readings, and TPH. Industries that were potential sources of the contaminants included multiple car wrecking and salvage yards, electroplating businesses, painting businesses, service and fuel stations, manufacturing businesses, and asphalt-related businesses (King County 1996a).

S 96th Street Source Control Project (1999)

In 1995, the King County Water and Land Resources Division implemented the Phase I recommendation of the 1994 water quality engineering report. King County initiated a three-year project in the S 96th Street SD basin to work with businesses and residents on implementing pollution prevention practices. King County inspected 114 businesses to assist in compliance with the County's water quality code and implement best management practices (BMPs). BMPs included covering outside storage, containing liquids stored outside, and discontinuing vehicle washing that discharged to storm drains. King County also conducted educational outreach for residents within the drainage basin (King County 1999).

King County installed five automatic sample sites and eight water quality and sediment grab sample sites. The monitoring results did not demonstrate an improvement in the stormwater quality in the S 96th Street SD basin from 1996 to 1998. No general trends were identified at any of the monitoring sites. According to the project summary, monitoring analysis was made difficult by construction activities, landslides, historic contamination, and contribution of roadway drainage (King County 1999). Sampling data were not available for review.

SPU and EPA Storm Drain Sampling (2008–2012)

SPU has collected storm drain solids samples from the storm drain structures associated with Outfall 2100(A). SPU has collected storm drain solids samples from storm drain structures within the S 96th Street SD basin between March 2008 and May 2011 (Figure 4). The samples were analyzed for PCBs, total and dissolved metals and mercury, PAHs, phthalates, and other SVOCs (SPU 2010i, 2011).

EPA collected storm drain solids from the storm drain structures associated with the S 96th Street SD basin in November 2011 and April 2012 (Figure 4). The samples were analyzed for metals, PCBs, SVOCs, and petroleum hydrocarbons (KTA 2012a, 2012b).

Several sediment COCs were detected in the samples at concentrations exceeding the storm drain screening values; these COCs are listed below. The chemical concentrations are listed in Table 9. Concentrations for all chemicals detected in storm drains solids samples are presented in Appendix A, Table A-5a.

Chemical	Sediment Trap >Storm Drain Screening Value	Inline Grab >Storm Drain Screening Value	Catch Basin >Storm Drain Screening Value	Sediment COC?
Metals				
Copper		▨ ●		
Lead		▨ ●		
Zinc	▨ ●	▨ ●	▨ ●	✓
PAHs				
Benzo(g,h,i)perylene	▨ ●	▨ ●	●	✓
Chrysene		●		
Dibenzo(a,h)anthracene		●		✓
Fluoranthene	▨ ●	●		
Indeno(1,2,3-cd)pyrene		●		
Phenanthrene	●			
Pyrene	●			
HPAHs, total	●			
Phthalates				
Bis(2-ethylhexyl)phthalate	▨ ●	▨ ●	▨ ●	
Butyl benzyl phthalate	●	▨ ●	▨ ●	✓
Dimethyl phthalate	●	▨ ●		
Other SVOCs				
2-Methylphenol			▨ ●	
4-Methylphenol	▨ ●	▨ ●	▨ ●	
Benzoic acid		▨ ●	▨ ●	
Benzyl alcohol	●	▨ ●	▨ ●	✓
N-Nitrosodiphenylamine		▨ ●		
Pentachlorophenol		▨ ●		
Phenol		▨ ●	●	
PCBs				
PCBs, total		▨ ●		✓
Dioxins/Furans				
Dioxins/furans TEQ		●	●	✓
Petroleum Hydrocarbons				
Diesel-range		●	●	
Heavy oil-range	●	●	●	

●	Detected concentrations exceeded the SQS
▨	Detected concentrations exceeded the CSL
✓	COC exceeds SQS in LDW sediment adjacent to the source control area

Dioxins/furans TEQ was compared to the LDW Natural Background concentration (2 ng TEQ/kg). Concentrations did not exceed the LDW Remedial Action Level (25 ng TEQ/kg [USEPA 2013]).
All chemicals listed in the table are sediment COCs for the LDW Superfund Site.
Individual chemical concentrations are provided in Table 9.

Potential for Sediment Recontamination

Environmental investigations conducted during the 1990s indicate that soil, groundwater, storm drain solids, and surface water within the S 96th Street SD basin are contaminated by metals, PAHs, and other SVOCs, PCBs, petroleum hydrocarbons, and VOCs. A summary of chemicals detected in environmental media above screening levels is presented below.

Chemical	Soil	Groundwater	Storm Drain Solids	Base Flow & Stormwater	Sediment COC?
Metals					
Arsenic	●	●			✓
Cadmium	●♦	♦	▲	■	
Chromium		●♦			
Copper	♦	♦	▲	■	
Lead	●♦	●♦	▲	■	
Mercury	●♦	♦			✓
Silver	♦				
Zinc	♦	♦	▲	■	✓
PAHs					
Acenaphthene	♦		▲		
Acenaphthylene	♦				
Benzo(a)anthracene	●♦		▲		
Benzo(a)pyrene	●♦		▲		
Benzo(g,h,i)perylene			▲		✓
Chrysene	♦		▲		
Dibenzo(a,h)anthracene	♦		▲		✓
Fluoranthene			▲		
Fluorene			▲		
Indeno(1,2,3-cd)pyrene	●♦		▲		
Naphthalene	♦				
Phenanthrene	♦		▲		
Pyrene	♦				
cPAHs, total	●				
HPAHs, total			▲		
LPAHs, total			▲		
Phthalates					
Bis(2-ethylhexyl)phthalate	●♦		▲		
Butyl benzyl phthalate			▲		✓
Dimethylphthalate			▲		
Phenols					
2-Methylphenol			▲		
4-Methylphenol			▲		
Pentachlorophenol			▲		
Phenol			▲		
Other SVOCs					
Benzoic acid			▲		

Chemical	Soil	Groundwater	Storm Drain Solids	Base Flow & Stormwater	Sediment COC?
Benzyl alcohol			▲ 🟧		
N-Nitrosodiphenylamine			▲ 🟧		
PCBs					
Aroclor 1254	♦				✓
Total PCBs	●♦		▲ 🟧		✓
Dioxins/Furans					
Dioxins/furans TEQ			▲		✓
Petroleum Hydrocarbons					
Diesel-range	●		▲		
Gasoline-range	●				
Heavy-oil range	●		▲		
TPH	●		▲		
VOCs					
Benzene	●				
PCE		●			
TCE		●			

●	Detected concentrations exceeded MTCA Method A or B cleanup level
♦	Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level
▲	Detected concentrations exceeded the SQS
🟧	Detected concentrations exceeded the CSL
■	Detected concentrations exceeded the chronic surface fresh water quality standard

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.
Dioxins/furans TEQ was compared to the LDW Natural Background concentration (2 ng TEQ/kg). Concentrations did not exceed the LDW Remedial Action Level (25 ng TEQ/kg [USEPA 2013]).
All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.

Sediment trap, in-line, and catch basin storm drain solids samples collected in the S 96th Street SD basin during 2008 and 2011 had concentrations of sediment COCs exceeding storm drain screening values. These COCs may be discharged to the LDW through the S 96th Street SD outfall, Outfall 2100(A), and may represent a source of contaminants to the sediments adjacent to the Sea King Industrial Park source control area.

Zinc, PCBs, PAHs, and phthalates concentrations that exceed screening levels are present in recent LDW sediment samples near Outfall 2100(A) (Figure 13c) and in storm drain solids samples collected from the S 96th Street SD system.

3.1.3 Data Gaps

Information needed to assess the potential for sediment recontamination associated with the public storm drain is listed below:

- A current map of the S 96th Street SD basin is needed to verify conveyance and drainage features.

- Additional information is needed to determine if drainage basin upgrades were made to divert the north and middle forks of Hamm Creek around the S 96th Street industrial area and discharge directly to the LDW via the Hamm Creek Outfall.
- Additional information is needed to determine if undocumented industrial operations are occurring within the S 96th Street SD basin that may be an ongoing source of sediment recontamination.

3.2 Private and Unresolved Outfalls

Outfalls SP1 through SP5 are owned and operated by Boeing South Park and covered under an NPDES Permit. The outfalls are located between RM 3.8 and 3.9 West (Figures 4 through 6). Four outfalls of unresolved origin (S Director Street Outfall, Outfall 2101, 2100B, and Delta Marine Outfall) are also present in the Sea King Industrial Park source control area (Figures 4 through 6).

Outfall No.	Secondary ID	Location	Pipe Diameter/Material	Type/Owner
SP5	NA	3.7 W	6-inch steel	Boeing South Park
SP4	2103	3.7 W	12-inch concrete	Boeing South park
SP3	NA	3.8 W	Unknown	Boeing South Park
SP2	NA	3.9 W	Unknown	Boeing South Park
SP1	2102	3.9 W	12-inch concrete	Boeing South Park
S Director Street	None	3.9 W	Unknown	Unresolved channel/ditch
2101	374W	4.0 W	18-inch concrete	Unresolved SD
2100(B)	376W	4.2 W	6-inch PVC	Unresolved SD
Delta Marine	None	4.2 W	Unknown	Delta Marine

Source: LDW RI Report (Windward 2010b, Appendix H)

Stormwater from Boeing South Park discharges to the LDW from five outfalls. Outfalls SP5 and SP4 discharge stormwater to sediments north of the Sea King Industrial Park source control area; however, Outfalls SP5 and SP4 were not discussed in previous data gaps reports. Data gaps identified for Outfalls SP5 and SP4 will be discussed in this report. The southern portion of Boeing South Park is located within the Sea King Industrial Park source control area. Outfalls SP1, SP2, and SP3 are located on the southern portion of Boeing South Park. Stormwater is conveyed through a vegetated area prior to discharge to the LDW via Outfalls SP1, SP2, and SP3 (Boeing 2011a). Additional information regarding stormwater discharge from Boeing South Park is discussed in Section 4.1.1.

The S Director Street Outfall and Outfall 2101 are located adjacent to the Sea King Industrial Park facility and may be inactive. Additional information regarding stormwater discharge from Sea King Industrial Park facility is discussed in Section 4.2.1. Outfall 2100(B) is located adjacent to the Duwamish Yacht Club and may be inactive. Additional information regarding stormwater discharge from the Duwamish Yacht Club is discussed in Section 4.3.1. The Delta Marine Outfall is visible on the Delta Marine Industries' stormwater pollution prevention plan (SWPPP) but has not been identified during LDW outfall surveys. Additional information regarding stormwater discharge from Delta Marine Industries is discussed in Section 4.5.1.

3.2.1 Potential for Sediment Recontamination

Little information was available to determine whether four outfalls of unresolved origin are abandoned or active. Active outfalls with undocumented drainage have the potential to transport contaminants present in stormwater (if any) to LDW sediments near the Sea King Industrial Park source control area.

3.2.2 Data Gaps

Information needed to assess the potential for sediment recontamination associated with the unresolved storm drain outfalls is listed below:

- Information regarding the status of the three unresolved outfalls is needed to determine if they are operational or have been abandoned.
- Additional information is needed to determine if storm drain lines are connected to the unresolved outfalls and the associated drainage areas of these outfalls, if any, to determine the potential for sediment recontamination via the stormwater pathway.

No data gaps related to Outfalls SP5, SP4, SP3, SP2, and SP1 were identified (Section 4.1). Data gaps related to the S Director Street Outfall and unresolved Outfall 2101 are discussed with the Sea King Industrial Park facility in Section 4.2. Outfall 2100(B) is discussed in the Duwamish Yacht Club Section 4.4. Data gaps related to the Delta Marine Outfall are discussed in Section 4.5.

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4.0 Potential for Sediment Recontamination from Adjacent Properties

The LDW shoreline spans approximately 2,300 feet of the source control area. Parcels along the shoreline are a mix of office parks, industrial, and commercial properties. Five properties located adjacent to the LDW were identified as potential sources of contaminants to the Sea King Industrial Park source control area (Figures 5 and 6):

- Boeing South Park
- Sea King Industrial Park
- KRS Marine
- Duwamish Yacht Club
- Delta Marine

Parcels for adjacent properties of concern within the Sea King Industrial Park source control area are shown in Figure 12, identified by the last four digits of the tax identification number. Aerial photographs of the Sea King Industrial Park source control area for the years 1936 to 2006 are provided in Appendix B.

The potential for sediment recontamination associated with each of these facilities is discussed in the following sections. Additional information needed to assess the sediment recontamination potential is also identified.

4.1 Boeing South Park

Facility Summary: Boeing South Park	
Tax Parcel No.	7883608601, 7883608603
Address	8601, 8603: 1420 S Trenton Street 98108
Property Owner	The Boeing Company
Parcel Size	8601:19.92 acres (867,540 sq ft) 8603: 7.81 acres (340,020 sq ft)
Facility/Site ID	60381981
Alternate Name(s)	Boeing Scientific, Boeing South Park Facility
SIC Code(s)	3721 Aircraft
EPA ID No.	WAD980982672
NPDES Permit No.	WAR001009
UST/LUST ID No.	None

The Boeing South Park facility is located on parcels 8601 and 8603 (Figure 12). The facility is bordered by the LDW to the east, the South Park Marina to the north, the Sea King Industrial Park facility to the south, and other small businesses to the west.

According to King County tax assessor records, the following buildings are present on parcel 8601:

- a 114,002-square foot (sq ft) flight training center Building 15-20, built in 1980;
- a 70,580 sq ft training facility Building 15-01, built in 1959;
- a 51,835 sq ft industrial engineering Building 15-30, built in 1981;
- a 19,488 sq ft office Building 15-35, built in 1981; and
- an 18,093 sq ft industrial engineering Building 15-05, built in 1962.

The following buildings are present on parcel 8603:

- a 35,355 sq ft chamber/support Buildings 15-08 and 15-11, built in 1988;
- a 32,745 sq ft applied physics lab Building 15-10, built in 1962;
- a 924 sq ft chamber pumphouse 1 Building 15-06, built in 1986;
- an 824 sq ft chamber pumphouse 2 Building 15-07, built in 1986;
- a 5,768 sq ft power supply Building 19-09, built in 1988;
- a 190 sq ft heat exchange Building 15-19, built in 1988;
- a 772 sq ft radiation protection Building 15-21, built in 1988;
- a 748 sq ft secured storage Building 15-22, built in 1988; and
- an 885 sq ft radiation protection Building 15-25, built in 1967.

4.1.1 Current Operations

Boeing South Park consists of a training facility and research and calibration laboratories. Approximately 80 percent of the facility is impervious. The facility ships and receives hazardous and non-hazardous materials. All materials are stored indoors. Manufacturing does not take place outdoors. The facility has a metal processing shop, wood processing shop, and a trash compactor that have the potential to generate dust or particulates. Boeing South Park stores diesel, propane, and liquid nitrogen in storage tanks ranging in volume from 50 gallons to 10,000 gallons (Boeing 2011a).

Boeing South Park plans to demolish Building 15-05, located at the center of the facility (Figure 16). The facility plans to install permeable sand with a stabilizing net for erosion control. Boeing expects to begin construction during spring or summer 2013 (Boeing 2013).

Stormwater Discharges

The Boeing South Park storm drain system includes catch basins, slot drains, open drainage ditches, and outfalls connected by approximately 9,500 linear feet of pipe, Figure 16. There are approximately 27 catch basins located throughout the facility. The topography of the South Park site is relatively steep, with the majority of storm drainage flowing to the east or southeast towards the LDW. The north drainage area conveys building roof runoff and parking lot runoff to the LDW via Outfalls SP5 and SP4. The middle drainage area collects roof runoff that is discharged through Outfall SP3 to the LDW. The south drainage area collects roof runoff that is directed into open drainage ditches. The ditches discharge to the LDW via Outfalls SP2 and SP1. Additional parking lot and storage lot runoff from the facility drains to grassy, treed vegetative strips prior to discharge to the LDW (Boeing 2011a).

4.1.2 Historical Operations

Information regarding historical operations at this facility was not available for review.

4.1.3 Regulatory History

On March 16, 1973, Ecology issued Boeing South Park NPDES Permit No. T-5125. Ecology authorized the facility to discharge a maximum of 60,000 gallons of contaminated water to the sanitary sewer system and a maximum of 30,000 gallons of uncontaminated cooling water to the LDW. According to the NPDES Permit, discharge points included an open ditch 10 feet north of the south property line, an open trough opposite Building 15.10, an 8-inch outfall south of Building 15.05, and a 10-inch outfall north of Building 15.01 (Ecology 1973b). Building locations are presented on Figure 16. It is unclear if discharge locations listed in the 1973 NPDES permit correspond with outfalls on Figure 16.

Ecology re-issued the facility’s NPDES Permit No. WA-002967-4 in 1975 (Ecology 1975). Ecology renewed NPDES Permit No. WA-002967-4 in 1982 (Ecology 1982b).

Ecology inspected Boeing South Park on October 4, 1984. Inspectors observed small amounts of cooling water were discharged from the research labs to the sanitary sewer. Non-contact cooling water from compressors and heat exchangers was discharged to the LDW. Ecology determined operations at the facility were satisfactory (Ecology 1984b).

On October 2, 1987, Ecology inspected the facility prior to renewing Boeing South Park’s NPDES Permit. Ecology recommended catch basin covers be placed in the loading dock area in case a spill occurred. Ecology advised the facility to update the drainage map to include changes in the storm drain system caused by new building construction. Ecology requested existing outfall data and anticipated maximum flow data in order to draft a new permit for the facility (Ecology 1987d).

Ecology re-issued NPDES Permit No. WA-002987-4 to Boeing South Park on November 18, 1988 (Ecology 1988g).

On September 28, 1992, Boeing submitted a Notice of Intent (NOI) for a Baseline General Permit to Discharge Stormwater Associated with Industrial Activity (Boeing 1992). Ecology issued Boeing South Park coverage under an Industrial Stormwater General Permit (ISGP) (also known as a NPDES Permit) on March 17, 1993 (Ecology 1993l). Ecology renewed Boeing’s coverage under the NPDES permit in 1995, 2000, and 2002 (Ecology 1996e, 2000e).

Ecology conducted a stormwater compliance inspection at Boeing South Park on April 6, 2007. A review of the facility’s Discharge Monitoring Reports (DMRs) indicated that the benchmark for total zinc was exceeded for the third and fourth quarter 2006 and the first quarter of 2007. The facility achieved consistent attainment of benchmark values for turbidity, pH, oil and grease, copper, and lead. Elevated zinc concentrations in stormwater required the facility to implement a Level 1 Response (Ecology 2007c).

On November 2, 2010, Ecology conducted a stormwater compliance inspection at Boeing South Park. Inspectors observed liquid and chemical products and wastes stored outside. Ecology requested Boeing to move the materials indoors (Ecology 2010x).

The facility exceeded benchmarks for zinc and copper during the first quarter 2010 and copper during the fourth quarter 2010 at Outfall SP1. Copper exceeded benchmarks for the second and third quarter 2010 at Outfall SP3 (Boeing 2011c).

The facility exceeded benchmarks for copper during second and third quarter 2011 at Outfall SP1. The facility exceeded benchmarks for zinc during the second, third, and fourth quarter 2011 at Outfall SP1. The facility did not exceed benchmarks during 2011 at Outfall SP3 (Boeing 2011b).

Boeing South Park applied for a Certificate of No Exposure (CNE) on July 19, 2012. Ecology inspected the facility on October 2, 2012. On October 4, 2012, Ecology denied the application because industrial materials remained exposed to stormwater (Ecology 2012i).

On November 13, 2012, Ecology issued Boeing Administrative Order No. 9601. The order granted Boeing a time extension to implement a Level 3 Corrective Action to address benchmark exceedances for copper in 2010 and zinc in 2011. The order requires Boeing to implement a Level 3 corrective action by September 2014 (Ecology 2012j).

4.1.4 Potential for Sediment Recontamination

Sediment collected during the LDW RI and LDW Outfall Sampling indicated that concentrations of mercury, zinc, benzyl alcohol, and PCBs in sediment adjacent to the Boeing South Park facility exceeded the SQS. The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Surface Runoff

In November 2012, Ecology issued an administrative order to Boeing South Park for benchmark exceedances of copper in 2010 and zinc in 2011 at Outfall SP1. Boeing is required to implement a Level 3 corrective action to prevent benchmark exceedances at Outfall SP1.

Boeing South Park discharges stormwater to the LDW via five private outfalls. Contaminants in stormwater and surface runoff, if any, have the potential to be released to the LDW via stormwater discharge.

Spills

The area of the property that is immediately adjacent to the LDW is vegetated and not used for industrial operations. Overwater operations do not occur at the facility. The potential for sediment recontamination associated with this property is via the spills pathway is low.

Soil and Groundwater

There is no information available to determine if soil or groundwater contamination is present at this property; however, given the historical industrial operations, there is potential for soil and groundwater contamination.

Bank Erosion/Leaching

The bank adjacent to the facility consists of exposed soil, vegetation, and riprap. Contaminants in bank soils (if any) could be released directly to sediments via erosion. The potential for sediment recontamination via bank erosion/leaching is unknown.

4.1.5 Data Gaps

Boeing South Park is upgrading the facility stormwater treatment system and appears to maintain appropriate source control BMPs. No data gaps were identified for this facility.

4.2 Sea King Industrial Park

Facility Summary: Sea King Industrial Park	
Tax Parcel No.	0001600060, 7619000000
Address	0060: 1620 S 92nd Place 98108 0000: 1600 S 92nd Place 98108
Property Owner	Sea King Industrial Park LLC
Parcel Size	0060: 6.61 acres (288,127 sq ft) 0000: 12.05 acres (524,813 sq ft)
Facility/Site ID	9037205: USEPA Warehouse 4401006: Ultrapak Printing Inc. (Former Tenant) 67478551: Progressive Medical Corp 42882451: International Paint Warehouse 21209: Diamond Painting 2544945: Diamond Painting LLC 1601 4154808: International Paint LLC 5776: Sound Propeller Systems Inc. 4210684: Protective Coating Consultants Inc.
Alternate Name(s) and Current or Former Tenants	Colorgraphics, Colorgraphics Inc. 92nd PL, Colorgraphics Seattle South Park, Diamond Painting, Diamond Painting LLC 1601, International Paint LLC, International Paint Warehouse, Progressive Medical Corp, Protective Coating Consultants Inc., Sound Propeller Systems Inc., Ultrapak Printing Inc. (Former Tenant), USEPA Warehouse
SIC Code(s)	2851: Paints and Allied Products (International Paint Warehouse)
EPA ID No.	WAD981761497: Progressive Medical Corp
NPDES Permit No.	None
UST/LUST ID No.	None

The Sea King Industrial Park facility is located on parcels 0060 and 7619000000 (Figure 12). The facility is bordered by the LDW to the east, S Director Street to the north, S 93rd Street Business Park to the south, and Aerospace Machinists Union to the west.

According to King County tax assessor records, seven multi-unit warehouses with office space, built in 1982, are present on parcel 7619000000.

- Building B: 24,000 sq ft
- Building D: 24,000 sq ft
- Building F: 24,000 sq ft
- Building H: 24,000 sq ft
- Building E: 51,500 sq ft
- Building G: 59,900 sq ft
- Building I: 42,000 sq ft

According to King County tax assessor records, two warehouses, built in 1992, are present on parcel 0060.

- Building J: 26,600 sq ft
- Building K: 45,050 sq ft

KRS Marine leases a portion of parcel 7619000000. KRS Marine is discussed in Section 4.3.

4.2.1 Current Operations

Sea King Industrial Park

Sea King Industrial Park is an industrial warehouse rental facility, owned by Sea King Industrial park LLC. The facility has a variety of manufacturing and distribution tenants. The property consists of primarily buildings and paved areas. Small-vegetated strips are scattered throughout the property. The bank adjacent to the LDW is composed of riprap and vegetation. Overwater operations do not occur at the facility.

Ecology has not assigned the Sea King Industrial Park facility a Facility Site Identification (FSID) number. Limited information regarding tenant operations was available for review. Tenants conduct the majority of operations indoors. Current tenants with Ecology FSIDs are discussed below.

Stormwater Discharges

The Sea King Industrial Park facility is not located within the S 96th Street SD basin. A 1994 King County drainage maps indicate that stormwater from the majority of the facility discharges to the LDW via the S Director Street Outfall at approximately RM 3.9 West (Figures 5 and 17). The S Director Street Outfall appears to be an open channel or drainage ditch. The outfall was not previously identified or sampled during a 2004 SPU outfall inventory or 2011 LDW outfall sediment sampling event. Stormwater from the eastern portion of the property appears to discharge to the LDW via outfall 2101 (Figure 4). Outfall 2101 was identified during SPU’s 2004 outfall inventory.

USEPA Warehouse

The EPA currently operates an emergency response warehouse at Sea King Industrial Park. It is assumed that the EPA stores and maintains emergency response equipment at the warehouse. In Ecology’s FSID database, the facility was listed as a hazardous waste generator from November 2007 to December 2008 and a manager of hazardous waste during 2009.

Colorgraphics/Former Ultrapak Printing Inc.

According to Ecology’s FSID database, Ultrapak Printing Inc. was a former tenant at Sea King Industrial Park. The facility held a Washington State business license from February 1995 until November 2005. It is not known when Colorgraphics acquired Ultrapak Printing Inc. and began operations at Sea King Industrial Park. Colorgraphics conducts bindery, digital production, and mailing operations at the facility (Marketing NW 2010).

Sound Propeller Systems Inc.

Sound Propeller Systems currently operates at Sea King Industrial Park. According to the company's website, the facility conducts repair and maintenance of propeller systems, bow-thrusters, shaft seals, and water jets. Additional activities at the facility include general machining, fabrication, and milling. The facility operates a solvent tank (Sound Propeller 2012).

International Paints LLC

International Paints LLC (International Paints) is a paint distribution center, which occasionally adds coloring to base paints. The facility distributes paints and coatings for marine applications. The facility does not manufacture any paint on site. An Ecology inspection determined the facility does not generate any hazardous waste (Ecology 2005i).

Diamond Painting LLC

Diamond Painting LLC (Diamond Painting) is a mobile marine paint service company that provides custom marine, auto, and aviation paint restorations (Diamond Painting 2012). An Urban Waters Environmental Compliance inspection by Ecology in 2008 indicated the facility conducts vehicle steam cleaning operations at the property. Washwater from the vehicle wash area is conveyed to an oil/water separator (Ecology 2008r).

The company also operates on site at the Delta Marine facility. It is assumed that the Diamond Painting location at the Sea King Industrial Park is used for paint and equipment storage. Additional information was not available for review. Information about Diamond Painting operations on site at Delta Marine is provided in Section 4.5.

Protective Coating Consultants Inc.

Protective Coating Consultants Inc. currently operates at Sea King Industrial Park. Additional information regarding current operations at the facility was not available for review. According to Ecology's FSID database, the facility was listed as a hazardous waste generator from June 2007 until December 2007.

4.2.2 Historical Operations

Historical information regarding companies operating at Sea King Industrial Park was not available for review.

4.2.3 Regulatory History

Colorgraphics

Ecology inspected Colorgraphics on September 9, 2008. Inspectors identified the following corrective actions (Ecology 2008ab):

- Improve or create spill response procedures.
- Properly educate employees on spill response procedures.
- Properly dispose of waste.
- Properly label containers.

- Evaluate the need for an ISGP.

Ecology conducted a follow-up inspection on November 25, 2008. Colorgraphics completed requested corrective actions. Ecology granted the facility a CNE on December 11, 2008 (Ecology 2008ab).

International Paints

On July 18, 1991, Ecology inspected International Paints. Paints were stored in 5-gallon cans and stacked on pallets in the facility's warehouse. The facility did not store waste. Ecology did not issue any corrective actions (Ecology 1991g).

In 2005, International Paints applied to the hazardous waste program because the facility wanted to have the option to dispose of paint locally, rather than ship it back to the manufacturing headquarters. On November 29, 2005, Ecology conducted a dangerous waste compliance inspection at the facility. Ecology determined that the facility did not generate or store any hazardous waste (Ecology 2005i).

Ecology conducted a site visit on September 18, 2007. International Paints indicated the facility would have a one-time shipment of paint and paint-related waste following a clean out at the facility. Ecology notified International Paints that the facility would be regulated as a Large Quantity Generator (LQG) and would be required to submit a pollution prevention plan if the facility generated more than 2,640 pounds of hazardous waste two years in a row (Ecology 2007j). According to EPA's Facility Registry System, the facility is currently regulated as an LQG.

Ecology performed and Urban Waters inspection at International Paints on November 26, 2012. Corrective actions were identified regarding hazardous waste labeling and missing accumulation starts dates (Ecology 2013b).

Diamond Painting

On July 8, 2008, Ecology conducted an Urban Waters Environmental Compliance inspection at Diamond Painting. Ecology identified the following corrective actions (Ecology 2008r):

- Implement proper washing practices.
- Provide better/more maintenance for the oil/water separator.
- Properly dispose of waste.
- Properly store and label containers.
- Improve or create spill response procedures.
- Properly educate employees on spill response procedures.

Ecology inspectors determined the facility was in compliance during a follow-up inspection on August 13, 2008. Ecology made the following recommendations (Ecology 2008x):

- Clear paint booth filters for solid waste disposal through the King County Waste Characterization program.
- Wash all vehicles inside the building in the designated wash bay.

- Store material that could contaminate stormwater away from the storm drains.
- Keep waste drums closed and properly marked as dangerous waste.
- Transport any dangerous waste to a permitted treatment or disposal facility.

Additional information regarding compliance with follow-up recommendations was not available for review.

Ecology performed an Urban Waters inspection at Diamond Painting on November 26, 2012. No corrective actions were identified (Ecology 2013b).

Sound Propeller Systems Inc.

Ecology conducted an Urban Waters Environmental Compliance inspection at Sound Propeller Systems on December 10, 2008. Ecology did not identify any compliance issues during the inspection (Jeffers 2009a).

CERCLA Section 104(e) Requests

EPA sent Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e) Request for Information Letters to Sea King Industrial Park on July 17, 2008 (USEPA 2008d). The information request included parcel 0001600060. A response to the request was not available for review at the time this report was prepared.

4.2.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Surface Runoff

King County drainage maps indicate stormwater from this property is discharged to the LDW via two outfalls (S Director Street Outfall and Outfall 2101). Limited information was available for review regarding stormwater drainage features at Sea King Industrial Park. Spills from tenant operations/activities in the business park have the potential to migrate to the storm drain systems. Sea King Industrial Park and its current tenants have complied with corrective actions identified by Ecology. The potential for sediment recontamination associated stormwater discharge from this facility is low provided that the property management company and tenants maintain appropriate source control BMPs.

Spills

The area of the property that is immediately adjacent to the LDW is vegetated and not used for industrial operations. Overwater operations do not occur at the facility. The potential for sediment recontamination associated with this property via the spills pathway is low.

Soil and Groundwater

There is no information available to determine if soil or groundwater contamination is present at this property; however, given the historical industrial operations, there is potential for soil and groundwater contamination.

Bank Erosion/Leaching

The bank adjacent to the facility consists of exposed soil, vegetation, and riprap. Contaminants in bank soils (if any) could be released directly to sediments via erosion. Four bank soil samples were collected near the Sea King Industrial Park property in May 2011. Chemical concentrations in the bank soil samples did not exceed SMS. Concentrations of arsenic, total cPAHs, PCBs, and dioxin/furan TEQ exceeded LDW Natural Background concentrations but did not exceed the LDW Remedial Action Levels (Appendix A, Tables A-4a and A-4b) (Hart Crowser 2012).The potential for sediment recontamination via bank erosion/leaching is low.

4.2.5 Data Gaps

Sea King Industrial Park and its tenants appear to maintain appropriate source control BMPs and have complied with corrective actions identified by Ecology.

Information needed to assess the potential for sediment recontamination associated with operations at the property is listed below:

- Additional information regarding stormwater drainage features at the property is needed to evaluate the potential for contaminant transport to the LDW via stormwater discharge.
- Further investigation is needed to determine if the S Director Street Outfall and Outfall 2101 are operational and the drainage areas associated with the outfalls.
- Additional information regarding operations at the property prior to 1982 is needed to determine the potential for soil and/or groundwater contamination at the property.
- A review of the response from Sea King Industrial Park LLC to the EPA CERCLA Section 104(e) Request for Information letter is needed to identify potential sources of sediment recontamination that may be associated with current or historical operations at the property.

4.3 KRS Marine

Facility Summary: KRS Marine	
Tax Parcel No.	0001600060
Address	1621 S 92nd Place 98108
Property Owner	Sea King Industrial Park LLC
Parcel Size	6.61 acres (288,127 sq ft)
Facility/Site ID	90355185
Alternate Name(s)	Sea King Industrial Park
SIC Code(s)	None
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

KRS Marine leases a portion of parcel 0060 from Sea King Industrial Park LLC. The facility is located adjacent to the LDW at RM 4.0 West, and is bordered by the Duwamish Yacht Club to the south and Sea King Industrial Park to the west and north. There are no buildings located at the KRS Marine facility.

4.3.1 Current Operations

KRS Marine moors a fleet of barges at parcel 0060. KRS Marine conducts overwater activities with the potential for spills. The facility also stores construction materials, operating equipment, and containers on an unpaved storage yard adjacent to the LDW. The property has a gradient of approximately 4 feet sloping west to east towards the LDW (Hurley 2000). The bank at the facility likely consists of exposed soil, vegetation, and a bulkhead wharf. No additional information regarding current operations was available for review.

4.3.2 Historical Operations

Information regarding historical operations at this facility was not available for review.

4.3.3 Regulatory History

KRS Marine submitted an independent remedial action report to Ecology on May 23, 2000 (Hurley 2000). The report summarized a petroleum-contaminated soil excavation at the facility. Ecology reviewed the report and determined no further remedial action was necessary (Ecology 2000c). Additional details regarding contaminated soil cleanup are provided below.

4.3.4 Environmental Investigations and Cleanup

One environmental investigation has been conducted at KRS Marine. Sampling results for chemicals detected in soil at this location are provided in Appendix C. Sampling locations are shown in Figure 18.

Contaminated Soil Cleanup and Site Assessment (April 2000)

A previous investigation identified oil-contaminated soil at three locations in the gravel-covered storage yard on the west side of the property. The source of contamination was attributed to hydraulic oil that had leaked from equipment in the storage yard. In February 2000, KRS Marine excavated approximately 233 tons of petroleum-contaminated soil from the storage yard. Soil excavations were completed to approximately 3 feet below ground surface (bgs). At the conclusion of removal activities, oil concentrations in soil remaining in the bottom and sides of the excavated areas were below the MTCA Method A cleanup level for TPH (2,000 mg/kg DW) (Hurley 2000).

Ecology issued an NFA determination following review of the independent remedial action report (Ecology 2000c).

4.3.5 Potential for Sediment Recontamination

KRS Marine is adjacent to the LDW. No SMS exceedances have been observed in LDW sediment samples collected offshore of the KRS Marine property (Figure 13b). The potential for sediment recontamination associated with this property is summarized below by transport pathway.

Stormwater and Surface Runoff

According to a 2000 site assessment report, the facility slopes towards the LDW (Hurley 2000). Stormwater and surface runoff from this property discharges directly to the LDW. Contaminants in stormwater/surface runoff at the facility, if any, could be transported to LDW sediments.

Spills

KRS Marine performs barge loading and unloading operations, where spills to the dock area have the potential to enter the LDW. Spills from loading and unloading activities are a potential pathway for sediment recontamination.

Soil and Groundwater

KRS Marine removed petroleum-contaminated soil from the property in February 2000. The facility received an NFA in 2000. Given the continued storage of equipment and heavy machinery at the property, there is potential for soil and groundwater contamination. Petroleum hydrocarbons are not COCs for LDW sediments. Based on the results of the 2011 bank soil sampling event (described below), the potential for sediment recontamination via groundwater discharge is low .

Bank Erosion/Leaching

The bank at the facility likely consists of exposed soil, vegetation, and a bulkhead wharf. Contaminants in bank soils (if any) could be released directly to sediments via erosion. In May 2011, two bank soil samples were collected near the property (Figure 13b). Chemical concentrations in the bank soil samples did not exceed SMS. Concentrations of arsenic, total cPAHs, PCBs, and dioxin/furan TEQ exceeded LDW Natural Background concentrations but did not exceed the LDW Remedial Action Levels (Appendix A, Tables A-4a and A-4b) (Hart Crowser 2012). The potential for sediment recontamination via bank erosion/leaching is low.

4.3.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with operations at the property is listed below:

- A source control inspection at the KRS Marine is needed to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.

4.4 Duwamish Yacht Club

Facility Summary: Duwamish Yacht Club	
Tax Parcel No.	0001600061
Address	1801 S 93rd Street 98108
Property Owner	Mellon Trust of WA-Desimone
Parcel Size	4.40 acres (191,606 sq ft)
Facility/Site ID	None
Alternate Name(s)	None

Facility Summary: Duwamish Yacht Club	
SIC Code(s)	None
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

The Duwamish Yacht Club operates on parcel 0061 (Figure 12). The facility is bordered by Delta Marine to the south, the LDW to the east, the 93rd Street Business Park to the west, and KRS Marine to the north.

According to King County tax assessor records, the following buildings are present on parcel 0061:

- a 600 sq ft office building, built in 1979;
- a 200 sq ft restroom building, built in 1998; and
- a 960 sq ft shed, built in 2002.

4.4.1 Current Operations

The Duwamish Yacht Club began operating at the current location in 1978. The yacht club consists of four docks with 28 boat slips. Some slips are used for liveaboard moorage. According to the yacht club's website, Delta Marine Industries provides haul-out and maintenance and repair operations for boats moored at the facility. It is not known if the Duwamish Yacht Club conducts fueling operations. There is a paved parking lot and a small office building located at the facility. The LDW banks are composed of vegetation and riprap.

Stormwater Discharges

King County drainage maps indicate stormwater in the facilities parking lot is collected in catch basins and conveyed to the S 96th Street SD system. The S 96th Street SD system discharges to the LDW via Outfall 2100(A), is located at the southeast corner of the facility.

According to the LDW RI, Outfall 2100(B) (Figure 6) is located at the Duwamish Yacht Club facility (Windward 2010b). Outfall 2100(B) is a 6-inch PVC pipe of unresolved origin or use.

4.4.2 Historical Operations

Information regarding historical operations at this facility was not available for review.

4.4.3 Regulatory History

Ecology has not assigned the Duwamish Yacht Club an FSID. Additional information regarding regulatory history was not available for review.

CERCLA Section 104(e) Requests

EPA sent CERCLA Section 104(e) Request for Information Letters to the Duwamish Yacht Club on July 17, 2008 (USEPA 2008c). The information request included parcel 0001600061. A response to the request was not available for review at the time this report was prepared.

4.4.4 Environmental Investigations and Cleanup

In October 1982, the Duwamish Yacht Club received permits to conduct maintenance dredging of sediment located adjacent to the facility (Ecology 1982a). The facility planned to dispose of 15,000 cubic yards of dredge spoils at the Seattle City Light power station located south of S 96th Street and east of West Marginal Way S. Ecology requested that the facility cap the dredge material to prevent potential leaching of heavy metals (Ecology 1982c).

In December 1982, four water samples were collected from upland ponds west of the Duwamish Yacht Club and analyzed for pH, dissolved oxygen, and metals. Dissolved oxygen ranged from 10.2 milligrams per liter (mg/L) to 10.4 mg/L and pH values ranged from 7.3 to 7.8. Concentrations of chromium ranged from 5 to 10 µg/L, copper ranged from 7 to 32 µg/L, zinc ranged from 10 to 25 µg/L, lead ranged from 3 to 8 µg/L, and nickel ranged from 6 to 23 µg/L (Laucks 1982).

On June 26, 1985, a composite soil sample was collected from the area where the dredge spoils were deposited on the Seattle City Light property. The sample was analyzed for PCBs, halogenated hydrocarbons, and metals. PCBs, halogenated hydrocarbons, and metals were either not detected or detected below MTCA regulatory criteria (Laucks 1985). Seattle-King County Department of Public Health (SKCDPH) and Ecology reviewed the sample results and classified the dredge spoils as an acceptable fill material (SKCDPH 1985). Following the review of analytical data, Ecology rescinded the requirement that the dredged materials be capped with an impervious layer (Ecology 1985d).

In 1989, sediment samples were collected from five locations within the Duwamish Yacht Club marina. The sediments were analyzed for metals, SVOCs, VOCs, pesticides, PCBs, sulfides, and TOC. The results indicated that sediments in the southwestern corner of the marina, near Outfall 2100(A), were unsuitable for in-water disposal. Concentrations of copper, lead, nickel, zinc, HPAHs, LPAHs, dimethyl phthalate, and benzoic acid all exceeded in-water disposal criteria. Based on grain size distribution analysis, the characterization report concluded that the most likely source of contaminated sediments accumulated in the marina was runoff from the industrialized area within the S 96th Street SD system (Herrera 1994).

One sediment sample, 96-8, was collected near Outfall 2100(A) as part of the S 96th Street SD basin water quality engineering study. Metals and PAHs were detected in the sediment sample, with concentrations of zinc, benzo(g,h,i)perylene, and dibenzo(a,h)anthracene exceeding the SQS (Table 3).

Six sediment samples were collected adjacent to the Duwamish Yacht Club in March 1999. The samples were analyzed for PCBs, SVOCs, metals, pesticides, and TBT. Metals, PAHs, phthalates, phenols, benzoic acid, and benzyl alcohol were detected at concentrations below the SQS and CSL (Windward 2003). The marina was dredged in 1999 (Windward 2010b).

Analytical results for the 1999 sediment samples are provided in Table 3 and Appendix A. The sample location is shown on Figures 13c and 15a. Chemical data and sample locations for the 1985 and 1989 samples were not available for review.

4.4.5 Potential for Sediment Recontamination

The Duwamish Yacht Club is adjacent to the LDW. Concentrations of zinc, total LPAHs, benzo(a)pyrene, pyrene, benzo(g,h,i)perylene and indeno(1,2,3-c,d)pyrene in an LDW sediment sample collected offshore of the Duwamish Yacht Club property exceeded SMS or LAET/2LAET. The COCs in sediments might be attributed to discharge from the S 96th Street Outfall as opposed to operations at the Duwamish Yacht Club. Aging fiberglass and boat coatings may be a source of phthalates. Anti-fouling paints (commonly used on boats) may leach copper and zinc to the LDW. Zinc anodes installed on boats, if used by the marina tenants, may also be a source of zinc to the LDW. The potential for sediment recontamination associated with this property is summarized below by transport pathway.

Stormwater and Surface Runoff

Stormwater and surface runoff from this property discharges directly to the LDW. COC exceedances in sediments adjacent to the facility may be attributed to discharge from the S 96th Street SD Basin via Outfall 2100(A) or direct discharge from the Duwamish Yacht Club. Contaminants in stormwater/surface runoff at the facility, if any, could recontaminate LDW sediments.

Spills

The Duwamish Yacht Club performs overwater activities. Spills from boat repairs and maintenance conducted by Duwamish Yacht Club members are a potential source of sediment COCs. Fueling operations at the dock area, if any, have the potential to spill to the LDW. Spills from fueling operations are harmful to the environment; however, petroleum hydrocarbons have not been identified as COCs for the LDW. The potential for sediment recontamination via spills is unknown.

Soil and Groundwater

There is no information available to determine if soil or groundwater contamination is present at this property. The potential for soil and groundwater contamination is unknown.

Bank Erosion/Leaching

The bank adjacent to the facility consists of exposed soil, vegetation, and riprap. Contaminants in bank soils (if any) could be released directly to sediments via erosion. The potential for sediment recontamination via bank erosion/leaching is unknown.

4.4.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with operations at the property is listed below:

- A source control inspection at the Duwamish Yacht Club is needed to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.
- Additional information is needed to determine if fueling operations and/or boat maintenance and repair operations are conducted at the facility.

- A review of the response from Duwamish Yacht Club to the CERCLA Section 104(e) Request for Information letter is needed to identify potential sources of sediment recontamination that may be associated with current and historical operations at the property.

4.5 Delta Marine Industries

Facility Summary: Delta Marine Industries	
Tax Parcel No.	0001600029, 0001600062, 5624200005, 5624200021, 5624200006
Address	0029: 1818 S 96th Street 98108 0062: 1801 S 93rd Street 98108 0005: 1835 S 96th Street 98108 0021: 1608 S 96th Street 98108 0006: 1745 S 96th Street 98108
Property Owner	0029: Mellon Trust of WA-Desimone 0062: Mellon Trust of WA-Desimone 0005: Delta Marine 0021: Delta Marine Industries Inc. 0006: Latitude Forty Seven LLC
Parcel Size	0029: 5.00 acres (217, 797 sq ft) 0062: 2.09 acres (90,867 sq ft) 0005: 3.07 acres (133,780 sq ft) 0021: 9.63 acres (419,668 sq ft) 0006: 4.54 acres (197,865 sq ft)
Facility/Site ID	86343865: Former Global Intermodal Systems 6915930: Delta Marine Industries 22978975: Delta Marine Industries Inc.
Alternate Name(s)	ITEL Terminals
SIC Code(s)	3799: Transportation Equipment (Global Intermodal Systems) 3441: Fabricated Structural Metal (Global Intermodal Systems) 3732: Boat Building and Repairing (Delta Marine)
EPA ID No.	WAD981764558: Global Intermodal Systems (inactive) WAD052593480: Delta Marine (active)
NPDES Permit No.	SO3001330: Global Intermodal Systems (inactive) WAG0300091: Delta Marine (active)
UST/LUST ID No.	None

Delta Marine Industries (Delta Marine) operates on parcels 0029, 0062, 0005, 0021, and 0006 (Figure 12). The facility is bordered by Hamm Creek to the south, West Marginal Place S and the 93rd Street Business Park to the west, the Duwamish Yacht Club and 93rd Street Business Park to the north, and the LDW to the east. According to King County tax assessor records, the Delta Marine facility consists of eleven buildings:

- a 6,000 sq ft industrial shop, built in 1979, on parcel 0029;
- a 1,600 sq ft open office, built in 1987, on parcel 0029;
- a 1,280 sq ft service repair garage, built in 1985, on parcel 0062;
- an 8,888 sq ft storage warehouse, built in 1965, on parcel 0005;
- a 30,400 sq ft storage warehouse, built in 1975, on parcel 0005;
- an 8,000 sq ft office building, built in 1985, on parcel 0021;
- a 63,760 sq ft industrial light manufacturing warehouse, built in 1977, on parcel 0021;
- a 28,700 sq ft industrial light manufacturing warehouse, built in 1970, on parcel 0021;
- a 77,740 sq ft industrial light manufacturing warehouse, built in 1975, on parcel 0021;
- a 1,440 sq ft office building, built in 1977, on parcel 0021; and
- a 62,000 sq ft industrial heavy manufacturing, built in 2005, on parcel 0006.

The facility also has a wharf extending from the shoreline and a lift pier for boat deployment and removal.

4.5.1 Current Operations

Delta Marine

Delta Marine began operating at the current facility in 1972 (Ecology 1995c). It is assumed Delta Marine began operating on parcels 0029 and 0062 after Global Intermodal Systems vacated the property.

The Delta Marine facility consists of buildings and paved areas with a small area of vegetation along West Marginal Place S. The company builds luxury yachts and performs vessel repairs (Delta Marine 2012c). The facility has three large assembly buildings, dry storage capabilities, and 560 feet of dockage. The banks adjacent to the LDW consist primarily of bulkhead, with a small-vegetated area at the southern property boundary. Vessels are removed from the LDW with a 400-ton Marine Travelift or 100-ton crane. The Hamm Creek Outfall is located south of the southern property boundary.

Materials and Waste Handling

As indicated in a 1995 Ecology inspection report, Delta Marine builds boats using polyester resins and fiber-reinforced plastic. Boat construction also uses solvents and polyurethane coatings. Leftover or unusable paint is catalyzed, dried, and disposed of as solid waste. The facility uses solvent parts washers for maintenance operations. The solvents include ethyl acetate, toluene, diacetone alcohol, dibasic ester, xylene, and paint thinner. Spent solvents from resin cleanup, parts washing, and paint cleanup are recycled at the facility. The facility uses a waste management company to dispose of waste oils, pressure washing residues, and antifreeze and coolants (Ecology 1995c).

Stormwater Discharges

Delta Marine began operating under an NPDES Boatyard General Permit in November 1993. Delta Marine’s 2012 SWPPP identified pressure wash debris, garbage dumps, resin dumps and tanks, still room use, and vehicle leaks as potential sources of stormwater contamination. The facility sweeps work areas daily, covers the main dumpster, and pressure washes only in approved areas. Preventative maintenance programs include daily vehicle and resin pump station inspections, spill kit checks, and inspecting pressure wash collection sumps (Delta Marine 2012b).

A large majority of boat construction is conducted under cover in self-contained buildings. The pressure wash pad conveys washwater to a treatment system located indoors. Stormwater grates have fabric socks in place to help control sediment and solids from entering the drainage system (Ecology 2001c). The facility map provided in the SWPPP indicates that stormwater drains to catch basins throughout the facility and is conveyed to the S 96th Street SD system. The SWPPP indicates stormwater from the southeastern portion of the facility near the boat ramp discharges to the Delta Marine Outfall (Figure 19a) (Delta Marine 2012b). Additional information about the Delta Marine Outfall was unavailable for review.

Diamond Painting

According to a January 2007 Ecology inspection, Diamond Painting LLC (Diamond Painting) is located on site at the Delta Marine facility. Diamond Painting is as a mobile marine service company that provides custom marine, auto, and aviation paint restorations (Diamond Painting 2012). Diamond Painting transports waste to Delta Marine’s glass shop where it is recycled with Delta Marine’s solvent or disposed of as hazardous waste. The Ecology inspection determined Delta Marine is ultimately responsible for ensuring Diamond Painting properly manages the company’s hazardous waste (Ecology 2009i).

Diamond Painting is also located in the Sea King Industrial Park facility. A review of information related to Diamond Painting operations at the warehouse location is described in Section 4.2.

4.5.2 Historical Operations

Former Global Intermodal Systems

In September 1992, Global Intermodal Systems (formerly known as ITEL Terminals) opened a container storage and repair operation on parcels 0029 and 0062. Activities included container washing and repair, generator maintenance and repair, and fueling operations. Facility operations were conducted at covered and uncovered locations, and on paved and unpaved areas (Global Intermodal 1996).

A SWPPP completed in 1996 lists petroleum products as primary pollutants of concern. Materials with the potential to be exposed to runoff included diesel fuel, hydraulic oil, work debris, used engine filters, and engine oil. Global Intermodal Systems installed catch basin filter inserts and berms around fueling operations and work areas to prevent stormwater runoff. The facility closed floor drains in the maintenance shop, and graded unpaved areas to prevent erosion. The facility connected drainage features of two washing areas to the sanitary sewer. The storm drains on the western portion of the facility conveyed stormwater to the S 96th Street SD system and storm drains on the eastern portion of the facility conveyed stormwater to the LDW (Figure 19b) (Global Intermodal 1996). It is not known if the outfall depicted in Figure 19b is Outfall 2100(A), Outfall 2100(B), or a previously unknown outfall.

On March 28, 2005, Global Intermodal Systems notified Ecology that the facility ceased operations at the property (Ecology 2005c).

4.5.3 Regulatory History

Former Global Intermodal Systems/ITEL Terminals

On June 2, 1993, ITEL Terminals submitted an application for coverage under the baseline general permit (ITEL Terminals 1993). Ecology issued ITEL Terminals an ISGP on June 23, 1993 (Ecology 1993n]). Global Intermodal completed a SWPPP on February 2, 1996 (Global Intermodal 1996). Ecology terminated the facility's ISGP on May 23, 2005 because Global Intermodal Systems ceased operation at the facility (Ecology 2005c). Additional information regarding regulatory history for Global Intermodal Systems was not available for review.

Delta Marine

Hazardous Waste Management

In April 1985, Delta Marine requested to withdraw the facility's EPA Identification number WAD05293480. Delta Marine indicated that the company was not involved in the generation or management of hazardous waste materials (Delta Marine 1985).

On May 5, 1986, an oil spill occurred at Delta Marine during fueling of fishing vessel F/V Trinity. The surface of the LDW affected by the oil spill was approximately 200 feet in diameter. The majority of the spillage was contained by the boat slips at the Duwamish Yacht Club to the north. Ecology arrived on site and instructed Delta Marine to initiate a small scale absorbent pad containment and cleanup operation (Ecology 1986c).

On November 24, 1986, Ecology issued Notice of Violation DE 86-N200 for the May 1986 oil spill at Delta Marine. The notice of violation required Delta Marine to provide a report to Ecology that included the following information (Ecology 1986i):

- A copy of the Certificate of Documentation for the fishing vessel F/V Trinity;
- A list of vessels owned in whole or in part by Delta Marine;
- Name, address, and telephone number of fuel company that supplied fuel to F/V Trinity; and
- A copy of Delta Marine's spill contingency plan or procedures for responding to oil spills.

Additional information about corrective actions conducted by Delta Marine was not available for review.

Ecology inspected Delta Marine on September 10, 1991. Inspectors detected a strong noxious smell while standing outside of the facility. Delta Marine attributed the noxious smell to resin application during boat building. Delta Marine indicated the Puget Sound Air Pollution Control Agency (now known as Puget Sound Clean Air Agency) inspected the facility annually. Air filters were changed on a monthly basis or more frequently depending on work load (Ecology 1991k.

Delta Marine stored two 10,000-gallon resin tanks inside a building designed to hold the volume of the tanks in the event of a spill. A high temperature still used to evaporate solvent was also located inside the building. The facility generated waste oils from fishing boats and forklifts. The oil storage area was located on a portion of the facility closest to the waterway. A tank and 55-gallon drums containing hydraulic oils and diesel fuels were stored on the ground without cover or secondary containment. Ecology requested that the facility clean oil stains observed around the drums and tank and provide a berm and cover for the storage area (Ecology 1991k).

In November 1991, Delta Marine constructed cement containment barriers for the 55-gallon drum storage area and cleaned up waste oil stains on surrounding soil near the storage area (Delta Marine 1991).

Ecology conducted a follow-up inspection at Delta Marine on December 19, 1991. Upon Ecology’s arrival, Delta Marine notified inspectors that the facility observed an oil spill on the LDW. Delta Marine and Ecology investigated the oil spill but were unable to determine the source. Ecology inspected the facility after the oil spill investigation. Delta Marine was in the process of constructing the new waste oil storage area (Ecology 1991o).

In August 1992, Ecology visited Delta Marine to assist the facility with developing a pollution prevention plan. Delta Marine had recently purchased a distillation unit used to reclaim spent cleaner and worked with the Washington Department of Labor and Industries to improve workplace air quality. Waste management included recycling wood, cardboard, wires, and several types of metals. The company reused many waste substances as ballast material in vessel construction. Ecology determined the majority of the pollution prevention plan should describe prevention actions already in place (Hamner 1992). Ecology approved an updated pollution prevention plan in April 1993 (Hamner 1993).

Ecology conducted a hazardous waste inspection on June 6, 1995. Inspectors identified the following corrective actions (Ecology 1995c):

- Designate all solid waste.
- Record monthly solvent recycling activities.
- Discontinue the use of non-fiber reinforced plastic still bottoms as filler, putty, or ballast material.
- Discontinue disposal of used lubricants and antifreeze at household collection sites.
- Designate and properly label all drums containing dangerous waste.

Delta Marine returned a completed compliance certificate on July 31, 1995 (Delta Marine 1995).

Ecology conducted a hazardous waste compliance inspection on November 8, 2000. Inspectors determined that spills and improper use of chemicals often resulted in significant pollution and releases to the environment. Ecology identified the following corrective actions (Ecology 2000g):

- Remove all hazardous or undesignated waste from the trash dumpster and manage appropriately.
- Record monthly solvent recycling activities and properly manage still bottoms.
- Designate and properly label all containers in satellite accumulation areas.

- Complete repairs or process changes needed to prevent the release of hazardous waste to the environment.

Additional information regarding compliance with corrective actions identified during the November 2000 inspection was not available for review.

Delta Marine failed to meet submission deadlines for pollution prevention planning during 2004 and 2005 (Ecology 2004b, 2005g).

Ecology conducted a dangerous waste compliance inspection at the facility on January 5, 2005. Inspectors identified the following corrective actions (Ecology 2005a):

- Properly label all drums containing dangerous waste.
- Ensure all containers holding dangerous wastes are closed except when adding or removing waste.
- Post spill control equipment locations and emergency contact information near waste handling areas.

Delta Marine returned a completed compliance certificate to Ecology on May 10, 2005 (Giustino 2005). Ecology reviewed the compliance checklist and determined the facility was in compliance (Ecology 2005d).

On February 24, 2009, Ecology conducted a dangerous waste inspection at the facility. Inspectors identified the following corrective actions (Ecology 2009i):

- Properly label all drums and containers containing hazardous waste.
- Replace the cubic yard box that is currently used to collect still bottoms with a 55-gallon drum.
- Prepare and maintain a written hazardous waste training plan.
- Develop and retain a contingency plan.
- Create and maintain treatment-by-generator logs.
- Close all containers holding dangerous waste.

Ecology also requested Delta Marine to determine if a waste clearance was required from King County for disposal of resin rags, paint booth filters, and evaporator sludge in a garbage dumpster at the facility. Ecology notified Delta Marine that the facility is ultimately responsible for ensuring Diamond Painting properly manages their hazardous waste (Ecology 2009i). Delta Marine submitted a completed compliance certificate on June 30, 2009 (Giustino 2009).

In August 2009, EPA imposed a civil penalty on Delta Marine for failure to submit chemical use reports by the reporting deadline. Delta Marine did not submit information for the use of styrene during years 2003, 2004, 2005, and 2007 (USEPA 2009c).

Stormwater Compliance History

On September 1, 1993, Delta Marine submitted an application for coverage under the boatyard general NPDES permit. On October 13, 1993, Ecology conducted a water quality inspection at the facility to determine if Delta Marine required coverage under a boatyard general permit or a baseline industrial stormwater permit. The facility's boat pressure washing operations required coverage under the boatyard general permit (Ecology 1993p). On November 4, 1993, Ecology issued Delta Marine coverage under boatyard general NPDES permit WAG030091. The permit authorized Delta Marine to discharge stormwater and/or pressure washwater to the LDW (Ecology 1993q).

On February 10, 1995, Ecology notified Delta Marine that the facility was required to submit final plans and specifications of the wastewater collection, containment, and treatment system for hull washing operations (Ecology 1995a). On February 20, 1996, Ecology approved a proposal for a treatment system to treat pressure washwater. The system is a closed loop system utilizing flocculation treatment technology (Ecology 1996g).

Ecology conducted a stormwater compliance inspection on March 2, 2001. The inspector observed drums outside of containment and cover and an uncovered dumpster that contained waste materials. Improper storage of waste materials had the potential to impact stormwater. Ecology inspected the pressure wash area that conveys washwater to a strip drain. The washwater is pumped to a treatment system located indoors. No corrective actions were issued (Ecology 2001c). Delta Marine submitted a hazard communication program to Ecology following the inspection (Delta Marine 2001a).

On April 13, 2001, Ecology issued Delta Marine a penalty for failure to collect water quality samples from stormwater discharge during May, June, September, and October 2000 (Ecology 2001f). In May 2001, Ecology denied Delta Marine's appeal of the violation and penalty (Ecology 2001g). Following the violation, Delta Marine has submitted discharge monitoring reports (DMRs) for all reporting periods from 2001 through 2012 (Delta Marine 2001b, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012a).

On June 20, 2001, Ecology conducted a site visit to establish a new point of compliance for the facility's discharge monitoring. Delta Marine is required to analyze discharge monitoring samples for oil and grease, copper, and total suspended solids (TSS). Ecology recommended collecting discharge monitoring samples from a catch basin (CB-18) located in a paved area on the eastern portion of the property (Ecology 2001h). The location CB-18 was not provided on the facility's SWPPP.

Ecology conducted an unannounced stormwater compliance inspection on August 31, 2005. Ecology made the following observations and recommendations (Ecology 2005f):

- Upland vessel repair BMPs need to be employed at all times.
- Pressure washing needs to occur at a properly structured pressure wash pad.
- Catch basin socks need to be inspected more frequently and changed accordingly.
- Resin waste needs proper cover and secondary containment.
- Chemicals and fluids need to be stored properly.
- Garbage bins need solid covers.
- Spills need to be contained and cleaned up immediately.

Ecology requested an as-built drawing of the property to review the stormwater drainage system and subsequent drainage to the LDW (Ecology 2005f). Additional information regarding Delta Marine's follow-up actions was not available for review.

Ecology renewed Delta Marine’s coverage under the boatyard NPDES permit on November 2, 2005 (Ecology 2005h). Ecology conducted a NPDES inspection on January 25, 2007. Similar issues identified during the August 2005 inspection were observed. Ecology identified the following corrective actions for compliance with Delta Marine’s boatyard NPDES permit (Ecology 2007b):

- Properly operate and maintain all facilities or systems of treatment and control.
- Do not discharge pressure wash wastewater directly to any surface water of the state.
- Paints and solvents should be used in such a way to prevent their release into the environment.
- Manage all solid waste materials, including leachate, to prevent their release into the environment and entry into waters of the state.
- Collect solids, oils, and grits at a minimum of once daily to prevent release into the environment.
- Prepare and maintain a SWPPP.
- Monitor stormwater discharges from locations affected by boatyard related activities.

Additional information regarding Delta Marine’s actions to correct permit violations was not available for review.

Ecology conducted a boatyard general permit inspection on October 2, 2008. Ecology inspectors issued the following corrective actions (Ecology 2008am):

- Develop a site drainage map.
- Begin stormwater monitoring at the pressure washing area.
- Visually inspect storm drains and catch basins weekly.
- Fix cracks in acetone containment berm.
- Install an impervious berm in the solvent still area.
- Clean up all spilled sandblasting waste and do not allow spent sandblasting waste to be exposed to the elements or surface water.
- Do not allow any process wastewater to enter any storm drains.

Ecology determined all permit compliance concerns were corrected during a boatyard general permit inspection on October 10, 2009. Inspectors identified the following additional corrective actions (Ecology 2009s):

- Update the facility drainage map to include drainage features for the areas around the treatment system, wash pad area near the large boatlift, and small boatyard.
- Begin stormwater monitoring at the pressure washing area near the large boatlift.
- Only wash vessels over the wash pad area, collect and discharge the washwater to the facility’s treatment system.

Additional information regarding compliance with corrective actions was not available for review.

Ecology replaced Delta Marine's 2005 boatyard general permit with a new permit on March 2, 2011 (Ecology 2011c).

Diamond Painting

Ecology inspected the Diamond Painting facility located on site at the Delta Marine facility (address 1818 S 93rd Street) on August 13, 2008. Inspectors identified the following issues (Jeffers 2008b):

- Inside floor drains need to be blocked to prevent washwaters from discharging to the storm drain system.
- Waste containers were not properly marked or closed.
- Vehicle washwater was discharged to storm drains.

Ecology determined additional corrective actions were required during a follow-up inspection on October 2, 2008 (Jeffers 2008c). Additional information regarding corrective action completion was not available for review.

CERCLA Section 104(e) Requests

EPA sent CERCLA Section 104(e) Request for Information Letters to Global Intermodal Systems on May 24, 2011 (USEPA 2011). The information request included parcel 0001600029; along with Global Intermodal Systems' properties located on the east bank of the LDW. A response to the request was not available for review at the time this report was prepared.

EPA sent CERCLA Section 104(e) Request for Information Letters to Delta Marine and Latitude Forty-Seven LLC in March 2008 and Mellon Trust of Washington in April 2009 (USEPA 2008a, 2008b, 2009a). The request was for parcels 5624200005, 2624200006, 5624200990, 0001600062, 0001600029, and 0001600061. Responses to the requests were not available for review at the time this report was prepared.

4.5.4 Potential for Sediment Recontamination

Concentrations of PCBs in LDW sediment adjacent to the Delta Marine facility have exceeded the SQS (Figure 13c, Table 3). The potential for sediment recontamination associated with this property is summarized below by transport pathway.

Stormwater and Surface Runoff

A stormwater drainage map (Figure 19b) for Global Intermodal Systems indicates the eastern portion of parcels 0029 and 0062 discharge directly to the LDW. It is not known if this portion of the facility discharges to Outfall 2100(B) and/or is an ongoing source of pollutants. Contaminants in stormwater and/or surface runoff from parcels 0029 and 0062, if any, could recontaminate LDW sediments.

Stormwater and surface runoff from the majority of Delta Marine is conveyed to the S 96th Street SD prior to discharge to the LDW. The southeast portion of the facility conveys stormwater to the Delta Marine Outfall. The October 2009 boatyard general permit inspection identified corrective actions that included stormwater monitoring at the pressure washing area and updating the facility drainage map (Ecology 2009s). Stormwater from the washpad area is collected and diverted to a treatment system. Potential for sediment recontamination via the stormwater pathway is low provided the improvements and source control BMPs are maintained.

Spills

Delta Marine has implemented appropriate spill prevention and response procedures as requested by Ecology. The area of the property that is immediately adjacent to the LDW is paved and used for boat moorage and/or boat removal and deployment. Overwater operations are limited to boat haul out. Therefore, the potential for sediment recontamination via the spills pathway is low.

Soil and Groundwater

Soil and groundwater contamination has not been identified at the property. However, given the historical container maintenance operations conducted on unpaved areas of parcels 0029 and 0062, there is potential for soil and groundwater contamination at the facility. The potential for sediment recontamination via groundwater discharge is unknown.

Bank Erosion/Leaching

The bank adjacent to the facility consists of primarily bulkhead with a small vegetated area south of the boat lift. Contaminants in bank soils (if any) could be released directly to sediments via erosion. The potential for sediment recontamination via bank erosion/leaching is low.

4.5.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with operations at the property is listed below:

- An updated facility map that includes details of the stormwater drainage systems associated with the treatment system, was pad near the large boat lift, Outfall 2100(B), Delta Marine Outfall, and parcels 0029 and 0062 is needed to assess the stormwater pathway at the facility.
- Additional information regarding the historical operations performed prior to Global Intermodal Systems and Delta Marine is needed to determine if operations may have resulted in releases of contaminants to soil and/or groundwater.
- A review of the responses from Global Intermodal Systems, Delta Marine, and Latitude Forty-Seven LLC to the CERCLA Section 104(e) Request for Information letters is needed to identify potential sources of sediment recontamination that may be associated with current and historical operations at the property.

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5.0 Potential for Sediment Recontamination from Upland Properties in the S 96th Street SD Basin

Upland properties in the S 96th Street SD basin that could potentially affect sediments near the Sea King Industrial Park source control area are described in the following sections. Parcel identification numbers for upland properties within the Sea King Industrial source control area are shown in Figure 12.

The upland properties are discussed by city blocks, starting at the northeast portion of the source control area, with the facilities located between S Director Street and SR 99 discussed first. Upland properties are discussed in order of north to south.

The upland properties are not adjacent to the LDW; therefore, surface runoff or spills directly to the waterway and bank erosion are not potential sediment recontamination pathways and will not be discussed in this section. All facilities, with the exception of the King County Housing Authority property, in the northwest corner of the source control area, are located within the 8th Avenue S CSO basin; however, the 8th Avenue S CSO discharges to the LDW via an outfall in the Riverside Drive source control area. The 8th Avenue S CSO will not be discussed further in this report. Contaminants from upland properties could be transported to the LDW via stormwater and groundwater discharge pathways.

Stormwater and Spills

- Stormwater associated with these properties is conveyed to the sediments adjacent to the Sea King Industrial Park source control area through the S 96th Street SD system. Sediment COCs suspended in stormwater, if any, may be conveyed to the LDW.
- If spills occur at these properties, the spilled materials may flow directly to storm drain catch basins on or adjacent to the property or become commingled with stormwater and be conveyed to the catch basins.
- Contaminants in soil and groundwater beneath these properties, if any, may leach into groundwater and infiltrate the storm drain system through open drainage ditches or cracks in pipes. Any concentrations of sediment COCs are likely to be highly diluted, especially when the infiltrating groundwater commingles with stormwater.

Groundwater Discharge

For many of the upland properties within the S 96th Street SD basin, there is no available information that indicates the presence of soil and/or groundwater contamination. Soil and/or groundwater investigations have been performed at the facilities listed below.

Facility	Contaminated Soil	Contaminated Groundwater
Kaspac Chiyoda Property	●	●
Gary Merlino Construction	●	●

Facility	Contaminated Soil	Contaminated Groundwater
Puget Sound Coatings	●	●
Markey Property	●	●
All City Auto Wrecking	●	●
Fruehauf Trailer Services	●	●
Former Advance Electroplating	●	●
M.A. Segale Asphalt Plant	●	
Former Penberthy Electromelt	●	
Selland Auto Transport	●	●
Norman Property	●	

Additional information regarding the environmental investigations and cleanups is included in the facility-specific sections.

5.1 Carey Limousine Service

Facility Summary: Carey Limousine Service	
Tax Parcel No.	0001600016
Address	1237 S Director Street 98108
Property Owner	South Director LLC
Parcel Size	1.05 acres (45,843 sq ft)
Facility/Site ID	2489: Kaspac Chiyoda Property
Alternate Name(s)	Carey Limousine, Cascade Transmission Company, Chiyoda International Corp, Kaspac Chiyoda Property, Kaspac Corp Seattle, Kaspac Corporation, Tukwila Roofing Co
SIC Code(s)	9999 Nonclassifiable Establishments
EPA ID No.	WAD027460955: Kaspac Chiyoda Property (inactive)
NPDES Permit No.	None
UST/LUST ID No.	None

The Carey Limousine Service (Carey Limousine) operates at parcel 0016 (Figure 12). The facility is bordered by SR 99 to the south, 14th Avenue S to the east, S Director Street to the north, and Pacific Industrial Supply to the west.

King County tax assessor records indicate that two buildings are located on parcel 0016:

- a 3,456 sq ft industrial building built in 1950, and
- a 3,600 sq ft industrial building built in 1963.

The Chiyoda International Corporation (CIC) was a historical operator at the property, also known as the Kaspac Chiyoda Property in Ecology’s FSID database. This report will refer to the property as the Kaspac facility.

5.1.1 Current Operations

Carey Limousine currently operates a limousine and van service at 1237 S Director Street. The facility is occupied by buildings and a paved lot used to park vehicles when not in use. Vehicles are washed and maintained in a covered garage and wash bay. The wash bay is connected to the sanitary sewer (King County 2003). Additional information regarding current operations at the facility was not available for review.

5.1.2 Historical Operations

The property was undeveloped prior to 1960 and used for agriculture and the storage of agricultural equipment. Between 1960 and 1972, the facility was a used car lot with an operating gas station on the property. CIC purchased the property in 1972. From 1972 to 1988, the property was operated by a road paint striping company, Paint-A-Line, where CIC was a part owner. Waste paint from the paint operations was dumped to the ground adjacent to a paint shed. Between 1988 and 1997, the property was leased by several companies, including a transmission repair shop, construction contracting company, and roofing contractor (Chiyoda 1992a).

King County inspected Cascade Transmission Service at 1237 S Director Street in 1994 and Tukwila Roofing at 1237 S Director Street in 1996 (King County 1998a). Additional information regarding historical operations at Cascade Transmission Service and/or Tukwila Roofing was not available for review.

According to King County tax assessor records, CIC sold the property in 1997. Environmental investigations at the property indicate that CIC sold the property following a no further action determination by Ecology after remediation of BTEX and TPH contamination.

5.1.3 Regulatory History

Kaspac Chiyoda Property

On March 22, 1989, Ecology inspected the Kaspac facility. The inspector observed machinery leaking hydraulic fluid and an oily substance on the ground. Stormwater at the property was conveyed toward a drainage ditch south of the property via sheet flow. Ecology observed an oily substance on the water surface in the drainage ditch (Ecology 1989a). Ecology made the following recommendations (Ecology 1989b):

- Properly store equipment or containers with the potential for petroleum release.
- Identify, characterize, and dispose of contaminated soils at the facility.

On April 11, 1989, Kaspac notified Ecology that the company cleaned up and removed the contaminated soil from the facility. Kaspac also removed the leaking equipment from the property (Ecology 1989c). Kaspac submitted a hazardous waste manifest and bill of lading for disposal of contaminated soils on May 12, 1989 (Kaspac 1989).

King County inspected Cascade Transmission Service in February 1994. The inspector made the following observations (King County 1998a):

- Tar buckets, materials, and equipment used in the roofing process were left uncovered.
- Transmissions and other auto parts were stored uncovered on the north side of the facility.
- Barrels and drums of waste fluids were uncovered and unprotected.

King County inspected Tukwila Roofing in July 1996. It is assumed Tukwila Roofing began operation at the property between the King County inspections in 1994 and 1996. The inspector identified the following corrective actions (King County 1998a):

- Store liquids inside or under cover with secondary containment.
- Sweep storage areas on a regular basis.

Tukwila Roofing closed on April 6, 1998 (King County 1998a).

Between 1990 and 1997, Kaspac conducted several soil and groundwater investigations and remedial actions at the property. On February 7, 1997, Ecology determined no further action was necessary at the site with regard to the release of TPH and toluene to groundwater and/or upland soil. Ecology indicated confirmation monitoring of permanent wells (MW-9, MW-10, and MW-11) on and adjacent to the southern portion of the property should be conducted for three additional quarters (Ecology 1997a). On May 16, 1998, Ecology issued a no further action following completion of confirmation sampling (Ecology 1998c). Additional information regarding environmental investigations and cleanups is provided in Section 5.1.4.

Carey Limousine

King County conducted a business visit at Carey Limousine in April 1998. King County issued the following corrective actions (King County 2003):

- Limit vehicle washing to the gravel area of the property until the wash pad is connected to the sanitary sewer system.
- Place spill control kits in maintenance areas.
- Stencil the storm drains at the facility.

King County re-visited the facility in January 2003. King County issued a Notice of Violation to Carey Limousine for failure to connect the vehicle wash pad to the sanitary sewer. During a follow-up inspection in May 2003, King County confirmed that vehicle-washing operations had been moved inside and the wash pad drain was connected to the sanitary sewer (King County 2003).

Ecology conducted an Urban Waters Environmental Compliance inspection at the facility on August 16, 2011. Ecology identified the following corrective actions (Ecology 2012h):

- Determine need for permit to discharge washwater to the sanitary sewer.
- Improve housekeeping and spill response procedures.
- Improve waste handling and storage.

5.1.4 Environmental Investigations and Cleanups

Several environmental investigations and cleanups have been performed at this property. Sample locations are presented on Figure 20 and a summary of chemicals that exceeded soil and groundwater screening levels are presented in Tables 10 and 11. A summary of all chemicals detected in soil at the property is included in Appendix C, Table C-5 and Table C-6.

Phase I Environmental Site Assessment and UST Removal (1989)

In September 1989, a Phase I Environmental Site Assessment (ESA) was conducted at Kaspac to observe and evaluate subsurface conditions during removal of an 8,000-gallon UST (Figure 20). The Phase I ESA also assessed the potential for subsurface contamination caused by historical activities at the property (GeoEngineers 1989b)

During the tank excavation, one soil sample was collected from each sidewall and the base of the excavation. Five samples were analyzed for BTEX and TPH. BTEX and TPH concentrations were below MTCA Method A cleanup levels. The report recommended the excavation of petroleum-impacted soil along the western edge of the tank removal (Chiyoda 1992a). Sample locations within the excavation were not available for review.

The Phase I ESA determined a small area west of the main building was used for paint disposal. Approximately 10 to 15 55-gallon drums containing uncharacterized material were stored on the loading dock at the southern boundary of the property. The report recommended additional testing for potential contamination from previous spills and disposal practices (Chiyoda 1992a).

Following the Phase I ESA, CIC completed removal and disposal of paint-contaminated soil (Chiyoda 1992a).

Phase II Environmental Site Assessment (1990)

A Phase II ESA was conducted at the facility in January and February 1990. Three soil borings were advanced to a depth of 15 feet bgs and completed as monitoring wells (Figure 20). Wells MW-1 and MW-2 were completed along the fence line between the Kaspac Chiyoda Property and Precision Engineering to the west. Well MW-3 was completed down gradient of the previous tank excavation. Soil samples were collected at the capillary fringe and analyzed for TPH, concentrations did not exceed the MTCA Method A cleanup level for soil. Groundwater samples were analyzed for VOCs (Applied Consultants 1990a). Benzene and TCE concentrations in the groundwater sample collected from MW-3 exceeded MTCA Method A cleanup levels.

Monitoring wells MW-4 through MW-6 and one soil boring (B-7) were completed in August 1990. Well MW-3 was developed into a 2-foot diameter recovery well for remediation of impacted groundwater from the former UST (Figure 20). Boring B-7 was drilled near the loading dock, but the exact location is not known. Toluene concentrations (up to 4,700 mg/kg) in boring B-7 exceeded the MTCA Method A cleanup level. Groundwater samples collected from MW-4 through MW-6 were analyzed for VOCs and petroleum hydrocarbons. Concentrations of petroleum hydrocarbons and VOCs were either not detected or detected below MTCA Method A cleanup levels in groundwater collected from MW-4 and MW-5. Gasoline-range hydrocarbons and benzene concentrations exceeded MTCA cleanup levels in wells MW-6 and RW1-1 (former MW-3). PCE and toluene concentrations also exceeded MTCA cleanup levels in well MW-6 (EMCON 1995b).

In November 1990, contaminated soils from the former UST were excavated and stockpiled onsite. The facility applied for a permit to discharge treated groundwater from the UST excavation to the sanitary sewer (Applied Consultants 1990b).

Contamination Study (1991)

In April 1991, three additional soil borings were drilled at the south end of the property to depths between 12 and 14 feet bgs. The borings were completed as groundwater monitoring wells (MW-7 through MW-9). Soil borings were composited and groundwater samples collected from MW-6 through MW-9 were analyzed for VOCs. VOC concentrations in soil samples were either not detected or detected below MTCA Method A cleanup levels. Toluene concentrations in groundwater collected from MW-6 (430,000 µg/L) exceeded the MTCA Method A cleanup level for groundwater (Chiyoda 1992b).

Soil samples (SP1 and SP2) collected from backfilled material from the 1989 UST excavation were analyzed for TPH and BTEX. TPH and BTEX concentrations were either not detected or detected below MTCA Method A cleanup levels for soil. Stockpiled soils were cleared for use as backfill at the property (Chiyoda 1992b).

Recovery System Installation and Operations (1991 to 1992)

The Municipality of Metropolitan Seattle (METRO) granted a discharge permit for the facility to install a double-piped recovery system into the existing sewer hookup at the property. The pump system was installed at the previous UST excavation. Remedial activities at the former UST are separate from the groundwater investigation at the south of the property. The pump system discharged approximately 240 gallons of treated groundwater to the sanitary sewer daily. At the start of pump system, a groundwater sample was collected from the recovery well and analyzed for BTEX and TPH. Concentrations of benzene (4.8 µg/L) in the recovery well sample exceeded the MTCA Method B cleanup level for groundwater (0.8 µg/L) (Chiyoda 1992b).

In October 1991, underground piping was installed from MW-6 (also known as recovery well RW-2) to a water treatment system. The treatment system discharged treated groundwater to the sanitary sewer. Between December 1991 and March 1992, toluene decreased from 310,000 µg/L to 41,500 µg/L. Both remedial groundwater-pumping systems on the central and southern areas of the property were decommissioned in April 1992. Recovery monitoring wells RW-1 and RW-2 were abandoned in May 1992 (Applied Consultants 1992; EMCON 1995b).

On July 8, 1992, CIC requested Ecology to review previous environmental investigations and issue a Site Closure determination (Chiyoda 1992a). Ecology did not make a preliminary evaluation of the site assessment or cleanup actions because not all laboratory and sampling data were included in the closure request. Ecology recommended sampling for total metals in soil and groundwater; and requested monthly or quarterly monitoring to ensure contaminant levels were reduced below cleanup levels (Ecology 1992i).

Data Review and Analytical Results (1993)

On June 3, 1993, groundwater samples were collected from MW-8 and MW-9 and analyzed for VOCs and chlorinated VOCs. The groundwater sample collected from MW-9 was analyzed for metals (Pacific Testing Labs 1993). VOCs, chlorinated VOCs, and chromium and lead concentrations were below MTCA cleanup levels.

Soil and Groundwater Sampling and Analysis (1994)

In January 1994, three additional soil borings (SB-A, SB-B, and MW-6) were drilled in the area near the paint shed. The soil borings were analyzed for VOCs. A surface soil sample was collected near the former paint shed at a depth of approximately 9 inches bgs and analyzed for metals. VOC concentrations in soil samples collected from SB-B and MW-6 were below MTCA Method A cleanup levels for soil. Toluene concentrations in the soil sample collected from SB-A at depths of 2.5 and 7.5 ft bgs exceeded the MTCA Method A cleanup level. Metal concentrations in the soil sample collected near the former paint shed were below MTCA cleanup levels (EMCON 1995b).

Soil boring location MW-6 was completed as a monitoring well and replaced the previous MW-6, which was converted into a groundwater recovery well (RW-2). Groundwater samples were collected from MW-6, MW-8, and MW-9 and analyzed for VOCs. Concentrations of benzene and toluene in the groundwater sample collected from MW-6 exceeded MTCA Method A cleanup levels for groundwater. VOC concentrations in groundwater collected from MW-8 and MW-9 was either not detected or detected below MTCA Method A cleanup levels (EMCON 1995b).

Analytical data from this investigation were not available for review and have not been included in the Data Gaps Report tables.

Subsurface Soil and Groundwater Investigation (1994)

In December 1994, a subsurface soil and groundwater investigation was completed at the southern portion of the Kaspac property. On December 2, 1994, groundwater samples were collected from MW-6 through MW-9 and analyzed for TPH, VOCs, and metals (Pacific Testing Labs 1995). Benzene, cadmium, chromium, copper, lead, zinc, benzene, toluene, and total recoverable petroleum hydrocarbons concentrations exceeded MTCA cleanup levels. Cadmium, chromium, copper, silver, and zinc exceeded the draft groundwater-to-sediment screening levels (Table 11).

On December 6 and 7, 1994, three soil borings were completed as groundwater monitoring wells (MW-10, MW-11, and MW-12) to a depth of 15 feet bgs. Nine soil samples were collected from the borings, ranging in depth of 2 to 12 feet bgs. Soil samples were analyzed for VOCs, TPH, and metals. VOCs and TPH concentrations were not detected in any soil samples (Pacific Testing Labs 1995). Metal concentrations in soil samples were below MTCA cleanup levels for soil. Zinc concentrations at location B-11 and B-12 at depths of 2 feet bgs exceeded the draft soil-to-sediment screening level.

On December 15, 1994, groundwater samples were collected from monitoring wells MW-6 through MW-12. Groundwater elevations ranged from 1.65 to 6 feet bgs. Groundwater flow direction was generally east towards the LDW. Groundwater samples were analyzed for VOCs. BTEX concentrations in MW-7 through MW-10 and MW-12 were below MTCA Method A cleanup levels for groundwater. Benzene and toluene concentrations in MW-6 exceeded MTCA

Method A cleanup levels for groundwater. Benzene concentrations in MW-11 exceeded the MTCA Method A cleanup level for groundwater (Pacific Testing Labs 1995).

The investigation concluded the toluene plume in groundwater was confined to the area around MW-6. An excavation of approximately 250 cubic yards of contaminated soil was recommended for remediation of the plume (Pacific Testing Labs 1995).

Independent Remedial Action Report (1995)

An Independent Remedial Action (IRA) Report completed in November 1995 summarized historical remedial actions at the property and performed two additional groundwater monitoring sampling events in May and July 1995 (EMCON 1995b). Concentrations of arsenic, chromium, copper, lead, zinc, petroleum hydrocarbons, benzene, and toluene exceeded MTCA cleanup levels for groundwater. Copper, lead, and zinc concentrations also exceeded the draft groundwater-to-sediment screening levels (Table 11).

On November 14, 1995, CIC and the company’s environmental consultants submitted the IRA report to Ecology for review (EMCON 1995c). Ecology determined that in order to obtain a “No Further Action” status for the site, additional assessment of the contaminant source areas, site hydrogeologic conditions, and proper abandonment of several former wells was required (EMCON 1996).

Addendum to Independent Remedial Action Report (1996)

Previous investigations determined the loading dock, former UST, and former paint shed were potential contaminant source areas. On June 6, 1996, three soil borings (GB-1 through GB-3) were advanced near the loading dock, one boring (GB-4) was advanced at the former paint shed, and five borings (GB-5 through GB-9) were advanced near the former UST (Figure 20). Soil samples were collected from approximately 0.5 to 2 feet bgs at borings GB-1 through GB-4 and approximately 2 to 4 feet bgs at borings GB-5 through GB-9. All soil samples, with the exception of GB-4 samples, were analyzed for TPH. Soil samples collected from GB-5 through GB-9 were analyzed for BTEX constituents and total metals. Soil samples collected from GB-4 were analyzed for VOCs and total metals (EMCON 1996). Arsenic concentrations in GB-4 at depths of 1.5 feet and 3 feet bgs exceeded the MTCA Method B cleanup level for soil. Gasoline-range hydrocarbons and benzene concentrations in soil collected from GB-8 at a depth of 4 feet bgs exceeded MTCA Method A cleanup levels for soil. Benzene, toluene, xylenes, and PCE concentrations at GB-1 at a depth of 1.5 feet bgs and toluene concentrations at a depth of 3 feet bgs exceeded MTCA Method A cleanup levels for soil (Table 10).

Prior to completion of borings GB-4 and GB-5, temporary wells were installed in the borings to characterize groundwater conditions beneath the former paint shed and UST. Groundwater samples were collected and analyzed for TPH and VOCs. Groundwater from GB-4 was analyzed for total and dissolved metals (EMCON 1996). VOCs and metals were detected below MTCA cleanup levels for groundwater. Diesel-range hydrocarbon concentrations in both samples exceeded the MTCA Method A cleanup level for groundwater.

A hydrogeologic assessment conducted between July 5 and 7, 1996 determined there is minimal (up to 0.05 feet) tidal influence on the shallow water-bearing zone at the property. On July 9, 1996, former groundwater monitoring wells (MW-1, MW-2, and OB1) and one former groundwater recovery well (RW-1) were decommissioned (EMCON 1996).

On August 22 and 26, 1996, hydrocarbon-impacted soils were excavated from areas around GB-1 and GB-8. Approximately 22 cubic yards of soil were removed from the excavation at GB-8, to a depth of 4 feet bgs. Discrete soil samples were collected from the sidewalls of the excavation and analyzed for BTEX and gasoline-range hydrocarbons. BTEX and gasoline-range hydrocarbon concentrations were not detected in any of the samples collected from the excavation. The excavation was backfilled with clean sand and crushed rock (EMCON 1996).

Approximately 7 cubic yards of soil were removed from the area around GB-1, to a depth of 2 feet bgs. Discrete soil samples were collected from the sidewalls and base of the excavation at GB-1. Soil samples were analyzed for diesel- and heavy-oil range hydrocarbons. Heavy-oil range hydrocarbon concentrations were detected at concentrations above the historical MTCA Method A cleanup level (200 mg/kg) in all sidewall samples. An additional 4 cubic yards of soil were excavated and the sidewalls were resampled. Soil with concentrations of heavy-oil-range hydrocarbon exceeding the historical MTCA Method A cleanup level remained on the east and south sidewalls. The excavation was backfilled with clean sand and crushed rock (EMCON 1996).

Following the remediation of TPH and VOCs in the soil and groundwater at the site, the addendum to the IRA report recommended no further action (EMCON 1996).

Additional Soil Remediation Activities Report (1997)

On January 2, 1997, approximately 6.7 cubic yards of petroleum-impacted soil was excavated from along the east and south sidewalls of the August 1996 loading dock area excavation. Confirmation soil samples were collected from the final extents of the excavation and analyzed for BTEX and TPH. Benzene, toluene, and gasoline-range hydrocarbon concentrations in the soil sample collected from the south sidewall of the excavation exceeded MTCA Method A cleanup levels for soil. Diesel-range hydrocarbon concentrations in soil collected from the east sidewall of the excavation were detected above the MTCA Method A cleanup level for soil. On January 4, 1997, the east sidewall was extended another 3 feet to remove the remaining impacted soil. A soil sample was collected from the sidewall and analyzed for oil-range hydrocarbons. Heavy-oil range hydrocarbons were detected below the MTCA Method A cleanup level (EMCON 1997).

Groundwater samples were collected from five wells located at the southern portion of the property (MW-7 through MW-10, and MW-12) and analyzed for BTEX and TPH. Benzene concentrations in MW-8 and toluene, gasoline- and oil-range hydrocarbon concentrations in MW-9 exceeded MTCA Method A cleanup levels for groundwater (EMCON 1997).

On February 7, 1997, Ecology determined no further action was necessary at the property with regard to the release of TPH and toluene to groundwater and/or upland soil. Ecology indicated confirmation monitoring of permanent wells (MW-9, MW-10, and MW-11) on and adjacent to the southern portion of the property should be conducted for three additional quarters (Ecology 1997a).

Additional Groundwater Sampling Report (1997)

Quarterly groundwater samples were collected from wells MW-9, MW-10, and MW-11 on April 8 and 14, June 23, and September 30, 1997. All samples were analyzed for BTEX. Benzene concentrations in well MW-9 were below the MTCA Method A cleanup level in the first two quarters of monitoring but exceeded the cleanup level in September 1997. Benzene concentrations in MW-11 exceeded the MTCA Method A cleanup level during the first quarter of monitoring; but were below the cleanup level during the second and third monitoring events. Toluene concentrations in MW-9 exceeded the MTCA Method A cleanup level during the first and second quarter of monitoring but were below the cleanup level during the third quarter (EMCON 1998). Ecology determined no further monitoring was required following the review of the groundwater monitoring report (Ecology 1998c).

5.1.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

According to a 1989 Ecology inspection at the property, stormwater is conveyed to a drainage ditch at the south end of the facility via sheet flow. Additional information regarding facility drainage and current stormwater control practices at the facility was not available for review. Potential for sediment recontamination via stormwater pathway is unknown.

Groundwater Discharge

Historical activities at the facility resulted in the release of TPH, BTEX, and metals to soil and groundwater. Soil excavations and groundwater monitoring at the facility resulted in a no further action determination from Ecology in 1998. Potential for sediment recontamination due groundwater discharge is low.

5.1.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- Additional information is needed to determine if Carey Limousine is in compliance with corrective actions identified during the August 2011 Ecology inspection.

5.2 Former Precision Engineering/Pacific Industrial Supply

Facility Summary: Former Precision Engineering/Pacific Industrial Supply	
Tax Parcel No.	0001600055
Address	1231 S Director Street 98108
Property Owner	Pacific Industrial Supply
Parcel Size	3.55 acres (154,611 sq ft)

Facility Summary: Former Precision Engineering/Pacific Industrial Supply	
Facility/Site ID	1143511: Pacific Industrial Supply 2056: Former Precision Engineering
SIC Code(s)	Precision Engineering 3471: Electroplating, Plating, Polishing, Anodizing, and Coloring 3599: Industrial and Electrical Machinery, not elsewhere classified Pacific Industrial Supply 4499: Water Transportation Services 5051: Metals Service Center and Offices 5088: Transportation Equipment and Supplies 5251: Hardware Stores
EPA ID No.	WAD041338252: Precision Engineering (inactive)
NPDES Permit No.	WAR125474: Pacific Industrial Supply SO3001925: Precision Engineering (inactive)
UST/LUST ID No.	UST 8205: Precision Engineering

Pacific Industrial Supply operates at parcel 0055 (Figure 12), which is bordered by SR 99 to the south, Carey Limousine to the east, S Director Street to the north, and 12th Avenue S to the west. The property is approximately 1,800 feet west of the LDW. King County tax assessor records indicate that there is one building on the property, a 62,000 sq ft industrial manufacturing warehouse and office constructed in 1968.

Surface water runoff from the property enters a drainage ditch that runs parallel to the southern property boundary. Other inputs to the drainage ditch include surface runoff from adjacent properties to the west and east, as well as 14th Avenue and the SR 99 on-ramp (MFA 2008).

5.2.1 Current Operations

Pacific Industrial Supply began operating at the 1231 S Director Street property in 2005. The company operates a wholesale and retail store that supplies commercial tools, safety equipment, parts, hardware, metal bar stock, commercial fishing line and wire rope. The company also manufactures wire rope assemblies. A mechanical repair shop for repair and refurbishment of used equipment is present at the facility. The company also has a welding shop for small orders and cutting steel bar (Ecology 2008o).

According to a 2008 Ecology inspection, old equipment, forklifts, trucks, containerized liquid product and waste oils, galvanized pipe, metal scrap, and open solid waste containers are stored outside in a paved storage yard at the rear and side of the building. Stormwater from the storage yard is conveyed to a single storm drain at the south side of the property. The stormwater discharges to a drainage ditch directly south of the property (Ecology 2008o).

5.2.2 Historical Operations

Precision Engineering operated at the property from 1966 until March 2005. Precision Engineering manufactured and repaired hydraulic cylinders, ship propellers and other marine equipment, and smaller items such as the blade assembly used by fast food restaurants to cut

French fries. The company performed precision grinding and polishing, honing, milling, and welding. Hard chrome-plating and flame- and arc-applied metal coatings were applied at the facility (Precision Engineering 1993; MFA 2008).

Six lead-lined chrome-plating tanks were maintained at the facility. Four of these tanks were installed in containment vaults, which were recessed into the facility floor. A 24-foot-long, 8-foot-wide, and 16-foot-deep vault was installed in 1980 to contain sodium hydroxide and sodium bicarbonate strip tanks. Temporary aboveground plating tanks were used also at the facility. All of these tanks were removed from the property in 2005. A petroleum UST, which provided fuel to the facility's boiler, was abandoned in place in 1992 (MFA 2008). A tank holding TCE was present at the property, though use of this chemical ceased in the mid-1980s (Precision Engineering 1993). Historical tank information is provided below (Precision Engineering 2005). The former facility features are shown on Figure 21a.

Tank ID	AST/UST	Size (Gallons)	Contents	Status & Date
TCE Tank	AST	Unknown	TCE	Removed 1986
Tank 1 (older)	AST – in vault	2,050	Chromic Acid	Removed 1990
Tank 2 (older)	AST – in vault	910	Chromic Acid	Removed 1990
Tank 3 (older)	AST	365	Chromic Acid	Removed 1992
Tank 4 (older)	AST – in vault	1,880	Chromic Acid	Removed 1992
Tank 5	AST – in vault	2,260	Chromic Acid	Removed 1992
Tank 6	AST – in vault	2,260	Chromic Acid	Removed 1992
Tank 1 (newer)	AST – in vault	2,200	Chromic Acid	Removed 2005
Tank 2 (newer)	AST – in vault	2,220	Chromic Acid	Removed 2005
Tank 3 (newer)	AST	550	Chromic Acid	Removed 2005
Tank 4 (newer)	AST	1,600	Chromic Acid	Removed 2005
Tank 7	AST – in vault	3,200	Chromic Acid	Removed 2005
Caustic Hot Tank	AST – in vault	375	Sodium Hydroxide	Removed 2005
Strip Tank	AST	535	Sodium Hydroxide	Removed 2005
Chrome Evaporator Tank	AST	600	Wastewater, Chromic Acid	Removed 2005
Steam Area Evaporator Tank	AST	600	Wastewater	Removed 2005
Steam Area Holding Tank	AST	1,600	Wastewater	Removed 2005
Oil Storage Tank	AST	500	Hydraulic Oil	Removed 2005
Small Strip Tank	AST	250	Hydrochloric Acid	Removed 2005

Concrete-lined trenches were installed along the in-ground tanks. The trenches were cleaned and inspected prior to filling them with concrete in 1986. No evidence of cracks or leaks were observed in the trenches (SCS Engineers 1986; MFA 2008).

An in-ground hydraulic cylinder test vault (installed at 25 feet bgs), chromic acid evaporator, purification unit and aboveground storage tank (AST) were also installed at the property. The chromic acid equipment was removed from the property in November 2006 (MFA 2008).

A steam cleaning area was located outdoors at the southeast corner of the building until 1986 (Ecology 1986g), when it was moved inside the building.

Between approximately 1985 and 2003, Baszile Metals Service leased the west side of the building from Precision Engineering. Baszile Metals distributed aluminum (MFA 2008). Mayflower moving company leased space in the west side of the building in 1987 (Ecology 1988a).

Materials Used in Operation

A variety of chemicals were used in Precision Engineering's operations. These are summarized below (SCS Engineers 1986; MFA 2008).

Chemical	Use
Chromic Acid Flakes, sulfuric acid	Chrome plating
TCE (discontinued mid-1980s), MEK, Safety Kleen solvent, muriatic acid, Okite stripper powder, NARCO 8350 Hot Tank compound	Parts cleaning
Soda Ash, sodium hydroxide	Parts stripping
MEK, tetrahydrafuran, toluene, vinyl resin, dye	Plating lacquer mask
Houghton honing oil	Metal honing operations
Cimcool 400, Coolant aerosol	Grinding and machining coolants
Lapping oil	Lapping machines
Fisk detergent (biodegradable soap)	Steam cleaning soap
Mercury	Contacts in fixtures
WD 40 oil, Jet Lube 202, Shell Rotac	Grinding and machining lubricants
Mobil DTE 25 hydraulic fluid	Filling and testing hydraulic cylinders
Lock Tight, Lock Tight T	Parts assembly
Dev Tap	Parts tapping
Free all	Penetrant
Copper sulfate	Identifies steel
Parco Lubrite	Etching agent
Magnaflux Check	Identifies cracks in parts

Waste Handling

Chrome plating wastes, waste alkaline stripping solutions, and steam cleaning detergent/waste water were discharged to the sanitary sewer until 1986. Precision Engineering rerouted all floor drains and trenches in the chrome plating shop to a containment vault by July 1986 (SCS Engineers 1986; MFA 2008).

In October 2002, Precision Engineering identified the following processes that generated hazardous waste streams at the facility (Ecology 2003b):

- Stripping and cleaning parts with solvents, hot caustic and strong acid solutions;
- Grinding, machining and rinsing parts;

- Hard chrome plating;
- Lead anodes fabrication;
- Wastewater evaporation;
- Draining waste hydraulic oil from equipment; and
- Infiltration of groundwater into coated containment pits.

Groundwater seeping into the containment pits was pumped into an evaporator tank. The resultant sludge was removed from the facility approximately every 18 months. The sludge was handled and disposed of as hazardous waste. This system was equipped with triple containment to contain spills or leaks (Ecology 2003b).

5.2.3 Regulatory History

Pacific Industrial Supply

Ecology conducted an Urban Waters Environmental Compliance inspection at Pacific Industrial Supply on June 5, 2008. No dangerous waste violations were observed. The Ecology inspector recommended the following BMPs (Ecology 2008o):

- Maintain storm drain system to prevent transport of pollutants into receiving waters.
- Discontinue washing vehicles outside or ensure that all wash water from cleaning is recovered.
- Install catch basin inserts, clean oil and antifreeze spills, and sweep parking areas.
- Complete a written spill prevention and cleanup plan and post at appropriate locations.
- Obtain spill containment and cleanup materials.
- Educate employees about spill plan, spill containment, and cleanup materials.
- Make sure all outside materials that have a potential to leach or spill to stormwater are covered and contained.

Ecology visited the facility on July 18, 2008, and determined the facility was in compliance with items listed on the inspection checklist (Ecology 2008t).

King County inspected the drainage system at Pacific Industrial Supply on April 6, 2009, and identified the following corrective actions (King County 2009b):

- Remove solids from the storm drain manhole and repair cracks and holes around the structure (Figure 21a).
- Replace or maintain filter socks in the catch basin and repair asphalt around the catch basin (Figure 21a).

Information regarding Pacific Industrial Supply’s compliance with the corrective actions identified by King County was not available for review.

Ecology conducted an Urban Waters Environmental Compliance inspection at the facility on May 10, 2011. Ecology identified the following corrective actions (Ecology 2011k):

- Properly store product and/or waste.
- Clean storm drain structures.
- Cover galvanized product stored outside.
- Evaluate the need for an ISGP or CNE.

Pacific Industrial Supply submitted a completed compliance certificate on August 16, 2011 (Pacific Industrial 2011). Ecology conducted a follow-up inspection and determined the facility was in compliance with previous corrective measures. During the follow-up inspection, Ecology observed two large stains on the asphalt near the catch basin outside of the facility. Ecology issued the facility a compliance letter with the understanding that outside liquid storage and spill response would be improved (Ecology 2011w).

According to Ecology's facility/site database, the facility was issued NPDES Permit No. WAR125474 on December 9, 2011.

Precision Engineering

Precision Engineering discharged chrome-plating wastes to the sanitary sewer and held Waste Discharge Permit No. 7052 from approximately 1977 to 1985 (Precision Engineering 1976). In September 1985, the permit was cancelled by METRO after Precision Engineering changed the chrome plating line to closed-loop system (METRO 1985). Ecology issued NPDES Permit No. SO3-001925 to Precision Engineering in August 1994 (Ecology 1994e).

In February 1986, METRO issued a Penalty and Compliance Schedule to Precision Engineering for discharge violations occurring after the cancellation of Permit No. 7052. Precision Engineering discharged industrial waste to the sanitary sewer after receiving Cease Discharge Notices on September 23, 1985, January 6, 1986, and January 21, 1986. The assessed penalty was for these discharge violations and falsification of an engineering report (METRO 1986). METRO cleaned the sanitary sewer trunk line downgradient from the facility in June 1986. Solids removed from the sewer were contaminated with waste chrome and grinding sludges. The solids were stored at the Precision Engineering facility prior to removal. Precision Engineering was responsible for characterizing and disposing of the sanitary sewer solids and the cost of cleaning the sanitary sewer line (Ecology 1987a; METRO 1988).

Following a complaint, Ecology and METRO inspected Precision Engineering on March 6, 1986. The inspectors observed leaks in a concrete sump containing waste chromic acid; improper storage of hazardous wastes; and discharge of waste water, detergent, and oil from steam cleaning operations to the drainage ditch (Ecology 1986a). The facility manager estimated that a 12-by-20-foot area of the roof was contaminated by chrome due to ineffective air pollution control scrubbers on the roof. Precision Engineering obtained chrome plating wastes from All Electro-Chrome (6332 6th Avenue S) and consolidated the wastes with waste generated at the facility. The consolidated wastes were dumped into an evaporator tank. Soil beneath the facility dumpster was contaminated with oil, representing a source of contaminants to stormwater runoff. The inspectors and the facility manager observed that groundwater flowed into and collected in Tank 7, the chromic waste acid sump (Ecology 1986d). The roof was replaced and the air pollution control scrubbers were repaired between March 1986 and November 1987 (Ecology 1988a).

Following the inspection, Ecology issued several corrective actions to Precision Engineering. The company was required to obtain an EPA ID number as a hazardous waste generator, comply with hazardous waste generator requirements, and provide copies of waste manifests for all wastes removed from the facility since March 6, 1986. In addition, Ecology requested copies of analytical data for testing the waste streams generated at the facility and the contaminated soil near the dumpster, and all information regarding the February 1986 compliance order issued by METRO. Ecology required Precision Engineering to provide a work plan for investigating soil and groundwater at the property, and a description and schedule for installation of new rooftop air pollution scrubbers (Ecology 1986e).

On May 23, 1986, Ecology issued Administrative Order No. DE 86-307 to Precision Engineering. The order required Precision Engineering to comply with the following (Ecology 1986f):

- Evaluate and estimate quantities of regulated chemicals purchased, recycled, and used in products and wastes generated from January 1984 to March 1986.
- Evaluate and characterize all sources of waste and submit a strategy for legal treatment, recycling or disposal of these wastes, including grinding wastes, cooling water, alkaline cleaning, chrome plating, mobile chrome plating, floor washing, and steam cleaning.
- Check all subsurface storage sumps, pits, and trenches and submit a schedule of repair for any cracked, leaking, or uncoated sumps or trenches.
- Develop a spill prevention plan.
- Submit an accurate facility map showing drainage patterns, storm and sanitary sewers, no outlet sumps, and wastewater control structures.
- Apply for an NPDES Waste Discharge Permit.
- Apply to re-open METRO Waste Discharge Permit No. 7052.

In December 1986, Ecology issued an Amendment to Order No. DE 86-307 because Precision Engineering had failed to comply with all but two of the required actions under the Order. In addition, the Amendment required Precision Engineering to characterize the nature and extent of soil and groundwater contamination at the property and the drainage ditch to the south (Ecology 1986j).

Ecology inspected Precision Engineering on June 26, 1986, and February 23, 1987, to verify that Precision Engineering was properly managing the sanitary sewer solid wastes derived from cleaning the trunk line in June 1986 and was following hazardous waste management regulations for other wastes derived at the facility. During the June 1986 inspection, four drums of waste solids were present; a fifth drum of waste solids was present during the February 1987 inspection (Ecology 1987a).

Proper hazardous waste management procedures were still not in use during the June 1986 and February 1987 inspections. Following the February 1987 inspection, Precision Engineering submitted documentation indicating that the facility was in compliance with hazardous waste handling procedures; however, during a subsequent inspection on November 17, 1987, Ecology discovered that Precision Engineering had not implemented proper labeling and dating procedures, of which they first had been notified during the March 1986 inspection (Ecology 1988e).

In December 1988, the Pollution Control Hearings Board issued PCHB No. 87-13, Stipulated Agreement, which stated that Precision Engineering had successfully complied with Order No. DE 86-307 and the Amendment. In addition, Precision Engineering agreed to perform the environmental investigations, as required under the Amendment, as proposed in two work plans that had been approved by Ecology (Attorney General 1988).

Ecology performed a site hazard assessment of Precision Engineering in 1990. A ranking 1 was assigned to the property/facility, indicating the highest potential threat to human health and the environment (Ecology 1990g).

Ecology performed a dangerous waste inspection at the facility in April 1992. The only area of concern identified was the hazardous waste satellite accumulation area. Drums were left open and were not under supervision (Ecology 1992h).

In November 1998, Ecology performed a dangerous waste inspection. Contaminated floorboards were observed in the building and Ecology noted that these would likely need to be designated as hazardous wastes when removed. Ecology identified corrective actions for five areas of non-compliance related to labeling and storage of waste, recording the amount of waste treated on site by evaporation, and the evaporator tank system required leak detection, corrosion protection, overfill prevention controls and needed to be certified by a qualified engineer. In addition, Ecology recommended that the facility improve spill response procedures (Ecology 1999a).

Precision Engineering completed the most of the corrective actions by April 1999, but did not achieve certification of the evaporator tank system. Ecology reviewed the 1993 Independent Remedial Action Report (Precision Engineering 1993) and expressed concern that operations performed after the completion of the remedial action may have resulted in recontamination of soil and groundwater (Ecology 1999f). Precision Engineering supplied the inspection report documenting the condition of the tank evaporator system and verifying that the system was equipped with leak detection, overfill protection, and corrosion protection equipment (Caliber Inspection 2000; Precision Engineering 2000).

In October 2002, Ecology performed a Hazardous Waste and Toxics Reduction (HWTR) inspection at the facility. Ecology identified violations related to proper containment of rags contaminated by chrome and proper labeling of waste containers. The inspectors noted several spills near the used oil tank, steam pit, chrome strip tank, sludge evaporator tank, rinse tank, and chrome tank. Ecology identified corrective actions to properly use and label containers for hazardous wastes, properly designate paint booth filters before disposal, and take appropriate mitigation and control actions to prevent spills and discharges (Ecology 2003b). Precision Engineering complied with these corrective actions by February 2003. The paint booth filters were tested and designated as non-hazardous waste (Precision Engineering 2003).

Precision Engineering ceased operations in March 2005. Ecology terminated the facility's coverage under ISGP No. SO3-001925 on January 9, 2006, at the request of Precision Engineering (Ecology 2006a). In June 2006, Ecology removed the facility from the Pollution Prevention Planning Program (Ecology 2006g).

In March 2006, Ecology performed an HWTR inspection to ensure that the facility was closed in accordance with hazardous waste regulations. Precision Engineering closed the location one year prior to the inspection. A few pieces of machinery, which were in the process of being sold, were inside the building. Several 55-gallon drums were present, including nine drums of soil cuttings from recent environmental investigations, two drums of PPE, and one drum of used oil. A 5-gallon bucket of used oil was also present. The Ecology inspector reviewed the manifests for hazardous waste disposal and determined that the wastes had been disposed of properly (Ecology 2006b). Ecology stated that no violations of hazardous waste regulations were observed, but advised Precision Engineering that the facility could not be identified as “clean closed” until the 55-gallon drums of waste were properly disposed (Ecology 2006c).

5.2.4 Environmental Investigations and Cleanups

Several environmental investigations and remedial actions have been performed at the property. Chemicals detected in soil and groundwater at concentrations exceeding screening levels are summarized in Tables 12 and 13. Tables C-7 and C-8 summarize all chemicals detected in soil and groundwater at the property (Appendix C). Sample locations are shown on Figures 21b through 21g.

Shallow groundwater at the property may infiltrate the drainage ditch seasonally, during periods of high groundwater elevation. Groundwater fate and transport modeling indicated that the contaminants in groundwater beneath the property would not reach the LDW. The modeled contaminants included arsenic, copper, hexavalent and trivalent chromium, selenium, and diesel- and heavy oil-range petroleum hydrocarbons (MFA 2008). In 2011, Ecology accepted the model as a general predictor of groundwater conditions. However, Ecology determined that since the extent of the contaminant plume had not been defined (and may be commingled with the contaminant plume associated with the potentially downgradient Kaspac/Chiyoda property [Section 5.1]), additional environmental investigation was necessary to determine the relationship between the contaminant plumes and to verify that contaminants associated with the former Precision Engineering property were not reaching the LDW (Ecology 2011s).

Environmental Investigations and Remedial Actions (1988 to 1990)

Several environmental investigations and remedial actions were completed between 1988 and 1990 in response to Ecology Compliance Order Number DE 86-307 and subsequent compliance letter dated February 17, 1987. Several soil borings were completed on the property around Tanks 1, 2, and 7. Seventeen surface soil samples were collected from the drainage ditch adjacent to the property. Soil samples were analyzed for EP Toxicity chromium (Sweet Edwards/EMCON 1989c, 1990b). Ecology analyzed sample S-1 for total metals (Ecology 1989d). Soil around sample S-1 was removed in 2008 (MFA 2008). Lead and mercury concentrations exceeded MTCA cleanup levels and the draft soil-to-sediment screening levels; arsenic exceeded the MTCA Method B cleanup level (Table 12). Sample locations are shown on Figures 21b through 21d.

Seventeen soil borings and four groundwater monitoring wells (MW1 through MW4) were installed following the discovery of a hole in the concrete containment vault around Tank 1. High levels of chrome were detected in soil near the vault (Sweet Edwards/EMCON 1989b, 1990a; Ecology 1989e). Three rounds of groundwater monitoring were performed (M&M Environmental 1990). In the last round of samples (1990), chromium, lead, mercury, and zinc concentrations exceeded the draft groundwater-to-sediment screening levels; chromium and lead concentrations also exceeded MTCA cleanup levels (Table 13).

A fifth groundwater monitoring well, B-1, was installed immediately downgradient of Tank 7, the chromic acid waste tank, which had been infiltrated by groundwater. Soil samples were analyzed for EP Toxicity metals. Barium, copper, nickel, and zinc were detected in the samples. Ecology determined that no further investigation was required near Tank 7 and the well was abandoned in April 1989 (Sweet Edwards/EMCON 1989a).

In April 1990, Precision Engineering removed Tanks 1 and 2, the tank containment vaults and excavated contaminated soil around the tanks. Soil contaminated with chromium at 80 mg/kg or more was removed, except were removal would have compromised the structural integrity of the building. A new concrete vault was poured and new tanks were installed (Precision Equipment 1990).

Removal of Chrome Plating Tanks 3 through 6 (1993)

A 30-foot by 40-foot excavation ranging in depth from 6 to 28 inches was completed in 1993 to remove chrome-plating tanks 3 through 6 and the concrete containment vaults associated with the tanks (Figure 21e). The concrete floor surrounding the plating tanks was also removed, over an area of 35 by 50 feet. Chromium concentrations in soil samples collected from the excavation ranged from 4,180 mg/kg to 7,470 mg/kg. A sample of the concrete floor near the tanks contained 37,600 mg/kg chromium. In addition, groundwater that seeped into the excavation was sampled and analyzed for chromium, which was not detected. Excavated soil and concrete were used as backfill; Precision Engineering acknowledged that the soil used as backfill originated from soil stockpiles exhibiting small amounts of visible contamination (Precision Engineering 1993). In a 2006 opinion letter, Ecology noted that contaminated soil, which did not meet the criteria for dangerous waste disposal, was left in place beneath the building (Ecology 2006d).

Remedial Investigations (2005 through 2007)

Between June and December 2005, 32 direct-push borings were advanced at the property. Soil and groundwater samples were collected from the borings. Five surface soil samples were collected from the drainage ditch to the south of the property and groundwater samples were collected from the eight onsite monitoring wells. In April 2006, six additional soil samples were collected from the drainage ditch, a second set of groundwater samples was collected from the monitoring wells, and soil-vapor samples were collected beneath the building. Indoor air samples were collected in June 2006. Samples were analyzed for one or more the following: hexavalent chromium, priority pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc), VOCs, petroleum hydrocarbons, PAHs, and PCBs (MFA 2008). Concentrations of arsenic, chromium (including hexavalent and trivalent species), copper, mercury, zinc, petroleum hydrocarbons, and TCE exceeded MTCA cleanup levels or the draft soil-to-sediment screening levels (Table 12). Arsenic, chromium (including hexavalent chromium), PAHs, petroleum hydrocarbons, TCE, and vinyl chloride were detected at concentrations exceeding MTCA cleanup levels or the draft groundwater-to-sediment screening levels (Table 13). Sample locations are shown on Figure 21f.

In January 2007, 13 additional soil samples were collected from the drainage ditch and analyzed for arsenic and lead (MFA 2008). Concentrations of both metals exceeded MTCA cleanup levels. A single lead concentration exceeded the draft soil-to-sediment screening level (Table 12).

Remedial Excavation – Drainage Ditch (2008)

In 2008, Precision Engineering excavated over 100 cubic yards of soil from the drainage ditch to the south of the property to remove soil contaminated by metals (Figure 21g). Approximately 2 yards of contaminated soil were left in place and covered with clean material (MFA 2008). Arsenic and lead concentrations remaining in soil exceed MTCA cleanup levels. Lead concentrations also exceed the draft soil-to-sediment screening level (Table 12).

Groundwater Sampling (2010)

Groundwater samples were last collected in July 2010. Arsenic, chromium, copper, selenium, and petroleum hydrocarbons were detected at concentrations exceeding MTCA cleanup levels (Table 13). VOCs and PAHs were not detected (MFA 2011).

5.2.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Pacific Industrial Supply completed the source control corrective actions requested by Ecology in 2008 and 2011 (Ecology 2011w). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.

Groundwater Discharge

Previous environmental investigations have determined that soil and groundwater beneath the property is contaminated by metals (including hexavalent chromium) and petroleum hydrocarbons. In groundwater, PAHs are also present. In 2011, Ecology determined the extent of the contaminant plume had not been defined and may be commingled with the contaminant plume associated with the Kaspac/Chiyoda property (currently Carey Limousine Services; Section 5.1). Ecology stated that additional environmental investigation was necessary to determine the relationship between the contaminant plumes and to verify that contaminants associated with the former Precision Engineering property were not reaching the LDW (Ecology 2011s).

5.2.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- A follow-up business inspection at Pacific Industrial Supply is needed to verify compliance with Ecology’s recommendations, applicable regulations, and BMPs to prevent the release of contaminants to the LDW.
- Additional environmental investigations are needed to define the contaminant plume associated with the property and to verify that contaminants associated with the former Precision Engineering property were not reaching the LDW.

5.3 South 93rd Business Park

Facility Summary: South 93rd Business Park	
Tax Parcel No.	0001600050
Address	9320 15th Avenue S; 1505 S 93rd Street 98108
Property Owner	Harasch Investment Properties, LLC
Parcel Size	8.48 acres (6,651,500 sq ft)
Facility/Site ID	12901: Koepping & Koepping 12462: Qual-Fab Inc. 12865: Custom Metal Spinning LLC 14839: Northwest Connecting Rod 16677: Atomic Fabrications 7327447: Former United States Seafoods 21141463: USEPA Technical Assistance Team Warehouse 29834194: Former Propulsion Controls Engineering 37593895: Professional Coating, Inc. 41379359: Former Duwamish Manor Industrial Park 47625361: Federal Express Corp BFI 75318226: Former Duwamish Manor 89923232: Former DEOX
Alternate Name(s) and Current or Former Tenants	Atomic Fabrications, Custom Metal Spinning, DEOX, Duwamish Manor Industrial Park (Former Tenant), Duwamish Manor (Former Tenant), Federal Express Corp BFI (Former Tenant), Koepping & Koepping, Northwest Connecting Rod, Professional Coating, Inc. (Former Tenant), Propulsion Controls Engineering (Former Tenant), Qual-Fab Inc., United States Seafoods (Former Tenant), USEPA Technical Assistance Team Warehouse
SIC Code(s)	3542: Machine Tools, Metal Forming Types (Atomic Fabrications) 3731: Ship Building And Repairing (Propulsion Controls Engineering) 6512: Nonresidential Building Operators (Duwamish Manor)
EPA ID No.	WAH000007484: Former DEOX (inactive) WAR000004523: Former Duwamish Manor Industrial Park (inactive) WAD988510673: Former Duwamish Manor (inactive) WAR000011718: Former Federal Express Corp BFI (inactive) WAD012061925: Former Propulsion Controls Engineering (inactive) WAH000033336: Former United States Seafoods (inactive)
NPDES Permit No.	None
UST/LUST ID No.	None

The South 93rd Business Park located on parcel 0050 (Figure 12) is bordered by the Delta Marine to the east and south, S 93rd Street to the north, and 15th Avenue S to the west.

According to King County tax assessor records, five multi-unit warehouses with office space are present on parcel 0005:

- Building 1: 29,400 sq ft built in 1977
- Building 2: 14,700 sq ft built in 1977
- Building 3: 64,800 sq ft built in 1978
- Building 4: 54,720 sq ft built in 1979
- Building 5: 25,200 sq ft built in 1977

5.3.1 Current Operations

South 93rd Business Park

South 93rd Business Park is an industrial warehouse rental facility, owned by Harasch Investment Properties LLC. The facility has a variety of manufacturing, fabrication, and distribution tenants. The property consists of primarily buildings and paved areas. Small-vegetated strips are scattered throughout the property.

Ecology has not assigned the South 93rd Business Park facility an FSID number. Limited information regarding current operations was available for review. Tenants conduct the majority of operations indoors. Current tenants with Ecology FSIDs are discussed below.

Northwest Connecting Rod/Koepping & Koepping

Ecology assigned both Northwest Connecting Rod and Koepping & Koepping FSIDs. The companies operate out of the same building unit at the South 93rd Business Park and appear to be the same operation. According to a 1991 Ecology inspection, the facility is a one room, 1,800 sq ft machine shop for car and airplane engines. Northwest Connecting Rod has been at the location since 1981 (Ecology 1991h).

Northwest Connecting Rod conducts all work inside the building. There is no automotive repair conducted at the facility. Solvents and oils are used in operations. Waste oil is stored in a 55-gallon drum inside the facility prior to disposal by a waste recycler. The facility has two solvent recirculating stations and a hot water rinse station that is connected to the sanitary sewer (Ecology 1991h).

Qual-Fab, Inc.

According to the company's website, Qual-Fab, Inc. (Qual-Fab) has been at the South 93rd Business Park since 1977. Qual-Fab is a sheet-metal fabrication shop that serves aerospace, alternative and renewable energy, fitness equipment, medical, military, telecommunications, and electronics industries. Qual-Fab conducts welding, machining, mechanical assembly, and laser cutting operations at the facility. Materials used in fabrication include aluminum, stainless and galvanized steel, copper, and brass (Qual-Fab 2012).

Atomic Fabrications

Atomic Fabrications is a small metal fabrication shop specializing in steel and aluminum cutting and welding. Potential waste streams at the facility include sludge and soiled shop towels. Sludge material containing steel and aluminum fines accumulate in saw coolant reservoirs. The coolant is water-based and most of it evaporates leaving behind metal fines. The metal scraps and cutting fines are recycled. No products or wastes are stored outside (Ecology 2010b).

The fabrication shop does not have any floor drains. One storm drain is in the driveway area of the industrial park but is not located near the facility. An Ecology inspector determined that activities at the facility are unlikely to impact stormwater (Ecology 2010b).

Custom Metal Spinning

According to a 1991 Ecology inspection report, Custom Metal Spinning is a metal spinning shop that stretches metal over dies to make various machine parts. The facility uses rolled steel or aluminum. The company uses regular machine lubricating oil and WD40 on the metal. Waste oil is brought to a fleet maintenance facility in the industrial park for storage and pick up by a waste recycler. Scrap metal is stored in the shop prior to recycling. The facility collects a small amount of non-contact cooling water from the metal spinning machine and discharges it to the sanitary sewer. No storm drains were observed inside the facility (Ecology 1991n).

5.3.2 Historical Operations

According to a 1991 Ecology inspection, the industrial park is located on a former automobile wrecking yard (Ecology 1991h). Historical tenants at the industrial park with Ecology FSIDs are described below.

Former Propulsion Controls Engineering

According to the company's website, Propulsion Controls Engineering opened in Seattle in August 1980. Propulsion Controls Engineering was a hazardous waste generator between December 1991 and 1996. The company moved to Everett at an unspecified date (Propulsion Control 2012). Additional information was not available for review.

Former United States Seafoods

United States Seafoods appears to be a former tenant at the South 93rd Business Park. According to Ecology's FSID database, the facility was a hazardous waste generator beginning in July 2008. Additional information was not available for review.

Former Professional Coating, Inc.

According to a 1998 Ecology inspection, the facility conducted painting and staining of wood products. Professional Coating, Inc. (Professional Coating) began operating at the facility around 1980. Waste streams included spent solvents, waste paints, stains, solid paint contaminated materials, still bottoms, paint booth filters and floor sweepings (Ecology 1998e). Additional information was not available for review.

Former Duwamish Manor Industrial Park

Duwamish Manor Industrial Park (also listed separately as Duwamish Manor) was the former name of the current South 93rd Business Park. According to Ecology's FSID database, Duwamish Manor Industrial Park and Duwamish Manor were hazardous waste generators between 1992 and 1995. According to King County tax assessor records, Duwamish Manor Associates sold the property to Harasch Investment Properties LLC in March 2000.

5.3.3 Regulatory History

Northwest Connecting Rod/Koepping & Koepping

Ecology inspected Northwest Connecting Rod on August 1, 1991. Inspectors observed two storage drums of degreasing compounds stored outside at the facility. The drums were left by another business at the industrial park. Ecology sent Northwest Connecting Rod information for proper disposal of the hazardous waste drums and waste oil recycling. Inspectors did not issue any corrective actions (Ecology 1991h).

Ecology conducted an Urban Waters Environmental Compliance inspection at Northwest Connecting Rod on December 10, 2008. The inspector issued a corrective action to store containerized materials properly and advised the facility to evaluate the need for an ISGP or CNE (Ecology 2008ak). During a drive by on January 26, 2009, the Ecology inspector observed that the drummed waste was moved inside. Ecology determined the facility was in compliance with source control inspection items (Ecology 2009c).

Former Professional Coating, Inc.

Ecology conducted a dangerous waste compliance inspection at Professional Coating on August 12, 1998. The inspector identified the following corrective actions (Ecology 1998e):

- Ensure that satellite containers of dangerous waste are closed and labeled properly.
- Ensure that the required 30-inch aisle space is maintained in dangerous waste accumulation area.
- Begin weekly inspections.
- Develop a dangerous waste management training program and educate employees.
- Create a spill contingency plan.

The facility completed a contingency plan, training program, and submitted a hazardous waste compliance checklist in October 1998 (Professional Coating 1998).

Ecology inspected the facility on August 17, 1999, and identified the following corrective actions (Ecology 1999g):

- Ensure that 55-gallon drums of waste thinner, toluene, rags, distillation residue, and still bottoms are closed and labeled properly.
- Maintain adequate aisle space between rows of dangerous waste containers.

Professional Coating completed corrective actions on August 20, 1999 (Ecology 1999g).

Qual-Fab, Inc.

Ecology conducted an Urban Waters Environmental Compliance inspection at Qual-Fab on December 10, 2008. The facility was in compliance (Ecology 2009); however, the inspector made the following suggestions (Ecology 2008ag):

- Evaluate the need for an ISGP or CNE.
- Complete a written spill plan and post at appropriate locations.

Atomic Fabrications

Ecology conducted a source control inspection at Atomic Fabrications on March 16, 2010. The inspector identified the following corrective actions (Ecology 2010b, 2010c):

- Properly dispose of waste.
- Improve or create spill response procedures.
- Improve or purchase adequate spill response materials.
- Evaluate the need for an ISGP or CNE.

Atomic Fabrications applied for a CNE in May 2010. Ecology conducted a follow-up inspection on May 20, 2010 and determined the facility was in compliance with corrective actions (Ecology 2010k).

Custom Metal Spinning

Ecology conducted a source control inspection at Custom Metal Spinning on November 19, 1991. Inspectors did not issue any corrective actions (Ecology 1991n).

Ecology conducted an Urban Waters Environmental Compliance inspection on January 26, 2009. Inspectors identified the following corrective actions (Ecology 2009d):

- Do not discharge cooling/process wastewater to the storm drain.
- Evaluate the need for an ISGP or CNE.

Custom Metal Spinning returned a completed compliance certificate on February 6, 2009. The facility began collecting cooling water from the metal spinning unit and poured the cooling water down the sink drain (Custom Metal Spinning 2009). Ecology determined the facility was in compliance with corrective actions (Ecology 2009f).

Former Duwamish Manor Industrial Park

On July 17, 1992, Ecology responded to a report of leaking drums at the Duwamish Manor Industrial Park. Ecology observed several leaking drums in the southeast corner of the property. The inspector observed oil-contaminated sediments and a nearby storm drain in the area of the leaking barrels. Ecology directed the facility to remove all barrels containing dangerous wastes and waste oil (Ecology 1992n).

Duwamish Manor Associates, the property owner of Duwamish Manor Industrial Park, began cleanup of the leaking drums but stopped the process to change waste management companies (Ecology 1992o). During a site visit on November 10, 1992, Ecology observed 14 55-gallon drums containing waste oil, paint thinner, sludge and resin, and 22 drums of contaminated soil at the facility. On December 1, 1992, Ecology issued a compliance schedule to have the remaining waste drums removed within 30 days (Ecology 1992r).

Ecology conducted six follow-up inspections at the facility between January and October 1993. METRO and King County joined Ecology for some of the compliance inspections at the facility. Ecology issued Order No. DE 94HW-110 with the following corrective actions (Ecology 1993a):

- Designate and appropriately manage unknown wastes.
- Dispose of identified hazardous wastes.
- Limit abandonment and storage of dangerous waste at the facility.
- Assess and cleanup contamination at the property.

Additional information regarding compliance with the Ecology Order was not available for review.

On April 27, 1998, King County division received a notification that a sanitary sewer pump station at Duwamish Manor had failed and overflowed to the onsite storm drain. A follow-up inspection identified the following violations (King County 1998b):

- Oil and automotive cleaner/solvent had discharged from a metal storage container to the ground and storm drain system at the property.
- Numerous barrels, drums, buckets, and other containers of paint, used oil, solvents, and other unknown liquids were located throughout the industrial park with no secondary containment.

King County issued the following corrective actions (King County 1998b):

- Clean up the spill and storm drain system where sewer overflow occurred.
- Ensure future overflows from the sanitary sewer pump do not occur.
- Remove abandoned containers from the property and dispose of properly.
- Store mechanical parts and metals off the ground and under cover.
- Submit a spill response and cleanup plan for future occurrences of accidental spills and dumping.

Additional information regarding compliance with King County’s corrective actions was not available for review. It is assumed corrective actions were completed prior to the sale of the property to Harasch Investment Properties LLC in March 2000.

5.3.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Surface Runoff

Limited information was available for review regarding stormwater drainage features at South 93rd Business Park. King County drainage maps indicate stormwater from this property is discharged to the LDW via Outfall 2100(A). The South 93rd Business Park and its current tenants have complied with corrective actions identified by Ecology. The potential for sediment recontamination associated with this facility is low provided that the property management company and tenants maintain appropriate source control BMPs.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property; however, given the historical industrial operations, there is a potential for soil and groundwater contamination.

5.3.5 Data Gaps

South 93rd Business Park and its tenants appear to maintain appropriate source control BMPs and have complied with corrective actions identified by Ecology. Therefore, no data gaps were identified for this property.

5.4 Frog Hollow Corporation

Facility Summary: Frog Hollow Corporation	
Tax Parcel No.	0001600042
Address	1425 S 93rd Street 98108
Property Owner	Driftwood Developments LLC
Parcel Size	0.59 acre (25,500 sq ft)
Facility/Site ID	24384: Frog Hollow Corp 25327412: Former Ahrenius Manufacturing Inc.
SIC Code(s)	2521: Wood Office Furniture (Ahrenius Manufacturing Inc.)
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

Frog Hollow Corporation (Frog Hollow) operates at parcel 0042 (Figure 12). The facility is bordered by PSF Mechanical to the south, 15th Avenue S to the east, S 93rd Street to the north, and Industrial Automation to west. There are two buildings on the property:

- a 9,000 sq ft storage warehouse built in 1978, and
- a 6,000 sq ft storage warehouse built in 1979.

Industrial Automation operates in the 6,000 sq ft storage warehouse and is discussed in Section 5.5.

5.4.1 Current Operations

Frog Hollow has operated an off road heavy equipment repair service at the current location since 1999. The facility conducts in-shop repairs, exchange units, and various field service on logging, mining, materials handling, crane and construction equipment (Jeffers 2008a).

5.4.2 Historical Operations

According to Ecology's Facility/Site database, Ahrenius Manufacturing was located at 1425 S 93rd Street on parcel 0042. The facility was a hazardous waste generator between July 1989 and

December 2004. According to the Washington State Department of Revenue, Ahrenius Manufacturing opened in October 1984 and closed in March 2005.

Additional information regarding historical operations at the property was not available for review.

5.4.3 Regulatory History

On March 4, 2008, Ecology conducted a source control inspection at the Frog Hollow facility. Inspectors observed issues with outside washing of vehicles, spill equipment and plans, designation of wastes, and used oil management practices (Jeffers 2008a). The inspection report and not available for review; however, the facility was in compliance as of April 11, 2008 (Ecology 2008ac).

5.4.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Frog Hollow completed corrective actions identified during a March 2008 Ecology source control inspection. The potential for sediment recontamination via the stormwater and spills pathway is low provided that the company maintains appropriate source control BMPs.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property. The facility is approximately 1,300 feet west of the LDW. The potential for sediment recontamination via the groundwater discharge pathway is unknown, but is likely to be low due to the distance between the facility and the LDW.

5.4.5 Data Gaps

Frog Hollow appears to maintain appropriate source control BMPs and has complied with corrective actions identified by Ecology. Therefore, no data gaps were identified for this property.

5.5 Industrial Automation Inc.

Facility Summary: Industrial Automation Inc.	
Tax Parcel No.	0001600042, 0001600037
Address	0042: 1425 S 93rd Street 98108 0037: 9300 14th Avenue S 98108
Property Owner	Driftwood Developments LLC
Parcel Size	0042: 0.59 acre (25,500 sq ft) 0037: 0.46 acre (19,845 sq ft)
Facility/Site ID	74236527

Facility Summary: Industrial Automation Inc.	
SIC Code(s)	3728: Aircraft Parts and Auxiliary Equipment 3599: Machinery Exc Electrical
EPA ID No.	WAR000009068 (inactive)
NPDES Permit No.	WAR001949
UST/LUST ID No.	None

Industrial Automation Inc. (Industrial Automation) operates at parcels 0042 and 0037 (Figure 12). The facility is bordered by PSF Mechanical to the south, 14th Avenue S to the east, S 93rd Street to the north, and Frog Hollow to the west.

King County tax assessor records indicate the following structures are present on the parcels:

- a 9,000 sq ft storage warehouse built in 1978 on parcel 0042,
- a 6,000 sq ft storage warehouse built in 1979 on parcel 0042, and
- a 9,000 sq ft industrial manufacturing warehouse, built in 1979, on parcel 0037.

The Frog Hollow company operates at the 9,000 sq ft storage warehouse on parcel 0042 and is discussed in Section 5.4.

5.5.1 Current Operations

Industrial Automation has operated at the current location since 1972. The company repairs and fabricates tools and metal parts for the aerospace industry. The majority of manufacturing activities take place indoors. The facility performs parts cleaning, machining, honing, grinding, abrasive blasting, electroless nickel plating, plastisol coating, and painting. The paint booth, sandblast cabinet, and plating bath are located in the western building. The plating tank rinsate is discharged to the sanitary sewer. Paint booth filters, metal turnings and chips, and sandblast dust are disposed of as solid waste. A forklift is maintained and serviced onsite indoors (Ecology 2008b).

The paved lots at the facility are used for metal storage, equipment storage, metal disposal, and shipping and receiving. All metal and production materials stored outdoors are under cover. All 55-gallon drums are stored inside. Dumpsters remain covered. All maintenance work is conducted indoors (Industrial Automation 2012a).

A storm drain located in the central lot is the only storm drain located on the facility's property (Figure 22). The employee parking lot at the facility drains to the street. The east lot at Industrial Automation conveys stormwater to another facility's storm drain (Ecology 2007f).

5.5.2 Historical Operations

Information regarding historical operations at the property was not available for review.

5.5.3 Regulatory History

Hazardous Waste Management

On August 31, 1992, Ecology inspected Industrial Automation. The yard at the facility was used to store drums of thinner and coolant oil. Ecology observed drums of solvent stored outside without cover or secondary containment. Ecology requested that the facility provide cover and secondary containment for the drum storage area (Ecology 1992k). Additional information regarding compliance with the corrective action was not available for review.

On February 15, 1999, Ecology conducted a dangerous waste compliance inspection at the facility. Waste streams identified during the inspection included nickel plating sludge, paint booth filters, and machining cutting fluids. Ecology requested that the facility properly label and close all satellite containers of hazardous waste and develop a weekly inspection log for all waste accumulation areas (Ecology 1999b). Industrial Automation returned a completed compliance certificate to Ecology on April 16, 1999 (Industrial Automation 1999).

On July 19, 1999, Ecology conducted a site visit at Industrial Automation. Ecology reviewed the facility’s previous pollution prevention activities, discussed new opportunities to update the pollution prevention plan, and identified economically feasible waste reduction techniques. Pollution prevention updates included paint filter, bead blast, and plating solution management changes (Ecology 1999e).

On December 7, 1999, Ecology conducted a site visit and review of the facility’s hazardous substance list. Oil and solvents were eliminated following recommendations made during the July 1999 site visit. Ecology did not recommend any follow-up actions (Ecology 1999i).

On March 10, 2003, Ecology determined Industrial Automation was no longer required to submit a pollution prevention plan because hazardous waste accumulation at the facility fell below planning threshold levels (Ecology 2003c).

Stormwater Compliance

On August 3, 1994, Ecology conducted a site visit at Industrial Automation and determined the facility required coverage under a NPDES permit (Ecology 1994c). On August 16, 1994, Ecology granted Industrial Automation coverage under a NPDES Permit. Coverage under the permit required the development of a SWPPP and application of BMPs (Ecology 1994f). Ecology renewed Industrial Automation’s coverage under the NPDES permit in January 1996 (Ecology 1996b).

Ecology conducted a stormwater compliance inspection at the facility on May 10, 2007. Inspectors observed four open barrels containing metal shavings in the central lot at the facility. One metal dumpster was exposed and without cover. Rusted metal beams were stored throughout the outside lot. Some of the beams were stored in a covered shelving unit. The lot was relatively clean of debris; however, there was dirt accumulation in a section of the east central lot. Ecology issued the following corrective actions (Ecology 2007f):

- Immediately obtain and retain a copy of the facility’s ISGP on site.
- Produce a SWPPP and send a copy to Ecology.

- Immediately begin quarterly sampling and submit DMRs to Ecology.
- Implement good housekeeping practices to reduce stormwater pollution potential.

On July 30, 2007, Industrial Automation responded to the notice of non-compliance (Ecology 2008f). Details of Industrial Automation's response were not available for review.

Ecology conducted a combined hazardous waste and stormwater compliance inspection at the facility on February 12, 2008. Miscellaneous galvanized parts and equipment were stored outside. Metals shaving were observed on the ground near scrap bins. The lot was relatively clean and free of debris. Ecology observed paint booth filters, sandblast cabinet dust, and steel turnings were disposed of as solid waste. Ecology issued the following corrective actions (Ecology 2008f, 2008b):

- Conduct stormwater sampling in accordance with permit requirements.
- Revise and update the SWPPP for the facility.
- Obtain proper permit from King County Industrial Waste (KCIW) for facility discharge to sanitary sewer.
- Obtain proper clearance from KCIW for industrial waste disposal.

Ecology conducted a follow-up inspection on March 25, 2008. Industrial Automation and Ecology discussed changes at the facility that would limit metals and material exposure to stormwater. The following issues were incomplete (Ecology 2008g):

- Obtain permit or authorization to discharge nickel-plating wastewater to sanitary sewer.
- Obtain clearance for disposal of industrial waste to solid waste dumpster.
- Post a spill plan near chemicals stored near the nickel-plating room.

On January 18, 2011, Ecology issued Administrative Order No. 8227 for failure to submit DMRs for the first, second, and third quarter of 2010 (Ecology 2011b). Industrial Automation submitted an ISGP Annual report on May 11, 2011. No stormwater samples were collected in 2010. The facility removed all uncovered raw materials from the storage yard and placed the materials under structural coverage during the first quarter of 2011. The company moved waste dumpsters and trained employees on good housekeeping practices to keep areas clean (Industrial Automation 2011).

Industrial Automation exceeded zinc benchmarks for all monitoring periods of 2011. The facility hired a sweeper service to perform monthly lot maintenance (Industrial Automation 2012b). The facility completed a SWPPP in February 2012. According to the SWPPP, all metal and production materials stored outdoors are under cover. All 55-gallon drums are stored inside. Dumpsters remain covered and all maintenance work is conducted indoors (Industrial Automation 2012a).

Ecology performed NPDES compliance inspections at the facility on January 24 and June 6, 2012 (Ecology 2013b).

5.5.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Industrial Automation covered raw materials and metals in the outside storage lot to limit exposure to stormwater. The facility completed a SWPPP and hired a monthly sweeping service to reduce dust and sediment transport to the storm drain system. The potential for sediment recontamination via the stormwater and spills pathway is low provided that the company maintains appropriate source control BMPs.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property. The facility is approximately 1,400 feet west of the LDW. The potential for sediment recontamination via the groundwater pathway is unknown, but it is likely to be low due to the distance between the facility and the LDW.

5.5.5 Data Gaps

Industrial Automation appears to maintain appropriate source control BMPs and has complied with corrective actions identified by Ecology. Therefore, no data gaps were identified for this property.

5.6 PSF Mechanical

Facility Summary: PSF Mechanical	
Tax Parcel No.	0001600046
Address	9322 14th Avenue S 98108
Property Owner	Driftwood Developments LLC
Parcel Size	2.07 acres (90,375 sq ft)
Facility/Site ID	18451551: PSF Mechanical Inc. 76299717: PSF Industries Inc. Field Yard
SIC Code(s)	3443: Fabricated Plate Work 3444: Sheet Metal Work
EPA ID No.	WAD988497558 (inactive)
NPDES Permit No.	WAR000264
UST/LUST ID No.	None

PSF Mechanical operates at parcel 0046 (Figure 12), which is bordered by S 95th Street to the south, 14th Avenue S to the east, Industrial Automation and Frog Hollow Corporation to the north, and South 93rd Business Park to the west. According to King County tax assessor records, a 28,024 sq ft building, built in 1963, is present on parcel 0046. According to a 2010 Ecology inspection report, there are three buildings at the facility (Ecology 2010p).

The company uses a small area of parcel 0001600037 for parking (PSF Mechanical 2010).

5.6.1 Current Operations

PSF Mechanical began operating at the current location over 30 years ago (Ecology 2008d). The company specializes in the design, fabrication, installation, and service and maintenance of heating, ventilation, and air conditioning systems. Fabricated sheet metals include steel, galvanized steel, and copper. All fabrication activities, including grinding and cutting of galvanized material is conducted indoors (PSF Mechanical 2010).

PSF Mechanical operates three forklifts, which are stored indoors overnight. The yard is cleaned daily with a magnet boom to pick up small metal scraps. Scrap metal is recycled at Seattle Iron and Metals. Oils generated at the facility are managed by an offsite recycler. All manufacturing is conducted indoors. A plasma cutter is used to cut stainless and galvanized sheet metal (Ecology 2008d).

PSF Mechanical conducts fabrication and assembly in the main building. There are numerous mechanical and hydraulic machines in the main shop. A sheet metal glue application generates some water-based glue wastes, which are stored in a 55-gallon drum. The outside storage and loading yard is used to store finished parts and metal stock. Stock is stored in covered areas. The south building is used for shipping and receiving. Glue and chemical products are stored in the south building. The north building is used for storage and sheet metal fabrication (Ecology 2008d).

The majority of the facility is paved and graded to direct stormwater to six catch basins and one sump located on the site. The three catch basins on the north side of the facility convey stormwater east to the facility’s property boundary. Two catch basins located at the southwest portion of the facility convey stormwater to the facility’s northern storm drain pipes. The sixth catch basin is located at the southeast portion of the facility and conveys stormwater to the facility’s drainage system prior to discharge to the S 96th Street SD System (Figure 23) (PSF Mechanical 2010).

5.6.2 Historical Operations

Information regarding historical operations at the property was not available for review.

5.6.3 Regulatory History

Ecology inspected PSF Mechanical on August 31, 1992. Ecology did not observe any violations (Ecology 1992l).

On December 28, 1992, Ecology granted PSF Mechanical coverage under a NPDES Permit. Coverage under the permit required the development of a SWPPP and application of BMPs (Ecology 1992u). Ecology renewed PSF Mechanical coverage under the NPDES permit in January 1996 (Ecology 1996c).

On February 16, 1996, King County conducted a water quality consultation at PSF Mechanical. The facility implemented BMPs and applied a SWPPP to protect stormwater quality at the site. King County did not issue any corrective actions (King County 1996b).

Ecology requested a SWPPP from PSF Mechanical as part of a public disclosure request in 2001 and 2006 (Ecology 2001j, 2006f). PSF complied with both requests (PSF Mechanical 2001, 2006).

Ecology conducted a stormwater compliance inspection at the facility on August 10, 2006. The inspector determined the following activities had the potential to contaminate stormwater (Ecology 2007a):

- Galvanized ductwork stored outside throughout the site.
- Possible emissions of zinc compounds from the plasma cutter roof vent.

Additionally, zinc concentrations exceeded the facility's ISGP action levels during three quarters in 2005. PSF Mechanical installed catch basin filters and painted the facility's roof in an effort to reduce zinc concentrations in stormwater (Ecology 2007a).

Ecology conducted a source control compliance inspection at PSF Mechanical on March 4, 2008. Inspectors made the following suggestions (Ecology 2008d):

- Complete a spill prevention and cleanup plan.
- Obtain spill containment and cleanup materials and educate employees.
- Make sure scrap metal bins, diesel fuel, and raw materials are covered and contained.
- Discontinue washing of vehicles if untreated washwater is discharged to the storm drain.
- Sweep lot regularly.
- Properly designate waste.

On April 17, 2008, Ecology conducted a follow-up dangerous waste and source control inspection at the facility. The inspectors observed new spill kits and labeled drums. Ecology reviewed the facility's DMRs for previous reporting periods. Between January 2005 and March 2008, PSF Mechanical exceeded the action level for zinc six times. After the first quarter of 2007, a level three response should have been initiated. Ecology made the following recommendations in regards to stormwater compliance (Ecology 2008q):

- Submit a level three response report for zinc.
- Implement any additional source control and stormwater treatment BMPs to reduce zinc levels in stormwater.
- Clean up all areas with accumulated sediment.
- Cover or move inside any galvanized materials to limit or prevent pollutants from entering the facility's storm drains.

PSF Mechanical submitted a Level 2 and 3 Response Report to Ecology on February 13, 2009. The facility updated the SWPPP to include more frequent catch basin cleanouts, new catch basin filters, and biannual sweeping with a vacuum truck. Additional actions include identifying sources of zinc on and off the property and characterizing the plasma cutter emissions (SNR 2009).

Ecology conducted a stormwater compliance inspection at the facility on July 30, 2010. Inspectors observed that PSF Mechanical had not swept all paved areas or installed catch basin filters. Raw materials and galvanized products remained stored outdoors and without cover. Ecology issued the following corrective actions (Ecology 2010p):

- Fully implement the SWPPP developed for the facility.
- Provide proper cover and containment for all liquid chemical and petroleum products and wastes stored outside at the facility.
- Revise the monitoring plan to include the southeast storm drain downspout from the plasma cutter building.
- Keep all dumpsters and scrap bins under cover or provide a lid that remains closed.
- Place storm drain catch basin filter inserts in all catch basins on site.
- Protect all materials and products that can potentially impact stormwater quality from direct contact with precipitation.

PSF Mechanical submitted an ISGP Annual Report on April 29, 2011. Stormwater at the facility exceeded benchmarks for zinc during the first, second, and fourth quarters of 2010. PSF Mechanical implemented BMPs and corrective actions to address the zinc levels. The facility cleaned and repaired the compressor area to prevent leaks, installed catch basin filters, moved waste to an indoor containment area, and added plastic wrapping to enclose finished products temporarily stored in the yard. In addition, the facility changed to covered dumpsters, installed awnings for galvanized product storage, changed gutters to aluminum, and installed filters into welding exhausts. The facility purchased a plasma table filter to eliminate exhaust from the plasma cutter (PSF Mechanical 2011).

On May 25, 2011, PSF Mechanical requested an extension to complete Level 3 corrective actions associated with the facility’s NPDES permit. The facility was in the process of installing a plasma cutter filtration system and constructing an awning to increase covered storage for galvanized products. The facility also reviewed options to treat stormwater. On November 23, 2011, Ecology granted an extension and issued Administrative Order No. 8884 for the facility to take the following corrective actions (Ecology 2011z):

- Advise Ecology on the status of complying with the Level 3 Corrective Actions in Annual Reports.
- Implement all applicable operational and structural source control BMPs.
- Collect and analyze at least one stormwater discharge sample each quarter from October 1, 2011, through June 30, 2012.

Ecology performed an NPDES permit compliance inspection at the facility on January 21, 2012. No additional corrective actions were identified (Ecology 2013b). PSF Mechanical submitted an ISGP Annual Report on May 1, 2012. The facility exceeded zinc benchmarks for all monitoring periods in 2011. In October 2011, the facility jetted underground storm lines to clear out accumulated sediment. The facility cleaned the roof after the installation of the plasma table exhaust filter system. PSF Mechanical planned to research and install a stormwater treatment system in April 2012 (PSF Mechanical 2012).

5.6.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Zinc concentrations in stormwater at PSF Mechanical have consistently exceeded benchmarks established in the facility's ISGP. In an effort to reduce zinc concentrations, the facility has increased sweeping activities, installed catch basin filters, and installed an exhaust filter system for the plasma cutter. The company planned to research and install a stormwater treatment system in April 2012.

Additional information regarding PSF Mechanical's compliance with the Ecology Administrative Order or installation of a stormwater treatment system was not available for review. Potential for sediment recontamination due to current facility operations is low to moderate.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property. The facility is approximately 1,400 feet west of the LDW. The potential for sediment recontamination via the groundwater pathway is unknown, but it is likely to be low due to the distance between the facility and the LDW.

5.6.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- Additional information regarding PSF Mechanical's compliance with Ecology's Administrative Order is needed to determine the potential for sediment recontamination associated with stormwater at the property.
- Additional information is needed to determine if the facility completed installation of a stormwater treatment system at the property.

5.7 Gary Merlino Construction Company

Facility Summary: Gary Merlino Construction Company.	
Tax Parcel No.	2433700095, 2433700055, 243370015, 2433200185
Address	9125 10th Avenue S 98108
Property Owner	Anmarco
Parcel Size	0095: 0.96 acre (41,700 sq ft) 0055: 1.00 acre (43,470 sq ft) 0015: 1.91 acres (83,327 sq ft) 0185: 1.88 acres (81,676 sq ft)
Facility/Site ID	7727938: Gary Merlino Construction Company 69951382: Former Thomas Equipment Rental
Alternate Name(s)	Gary Merlino Const, Gary Merlino Construction Co
Current or Former Tenants	Heavy Haul Specialists, Johnson Western Gunite Company, Keithly Electric, Progressive Fastening

Facility Summary: Gary Merlino Construction Company.	
SIC Code(s)	1611: Highway and Street Construction 1623: Water, Sewer, and Utility Lines 1794: Excavation Work 4222: Refrigerated Warehousing 4225: General Warehousing & Storage 7353: Heavy Construction Equipment Rental (Thomas Equipment Rental)
EPA ID No.	WAD988499125
NPDES Permit No.	WAR003120
UST/LUST ID No.	10284 (active)

Gary Merlino Construction Company (Merlino Construction) operates on parcels 0095, 0055, 0015, and 0185 (Figure 12). The facility is bordered by 8th Avenue S to the west, King Electrical Manufacturing and S Barton Street to the south, a boat storage yard and SR 99 to the east, and by S Director Street to the north.

King County tax assessor records indicate the following structures are present on the parcels:

- a 6,000 sq ft manufacturing shop and office built in 1975 on parcel 0095,
- a 9,000 sq ft light industrial shop built in 1977 on parcel 0055,
- a 31,600 sq ft storage warehouse built in 1979 on parcel 0015, and
- an 81,676 sq ft storage lot on parcel 0185.

5.7.1 Current Operations

Merlino Constructions is a general construction contractor that began operating at the current location in the late 1960s (Blue Sage Environmental 1999). Construction equipment and supplies are stored at the property. Construction signs, concrete vaults, piping, shoring, large construction vehicles, and trailers are moved around the facility daily (AMEC 2008).

The facility is mostly flat and has two large drainage basins (Figure 24a). The entire site is impervious, except for one area in the southwest portion of the property. The Stoneway Concrete Company (Stoneway) operates a small concrete mixer in this area of the property. There is gravel and recycled asphalt over a French drain connected to the storm drain system in the Stoneway area. Basin 1 is located in the northeast portion of the facility and drains to 10th Avenue S. According to a 2008 Ecology inspection, an oil/water separator is located near the entrance gate on 10th Avenue S. Stormwater from Basin 1 flows to the S 96th Street SD system (Ecology 2008af). Basin 1 includes a fueling area, welding shed, and wash rack (which drains to the sanitary sewer). Basin 2 extends south along the western portion of the facility and drains to S Barton Street and then to the S 96th Street SD system. Basin 2 includes most outside storage of concrete, metal parts, and soil piles. Both drainage basins have construction equipment storage, administrative parking, leased storage areas, and leased office space (AMEC 2008).

Heavy Haul Specialists, Johnson Western Gunite Company (Johnson Western), and Keithly Electric operate as tenants at the Merlino Construction facility (SPU 2010e, 2010f, 2010h). Progressive Fastening leases a portion of warehouse space located at the Merlino Construction and is discussed in 5.8. Ecology has not assigned FSIDs to these facilities FSIDs. Merlino Construction is ultimately responsible to maintain appropriate source control BMPs at the facility.

5.7.2 Historical Operations

Gary Merlino purchased the property in the late 1960s. Prior to this period, the property was used as a truck and farm equipment storage yard (Blue Sage Environmental 1999). According to Ecology's Facility/Site Database, Thomas Equipment Rental operated at 827 S Director Street (parcel 0015). Thomas Equipment Rental was a hazardous waste generator between November 1993 and March 1994. Thomas Equipment Rental vacated the property in April 1994 (METRO 1994). Additional information regarding historical operations at the property was not available for review.

5.7.3 Regulatory History

Merlino Construction formerly had a NPDES individual permit. The permit was terminated on May 13, 1997 (Drabek 1997). Merlino Construction applied for a general permit to discharge stormwater associated with industrial activity in July 1997 (Merlino Construction 1997). Ecology granted the facility coverage under the stormwater baseline general permit for industrial activity on January 23, 1998 (Ecology 1998b).

On June 17, 1997, King County investigated a report of a Merlino Construction vactor truck that was observed decanting vactor waste into the S 95th Street Wetland. King County issued a Water Quality Violation to Merlino Construction and instructed the facility to clean up the vactor waste and piles of debris and garbage that were stored on the adjacent vacant lot. King County re-inspected the property and determined the cleanup was completed and miscellaneous construction materials had been removed from within the wetland buffer (King County 1997a).

Merlino Construction failed to submit stormwater sampling data between 1998 and the second quarter 2007. On August 15, 2007, Ecology issued Administrative Order No. 4604. The Administrative Order required the facility to submit previous stormwater data and collect a stormwater sample for the third quarter 2007 and subsequent monitoring periods (Ecology 2007i).

On December 4, 2008, Ecology conducted a stormwater compliance inspection at Merlino Construction. Inspectors also reviewed storage and handling practices for hazardous waste at the facility. Several drums, buckets, cans, and/or miscellaneous containers were stored outside without cover or containment. Concrete block bins at the property contained construction waste from offsite activities. Ecology observed vehicle and equipment washing by tenants at the facility. Ecology issued the following corrective actions (Ecology 2008af, 2009b):

- Revise and update the SWPPP for the facility.
- Provide cover and containment for all liquid products and waste stored outside.
- Do not combine chemical and petroleum wastes with construction wastes.
- Provide cover for construction waste debris or monitor for additional pollutants.
- Discontinue discharge of wastewaters to storm drains.

On January 20, 2009, Merlino Construction notified Ecology that the company improved spill response procedures, cleaned storm drain structures, eliminated discharge of washwater to the storm drain, and installed catch basin filter inserts. The facility requested KCIW to approve discharge from the wash pad to the sanitary sewer. Merlino Construction requested an extension for compliance items addressing storage of waste items in the yard. The facility planned to build a covered containment area for storing waste items in the yard (Merlino Construction 2009).

Ecology conducted a follow-up inspection at the property on April 15, 2009. The wash pad was completely rebuilt. The company installed an oil/water separator and new drains for a holding tank and discharge point. Liquids and hazardous material were moved to inside the Stoneway building. The facility added four 20-yard covered dumpsters for compost, trash, concrete rubble, and debris accumulation. Ecology determined the facility was in compliance (Jeffers 2009b; Ecology 2009l).

Merlino Construction submitted an ISGP Annual Report to Ecology on May 13, 2011. The facility exceeded the benchmark for turbidity during the first, second, and fourth quarter of 2010. Zinc exceeded benchmarks during every quarter of 2010 and copper exceeded benchmarks in the first quarter of 2010. The facility increased sweeping frequency and catch basin maintenance to reduce copper, zinc, and turbidity levels. The facility installed filter fabric socks, straw bales, and restricted activities around the French drain to reduce turbidity at the site. Merlino construction installed check dams and secondary containment devices to reduce zinc levels at the facility (Merlino Construction 2011a).

Ecology conducted an Urban Waters Environmental Compliance inspection at the facility on May 18, 2011. Product and waste for the concrete testing lab was stored uncovered. Several large oil spots were on the ground where leaking heavy equipment or vehicles were parked. Ecology identified the following corrective actions (Ecology 2011p):

- Properly store product and waste.
- Implement proper housekeeping to check for leaking dumpsters and equipment.

Merlino Construction returned a completed compliance certificate on June 2011 (Merlino Construction 2011b).

Ecology conducted a follow-up inspection on July 14, 2011. Product and waste liquids remained uncovered. The inspector observed old and new oil stains on the dirt and gravel where the facility parked heavy machinery. Dumpsters and scrap metal bins were uncovered. The facility failed to address corrective actions issued during the previous May 2011 inspection (Ecology 2011t).

Merlino Construction submitted an ISGP Annual Report to Ecology on May 13, 2012. The facility exceeded benchmarks for zinc during the first, third, and fourth quarter of 2011. Copper exceeded benchmarks during the fourth quarter of 2011. The facility constructed another storage shed to provide additional cover for chemicals in 5- and 55-gallon containers. The facility was in the process of installing a filter treatment system to reduce zinc concentrations in stormwater (Merlino Construction 2012).

According to Ecology’s PARIS database, the facility exceeded benchmarks for zinc in Basin 1 during the first quarter 2012 and Basins 1 and 2 during the second quarter 2012.

CERCLA Section 104(e) Requests

EPA sent CERCLA Section 104(e) Request for Information Letters to Gary Merlino Construction on July 21, 2009 (USEPA 2009b). The information request included parcels 2433700095, 2433200185, 2433200205, 2433700015, and 2433700055. A response to the request was not available for review at the time this report was prepared.

Johnson Western

SPU inspected the Johnson Western facility on November 17, 2010. Inspectors identified the following corrective actions (SPU 2010e):

- Develop and implement spill response procedures.
- Properly educate employees.

SPU determined the facility was in compliance during a follow-up inspection on December 28, 2010 (SPU 2010e).

5.7.4 Environmental Investigations and Cleanups

Two environmental investigations and cleanups have been performed at this property. Sample locations are presented on Figure 24b. A summary of all chemicals detected in soil and groundwater detected at the facility is included in Appendix C. LDW sediment COCs were not analyzed for in the soil and groundwater samples collected at this property.

Site Characterization Report (1999)

In 1994, Merlino Construction installed a 10,000-gallon diesel and a 10,000-gallon unleaded gasoline UST. The USTs were located near the office building at the facility. The USTs were covered with a concrete pad and connected to fuel pumps. On July 23, 1999, the UST system was permanently closed and the tanks and pumps were removed. Seven soil samples were collected from the excavation area at a depth of approximately 8 feet bgs. One soil sample was collected from the dispensing pump area at a depth of 2 feet bgs. Three soil samples were collected from the excavation stockpile. Soil samples were analyzed for BTEX and petroleum hydrocarbons. Gasoline-range hydrocarbon concentrations in the soil samples collected from the pump area and the north edge of the excavation exceeded the MTCA Method A cleanup level (Blue Sage Environmental 1999). Benzene concentration in soil collected from the pump area exceeded the current MTCA Method B cleanup level.

On July 26, 1999, additional soil was removed from the floor of the tank excavation and under the dispensing pumps. Approximately 200 cubic yards of soil was removed during the excavation. Four additional soil samples were collected from the edges of the excavation and from under the dispensing pumps. Soil samples were analyzed for BTEX and petroleum hydrocarbons. Gasoline-range hydrocarbons were detected in one sample at a concentration below the current MTCA Method A cleanup level; no other analytes were detected in the soil samples. A water sample was collected from the base of the excavation and analyzed for BTEX and petroleum hydrocarbons. Benzene, toluene, xylenes, diesel- and gasoline-range hydrocarbons concentrations in the water sample exceeded MTCA Method cleanup levels for groundwater. The excavation was filled with clean fill and covered with concrete. No further action was recommended (Blue Sage Environmental 1999).

Level II Source Control Report (2008)

During 2007 and 2008, Merlino Construction conducted a source control investigation to improve onsite performance for attaining benchmark values of both zinc and turbidity. The facility located and cleaned previously unknown catch basins and mapped drainage features. The facility installed curtains at the wash rack to reduce overspray. Check dams were installed at catch basin locations on 10th Avenue S to reduce flow of sediments to the storm drain. Turbidity levels in Basin 1 were below benchmark levels for the fourth quarter 2008. Turbidity levels in Basin 2 were below action levels but above benchmark levels for the fourth quarter 2008. The investigation sampled offsite catch basins and collected aerial zinc deposits. Results indicated that a significant amount of zinc comes from offsite sources. The report investigated additional treatment technologies to reach the benchmark value for zinc. Due to the inability to control offsite sources without leading to excessive expense, further mitigation measures were deemed infeasible (AMEC 2008).

5.7.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Merlino Construction failed to address corrective actions issued after a July 2011 Ecology follow-up inspection. Corrective actions included properly storing waste, removing grease stained soil under leaking equipment, and implementing good housekeeping practices.

Turbidity levels and copper concentrations have been reduced below benchmark levels in recent monitoring periods. The facility has repeatedly exceeded benchmarks for zinc during quarterly monitoring events. The potential for sediment recontamination associated with the current operations at the facility is low to moderate.

Groundwater Discharge

During inspections at the facility, Ecology observed leaking construction equipment on sand and gravel lots. Previous environmental investigations have indicated that soil and groundwater are contaminated by petroleum hydrocarbons and VOCs. The potential for sediment recontamination via the groundwater pathway is unknown, but it is likely to be low due to the distance between the facility and the LDW.

5.7.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- A follow-up inspection is needed to verify that Merlino Construction has complied with the corrective actions and recommendations identified by Ecology during the July 2011 inspection.

- A review of the response from Merlino Construction to the CERCLA Section 104(e) Request for Information letter is needed to identify potential sources of sediment recontamination that may be associated with current and historical operations at the property.

5.8 Progressive Fastening Inc.

Facility Summary: Progressive Fastening Inc.	
Tax Parcel No.	2433700015
Address	837 S Director Street 98108
Property Owner	Anmarco
Parcel Size	1.91 acres (83,327 sq ft)
Facility/Site ID	9246491
SIC Code(s)	5072: Hardware
EPA ID No.	WAH000032052
NPDES Permit No.	None
UST/LUST ID No.	None

Progressive Fastening Inc. (Progressive Fastening) operates at parcel 0015 (Figure 12). The facility is bordered by S Barton Street to the south, 8th Avenue S to the west, and S Director Street to the north and 10th Avenue S to the east. According to King County tax assessor records, a 31,600 sq ft warehouse building, built in 1979, is present on parcel 0015.

Progressive Fastening leases a portion of warehouse space located at the Merlino Construction facility. Merlino Construction is discussed in Section 5.7.

5.8.1 Current Operations

The facility operates a paint booth inside the building and two rock tumblers outside of the building. The paint is recycled and washwater from the rock tumblers is discharged to the sanitary sewer (SPU 2010j). No additional information regarding current operations conducted by Progressive Fastening was available for review.

5.8.2 Historical Operations

Information regarding historical operations at the property was not available for review.

5.8.3 Regulatory History

Ecology conducted an Urban Waters Environmental Compliance inspection at Progressive Fastening on January 26, 2009. Ecology issued the following corrective actions (Ecology 2009m):

- Implement pretreatment for debur water discharge.
- Properly document waste generation of paint solvents.
- Complete annual waste management reports for 2007 and 2008.

- Obtain a waste clearance from KCIW for disposal of paint filters as solid waste.
- Improve or create spill response procedures.
- Properly store non-containerized waste materials.

Ecology advised the facility to evaluate the need for an ISGP or CNE and to notify Puget Sound Clean Air Agency (PSCAA) of paint booth activities (Ecology 2008aa). Ecology conducted a follow-up inspection on March 25, 2009. The facility failed to address corrective actions issued during the previous January 2009 inspection (Jeffers 2009d).

SPU inspected the facility on December 8, 2010. The inspectors did not identify any corrective actions (SPU 2010j).

5.8.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Limited information regarding current operations at the facility is known. As of March 2009, Progressive Fastening had failed to complete corrective actions issued during a January 2009 Ecology inspection at the facility. Source control items included pretreatment of wastewater discharged to the sanitary sewer and proper waste management and reporting. Potential for sediment recontamination due to current facility operations is unknown.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property. The potential for sediment recontamination via the groundwater pathway is unknown, but it is likely to be low due to the distance between the facility and the LDW.

5.8.5 Data Gaps

Progressive Fastening appears to maintain appropriate source control BMPs and was in compliance during a December 2010 SPU inspection. Therefore, no data gaps were identified for this property.

5.9 King Electrical Manufacturing Company

Facility Summary: King Electrical Manufacturing Company	
Tax Parcel No.	2433700105, 2433700068
Address	0105: 9131 10th Avenue S 98108 0068: 821 S Barton Street 98108
Property Owner	Wilson, Robert and Shirley
Parcel Size	0105: 2.00 acres (86,940 sq ft) 0068: 0.95 acre (41,423 sq ft)
Facility/Site ID	2404488
Alternate Name(s)	King Electrical Mfg. Co.

Facility Summary: King Electrical Manufacturing Company	
SIC Code(s)	None
EPA ID No.	WAH000033636
NPDES Permit No.	None
UST/LUST ID No.	None

King Electrical Manufacturing Company (King Electrical) operates at parcels 0105 and 0068 (Figure 12). The facility is divided by S Barton Street and bordered by Halfon Candy to the south, Merlino Construction to the west and north and 10th Avenue S to the east.

King County tax assessor records indicate the following structures are present at the property:

- a 11,120 sq ft light industrial manufacturing building, built in 1963, on parcel 0105;
- a 16,040 sq ft warehouse and shop, built in 1968, on parcel 0105;
- a 25,740 sq ft light manufacturing building, built in 1968, on parcel 0105; and
- a 35,289 sq ft storage warehouse and office, built in 2007, on parcel 0068.

5.9.1 Current Operations

King Electrical began manufacturing electric heaters at the current location in 1963. The company produces mostly small electric wall, baseboard, and portable electric heaters. The facility also produces large industrial heaters. King Electrical conducts metal punching, machining, painting, electrical assembly, final assembly, and shipping at the facility. The facility has a fabrication shop, warehouse, machine shop, assembly line, and office area (Ecology 2008w).

The facility utilizes a paint booth filtration tank, element rinse tank (hot tank), and a metal parts wash tank. During cleaning operations, wastes from each tank are collected in 55-gallon accumulation drums. Washwater is either evaporated from the drums or pumped back into the tank. Scrap metal is stored in bins indoors or outside under cover. Metal grindings are swept up, placed in a metal recycling bin, and picked up by a recycling company (King Electrical 2011a).

There are nine catch basins located throughout the property that convey stormwater to the S 96th Street storm drain system (Figure 25).

5.9.2 Historical Operations

King Electrical has operated at the current facility since 1963. Additional information regarding historical operations prior to King Electrical was not available for review.

5.9.3 Regulatory History

On October 27, 1977, METRO inspected King Electrical and was informed that the spray paint booth tank was dumped daily to a trough behind the booth. The trough conveyed sludge to a discharge point outside of the main building. METRO observed paint stains and sludge flowed across the road and into an open drainage ditch along 10th Avenue S. METRO issued the following corrective actions (METRO 1977):

- Discontinue discharge of spray paint booth wastes to surface waters.
- Ensure that spray paint booth wastes discharged to sanitary sewer meet METRO discharge limits.
- Store paints and solvents properly to prevent spills.

Additional information regarding compliance with corrective actions was not available for review.

Ecology conducted a source control inspection at King Electrical on December 3, 1993. The machinery used for forming and fabricating electric heaters did not require changing of greases or oils. The company conducted electrostatic painting on heater casings. Paint cans were rinsed and recycled. Ecology did not issue any corrective actions (Ecology 1993h).

Ecology conducted a source control inspection at King Electrical on July 8, 2008. King Electrical stored batteries, scrap metal, paints, hydraulic oil, and a solid waste dumpster outside. The facility had accumulated waste paints and oils in excess of 2,200 pounds. Ecology observed spills and staining near the solid waste dumpster, in the west lot, and around the waste bin and used oil storage areas. A waterfall paint booth drained to a waste trench that was then connected to a vault in the machine shop. King Electrical indicated the vault discharged to the sanitary sewer. Solids were skimmed from the paint booth trench and disposed of as solid waste. Ecology issued the following corrective actions (Ecology 2008p, 2008s):

- Improve or create spill response procedures.
- Properly educate employees on spill plan and use of spill kit.
- Implement proper housekeeping practices.
- Clean and eliminate leaks and spills from the storage area.
- Obtain proper permit for discharge of paint booth process water to the sanitary sewer.
- Properly label and store waste.
- Properly document and dispose of waste.
- Repair or replace degraded open chemical containers.
- Evaluate the need for an ISGP or CNE.

On August 27, 2008, Ecology and KCIW inspectors conducted a follow-up inspection at King Electrical. The paint booth trench had been cleaned since the previous inspection in July 2008. Ecology noted that the waste stored outside during the previous inspection had been moved inside. KCIW inspected the discharge line to the sanitary sewer from the paint operation and collected samples from the process water vault in the machine shop. A worker at the facility notified KCIW inspectors that the company operated a hot rinse tank to clean metal parts. The hot rinse tank routinely discharged through a port in the south wall of the manufacturing building. Process water from the hot rinse tank was conveyed to the storm drain in the lot outside. At the time of the inspection, the Vice President of Operations for the company made no mention of the hot tank process and indicated the port in the south wall was for a compressed air line. During the inspection, KCIW was able to confirm the hot tank was hidden in a side room on the south side of the building. Two caustic soap drums were located near the hot rinse tank. The inspector observed a discharge pipe from the hot tank that exited the building through the south wall (Ecology 2008w).

Ecology determined the facility did not fully address the environmental compliance issues observed during the July 2008 inspection. On September 10, 2008, Ecology issued a corrective action letter describing the compliance issues listed above (Ecology 2008z).

On October 3, 2008, Ecology, KCIW, and SPU conducted a stormwater compliance inspection at King Electrical. The inspectors conducted a dye test of the paint booth sump to confirm the sump discharged to the sanitary sewer. SPU placed dye in the sump and filled the machine shop vault with water until the sump started to discharge. Inspectors removed the grate from the storm drain in S Barton Street and observed green dye in the storm drain system. Inspectors confirmed the vault in the machine shop was connected to the storm drain system, not the sanitary sewer. The inspection team determined the vault had been discharging to the storm drain system for approximately 30 years. Ecology and SPU requested that the outlet from the sump be plugged immediately (Ecology 2008ae).

During the October 2008 inspection, inspectors observed the discharge hose from the hot rinse tank had been rerouted to a utility sink in an interior bathroom. Inspectors collected samples from the hot rinse tank to determine if process water needed to be pretreated prior to discharge to the sanitary sewer. Ecology also inspected the outside areas at the facility and determined industrial activities at the facility were exposed to stormwater. Ecology recommended a penalty for discharge of wastewater to the storm drain system and issued the following corrective actions (Ecology 2008ae):

- Immediately discontinue discharge of washwater, rinse water, process water, wastewater, coolant, cutting oil or wastes of any kind to the storm drain system.
- Permanently disconnect the vault in the machine shop from the storm drainage system.
- Submit an application for coverage under the ISGP or eliminate all equipment exposure to stormwater and apply for a CNE.

SPU also issued a Notice of Violation and corrective action for the facility’s illicit connection to the City of Seattle storm drain system (SPU 2008a).

On October 10, 2008, SPU collected a catch basin sample (CB129) from the north side of S Barton Street near King Electrical. Concentrations of zinc, fluoranthene, bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, and 4-methylphenol exceeded storm drain screening values (Table 9, Figure 4).

Ecology’s HWTR Program and SPU conducted a compliance inspection at King Electrical on October 16 and 17, 2008. King Electrical plugged the connection to the vault in the machine shop on the night of October 16. Discharge from the hot rinse tank was rerouted so that the tank would discharge to the sanitary sewer following approval from KCIW. Waste containers in the hazardous waste accumulation area were not labeled properly. Inspectors observed seventeen 55-gallon drums of waste staged for pickup. Twelve 55-gallon drums contained paint related waste, four contained paint stripper, and one contained used oil. Shop towels and universal waste lamps were improperly managed. A bulk box lined with plastic contained smaller (one to five gallon size) paint cans that had been opened and dried. Following the removal of hazardous waste by an outside waste recycler, King Electrical did not plan to use the shipping building as an accumulation area. Ecology issued corrective actions regarding proper labeling of containers with accumulation dates and waste designations. Ecology instructed King Electrical to post emergency information near communication devices in waste accumulation areas (Ecology 2008ah, 2008aj; SPU 2008b).

King County determined metals data from the hot tank wastewater failed to meet discharge standards for copper and temperature. VOCs data from the paint booth wastewater failed to meet King County discharge standards for total xylenes. King County denied authorization to discharge paint booth water or hot tank water to the sanitary sewer without pretreatment (King County 2008c).

On December 12, 2008, Ecology issued Notice of Penalty No. 6235 to King Electrical for discharge of wastewater from the waterfall paint booth and hot rinse tank to the storm drain system (Ecology 2008ai). On January 13, 2009, King Electrical filed an Application for Relief from Penalty with Ecology. Ecology denied King Electrical’s appeal (Ecology 2009g).

King Electrical returned a completed compliance certificate to Ecology on December 24, 2008. The company indicated illicit discharges from the paint booth and hot rinse tank were stopped in July 2008. Dry solids from the paint booth were collected and stored on site for future disposal by a waste services company. The facility was storing water from the hot tank on site until a waste disposal method was finalized. All 5-gallon cans of solvent were covered and labeled for future use or disposal. All used oil was relocated to a designated area with secondary containment prior to proper disposal. Hazardous waste, including seventeen 55-gallon drums and a bulk box of paint cans, was picked up by a hazardous waste services company. The facility began recycling waste lamps and shop towels. The facility labeled and stored new waste containers properly (King Electrical 2008).

On March 17, 2009, Ecology conducted an HWTR compliance inspection at King Electrical. Paint solids from the waterfall paint booth were placed in a 55-gallon container for disposal as hazardous waste. The drums were not labeled as hazardous waste. A 55-gallon drum used to accumulate used oil was properly labeled, closed, and placed in secondary containment. Process water from the hot tank continued to be collected in 55-gallon drums and removed from the property by a waste service company. King Electrical did not know if the drums were being handled as hazardous waste. Ecology requested the drums to be labeled properly following a waste designation. The facility was working with KCIW on a permit to discharge the hot tank waste to the sanitary sewer. Ecology inspectors observed waste lamps and shop rags were being properly managed, with the exception of one unlabeled 5-gallon bucket used for shop rags in the waste accumulation shed. Inspectors confirmed the seventeen 55-gallon drums previously stored at the 821 S Barton Street building had been removed. Ecology requested the 5-gallon bucket containing shop rags be labeled as hazardous waste (Ecology 2009k).

King Electrical returned a completed compliance certificate and photos indicated compliance with Ecology corrective actions (King Electrical 2009a). Ecology requested copies of the hazardous waste designation and shipping records for the paint booth and hot tank wastewater (Ecology 2009q). King Electrical submitted requested documents on August 5, 2009 (King Electrical 2009b). On August 20, 2009, Ecology determined King Electrical was in compliance with corrective actions issued during the March 2009 inspection (Ecology 2009r).

On April 13, 2011, Ecology and SPU conducted a dangerous waste compliance inspection at the King Electrical facility. Paint solids and sludge from the waterfall paint booth were disposed of as solid waste with a waste clearance from the King County Health Department. Inspectors observed a 55-gallon drum used to accumulate used oil was properly labeled and closed. The facility was still in the process of working with KCIW for clearance to discharge the wastewater from the element rinse tank to the sanitary sewer. Inspectors observed improperly labeled 5-gallon paint/solvent containers and two large totes containing still bottoms in the distillation area. The still bottoms had accumulated during the previous two years (Ecology 2011h). On April 14, 2011, Ecology issued an Immediate Action Required letter for King Electrical to reactivate the facility's EPA ID for shipment of the accumulated still bottoms (Ecology 2011g). In addition to the immediate action requirement, Ecology issued the following corrective actions (Ecology 2011h):

- Properly manage aerosol spray cans.
- Close and label all containers of dangerous waste.
- Clarify the designation status of the element rinse tank wastewater.
- Implement an inspection schedule for areas where containers of dangerous waste are stored.
- Ensure the facility is in compliance with solvent recycling requirements.
- Properly manage universal and electronic waste.

The facility applied for a wastewater discharge permit from KCIW on April 7, 2011 (King Electrical 2011c). King Electrical submitted a completed compliance certificate on May 27, 2011. The facility reactivated the EPA ID and the two totes of still bottoms were picked up by a waste handling company on April 19, 2011. King Electrical provided picture documentation and weekly inspection sheets demonstrating compliance with other action items (King Electrical 2011b). King Electrical submitted sample data from the element rinse tank on June 17, 2011. Ecology determined the facility was in compliance with corrective actions issued during the April 13, 2011 inspection (Ecology 2011q).

SPU inspected the facility on March 6, 2012. SPU did not observe any stormwater code violations at the facility (SPU 2012c).

On May 16, 2012, Ecology issued King Electrical a modified CNE. The original CNE was issued on October 17, 2011.

CERCLA Section 104(e) Requests

EPA sent CERCLA Section 104(e) Request for Information Letters to King Electrical Manufacturing on December 21, 2010 (USEPA 2010a). The information request included parcel 2433700105. A response to the request was not available for review at the time this report was prepared.

5.9.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Historically, King Electrical discharged wastewater from a paint booth and hot rinse tank to the storm drain on S Barton Street. Following inspections by Ecology, SPU, and KCIW, the facility stopped illicit discharges to the storm drain system. During Ecology and KCIW inspections between 2008 and 2011, the facility was repeatedly out of compliance with hazardous waste management requirements. King Electrical received a CNE after removing materials from the storage yard at the facility. The facility completed corrective actions issued by Ecology during 2008 through 2011 (Ecology 2011q. The potential for sediment recontamination due to current facility operations is low.

Groundwater Discharge

Historical wastewater discharge practices at this facility may have resulted in soil and/or groundwater contamination. The facility is approximately 3,000 feet west of the LDW. The potential for sediment recontamination via the groundwater discharge pathway is unknown, but is likely to be low due to the distance between the facility and the LDW.

5.9.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with this property is listed below:

- Additional information is needed to determine if King Electrical received a discharge authorization from KCIW to discharge hot rinse tank wastewater to the sanitary sewer.
- A review of the response from King Electrical to the CERCLA Section 104(e) Request for Information letter is needed to identify potential sources of sediment recontamination that may be associated with current and historical operations at the property.

5.10 Halfon Candy Company

Facility Summary: Halfon Candy Company	
Tax Parcel No.	2433700076
Address	9229 10th Avenue S 98108
Property Owner	Halfon Nell
Parcel Size	0.95 acre (41,425 sq ft)
Facility/Site ID	1557860
Alternate Name(s)	Halfon Candy Co
SIC Code(s)	5145: Confectionary
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

Halfon Candy Company (Halfon Candy) operates at parcel 0076 (Figure 12), which is bordered by Filterfresh to the south, Puget Sound Coatings to the west, King Electrical to the north, and 10th Avenue S to the east. There is one building located on the property, a 31,300 sq ft distribution warehouse, built in 1978.

5.10.1 Current Operations

Halfon is a candy distribution company that has operated at the property since 2000 (Zand 2007). The facility does not handle dangerous waste or store materials outside. There is one catch basin located at the facility. The catch basin is inspected and cleaned annually. According to a 2010 SPU inspection, the catch basin conveys stormwater to a culvert, not the storm drain system (SPU 2010a).

5.10.2 Historical Operations

Information regarding historical operations at the property was not available for review.

5.10.3 Regulatory History

On June 28, 2007, SPU investigated the possibility of contamination in and around a water meter box at the Halfon Candy property. SPU collected water samples and submitted the samples to a lab for analysis of pH and TPH. TPH concentrations were not detected in the sample and pH registered at 8.9. The sample was reanalyzed for metals. Concentrations of arsenic, iron, and lead exceeded MTCA Method A cleanup levels for groundwater. Historically, CKD was used as fill throughout the source control area. The elevated metals concentrations in groundwater could be attributed to CKD leachate (Zand 2007).

On January 23, 2008, Ecology added Halfon Candy to the CSCSL (Ecology 2008a). The facility is currently listed as “Awaiting Cleanup” in Ecology’s ISIS database.

On November 10, 2010, Ecology conducted an HWTR inspection at Halfon Candy. The inspector determined the facility was in compliance with applicable regulations (Ecology 2010u).

5.10.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Halfon Candy was in compliance with inspection items during an HWTR inspection in November 2011. The potential for sediment recontamination associated with this facility is low provided that Halfon Candy maintains appropriate source control BMPs.

Groundwater Discharge

Concentrations of arsenic, iron, and lead in a groundwater sample exceeded MTCA Method A cleanup levels for groundwater in 2007. The facility was added to Ecology’s CSCSL in January 2008. Additional soil and groundwater characterization was not conducted at the facility. The potential for sediment recontamination via the groundwater discharge pathway is unknown, but is likely to be low due to the distance between the facility and the LDW.

5.10.5 Data Gaps

Halfon Candy appears to maintain appropriate source control BMPs and was in compliance during a 2011 Ecology inspection. Therefore, no data gaps were identified for this property.

5.11 Filterfresh Coffee Service Inc.

Facility Summary: Filterfresh Coffee Service Inc.	
Tax Parcel No.	2433700075
Address	9243 10th Avenue S 98108
Property Owner	Zach’s Properties LLC
Parcel Size	0.95 acre (41,549 sq ft)
Facility/Site ID	23352
SIC Code(s)	5963: Direct Selling Establishment
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

Filterfresh Coffee Service Inc. (Filterfresh) operates at parcel 0075 (Figure 12), which is bordered by Halfon Candy to the north, Puget Sound Coatings to the west, Avidex Industries and ATACS Products (PNP Properties) to the south, and 10th Avenue S to the east. There is one building located on the property, a 22,176 sq ft warehouse and open office building, built in 1978.

5.11.1 Current Operations

Filterfresh currently operates at 9243 10th Avenue S. The company supplies coffee and coffee brewing equipment to businesses within the Seattle area (Ecology 2010v). No additional information regarding current operations at the facility was available for review.

5.11.2 Historical Operations

Information regarding historical operations at the property was not available for review.

5.11.3 Regulatory History

SPU conducted an initial inspection at Filterfresh on September 16, 2010. The inspector identified the following corrective actions (SPU 2010b):

- Develop and implement spill response procedures.
- Improve or purchase adequate spill response materials.
- Properly educate employees.
- Implement proper washing practices.

SPU determined the facility was in compliance during a follow-up inspection on November 16, 2010 (SPU 2010g).

Ecology inspected Filterfresh on November 30, 2010. Filterfresh washes coffee dispensers at the facility and discharges water to the sanitary sewer. The inspector was told that the company occasionally has a contractor wash vehicles on site. Washwater was discharged to the storm drain system. Ecology issued the following corrective actions (Ecology 2010v):

- Obtain the proper permit for facility discharge to the sanitary sewer.

- Implement proper vehicle washing practices.

Ecology recommended creating spill response procedures and implementing proper housekeeping (Ecology 2010v). Filterfresh returned a completed compliance certificate on December 6, 2010. KCIW determined the facility did not need authorization to discharge washwater to the sanitary sewer (Filterfresh 2010). On December 22, 2010, Ecology determined the facility was in compliance with corrective actions (Ecology 2010w).

5.11.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Filterfresh completed the corrective actions required by Ecology in 2010 (Ecology 2010w). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.

Groundwater Discharge

There is no information available that indicates soil or groundwater contamination is present at this property.

5.11.5 Data Gaps

Filterfresh appears to maintain appropriate source control BMPs and was in compliance following an Ecology inspection in November 2010. Therefore, no data gaps were identified for this property.

5.12 Former Morgan Trucking Inc./MacMillan Piper

Facility Summary: Former Morgan Trucking Inc./MacMillan Piper	
Tax Parcel No.	2433700156, 2433700155, 2433700154, 2433700153, 2433700165
Address	0156, 0153, 0154, 0155: 9302 10th Avenue S 98108 0165: 9228 10th Avenue S 98108
Property Owner	Ream Family Limited Partner
Parcel Size	0156: 0.46 acre (20,000 sq ft) 0153, 0154, 0155: 1.54 acres (66,940 sq ft) 0165: 2.85 acres (124,310 sq ft)
Facility/Site ID	42665774
Alternate Name(s)	Morgan Trucking Inc. Seattle
SIC Code(s)	4212: Local Trucking, Without Storage
EPA ID No.	WAD988496261
NPDES Permit No.	None
UST/LUST ID No.	UST 844 (inactive)

MacMillan Piper is located at parcels 0156, 0155, 0154, 0153, and 0165 (Figure 12). The facility is bordered by Simplex Grinnell and NRC Environmental Services to the south, 10th Avenue S to the west, S Barton Street to the north, and SR 99 to the east. King County tax assessor records indicate the following structures are present at the property:

- a 22,000 sq ft transit warehouse, built in 1979, on parcel 0165; and
- a 7,200 sq ft lumber storage shed, built in 1970, on parcel 0165.

Parcels 0156, 1055, 1054, and 0153 are vacant lots.

5.12.1 Current Operations

MacMillan Piper is an import and export-shipping facility located at 9228 10th Avenue S. Import services includes container freight, transloads, and distribution. Export products handled at the facility include lumber, bales of pulp, billets/metal sheets, copper oxide, automobiles, drywall, and mill scale (MacMillan Piper 2012). MacMillan Piper began operating at the facility in 2000. The company does not conduct vehicle washing, fueling, or maintenance at the facility. An air compressor in the northwest corner of the property is used to fill truck tires. There is a diesel AST with secondary containment located inside the main building. Forklifts are used in the yard. The facility cleans drains and sweeps lots semiannually (SPU 2012a).

5.12.2 Historical Operations

Morgan Trucking historically operated at the 9228 10th Avenue S location. The facility was an interstate trucking company that primarily handled lumber. Trucks and forklifts were maintained by an outside contractor. The facility was approximately 90 percent paved. A fueling station and USTs were located in the shipping yard. Morgan Trucking stored hydraulic fluid, paint, oil, and tools in a shed in the shipping yard (Ecology 1992w). In 1998, Morgan Trucking combined the company’s Seattle and Tacoma operation into one facility in Tacoma (Morgan Trucking 2012).

5.12.3 Regulatory History

Morgan Trucking Inc.

On October 1, 1992, Morgan Trucking submitted an NOI for a Baseline General Permit to Discharge Stormwater Associated with Industrial Activity (Morgan Trucking 1993). Information regarding coverage under an ISGP was not available for review.

Ecology conducted a source control inspection at the Morgan Trucking facility on December 3, 1992. Inspectors observed 5-gallon buckets containing rainwater, used oil filters, oily rags, and empty oil containers next to the fuel pump station in the yard. Dirt and asphalt in the area around the fuel pump were stained. A storm drain structure was located down gradient of the fueling station (Ecology 1992w). On January 29, 1993, Ecology issued the following corrective actions (Ecology 1993g):

- Move 5-gallon chemical containers inside and store with secondary containment.
- Keep all oily debris away from areas with the potential to impact stormwater.
- Investigate stained soils near the fueling station for contamination.

- Implement BMPs to prevent oil contamination from entering the storm drain.

On February 24, 1993, Morgan Trucking responded to corrective actions in a letter to Ecology. Chemical containers were removed from the property and disposed of properly. The facility intended to complete a SWPPP by November 1993. Morgan Trucking hired an environmental consultant to collect a soil sample in the stained area around the fueling station (Morgan Trucking 1993). The site investigation determined that the stained soil was approximately one inch thick with asphalt underneath. Therefore, the consultant did not sample the soil (Woodward Clyde 1993).

MacMillan Piper

SPU inspected MacMillan Piper on January 23, 2002, and January 6, 2012. The inspector did not identify any corrective actions during either inspection (SPU 2002, 2012a).

5.12.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

SPU did not identify any corrective actions at MacMillan Piper during inspections in 2002 and 2012 (SPU 2002, 2012a). Potential for sediment recontamination due to current facility operations is low provided that source control BMPs are maintained.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property. Historical fueling operations may have resulted in petroleum contamination in soil and groundwater. The potential for sediment recontamination via the groundwater pathway is unknown, but it is likely to be low due to the distance between the facility and the LDW.

5.12.5 Data Gaps

MacMillan Piper appears to maintain appropriate source control BMPs. Therefore, no data gaps were identified for this property.

5.13 PNP Properties LLC

Facility Summary: PNP Properties LLC	
Tax Parcel No.	2433700074
Address	850 & 860 S Cambridge Street 98108
Property Owner	PNP Properties LLC
Parcel Size	0.95 acre (41,230 sq ft)
Facility/Site ID	21231: Avidex Industries, LLC 17553: ATACS Products
Alternate Name(s)	Proline/Avidex
SIC Code(s)	None

Facility Summary: PNP Properties LLC	
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

Avidex Industries, LLC (Avidex) and ATACS Products Inc. (ATACS) operate at parcel 0074 (Figure 12). The facilities are bordered by S Cambridge Street to the south, Puget Sound Coatings to the west, Halfon Candy to the north, and 10th Avenue S to the east. According to King County tax assessor records, a 28,290 sq ft multi-tenant warehouse building, built in 1981, is present on parcel 0074.

5.13.1 Current Operations

Avidex Industries, LLC

Avidex provides audio and visual services for corporate events. The facility on S Cambridge Street is used for rental equipment and staging storage (Ecology 2011n). Additional information regarding current operations at the facility was not available for review.

ATACS Products Inc.

ATACS manufactures polymers for the aircraft industry. The company engineers, produces, and sells hot-bond equipment and accessories. The facility sells bonding supplies, fabrics, films, adhesives, and specialized repair tools (ATACS Products 2012). Additional information regarding current operations at the facility was not available for review.

5.13.2 Historical Operations

Additional information regarding historical operations at the property was not available for review.

5.13.3 Regulatory History

PNP Properties LLC

SPU inspected the property on January 25, 2012. SPU identified an outlet trap at the facility needed replacement (SPU 2012b). A new outlet trap was installed during a follow-up inspection on May 29, 2012 (SPU 2012d).

Avidex Industries, LLC

SPU conducted an initial inspection at Avidex on September 16, 2010. The inspector issued the following corrective actions (SPU 2010c):

- Develop and implement spill response procedures.
- Improve or purchase adequate spill response materials.
- Properly educate employees.

SPU determined the facility was in compliance during a follow-up inspection on October 25, 2010 (SPU 2010d).

Ecology conducted an inspection at Avidex on May 18, 2011. Ecology identified the following corrective actions (Ecology 2011n):

- Properly dispose of waste.
- Discontinue vehicle washing practices at the facility.
- Improve or create spill response procedures at the property.

Ecology determined the facility was in compliance based on information Avidex provided to Ecology following the compliance inspection (Ecology 2011v).

ATACS Products Inc.

SPU conducted an initial inspection at ATACS on September 21, 2010. The inspector identified the following corrective actions (SPU 2010d):

- Develop and implement spill response procedures.
- Improve or purchase adequate spill response materials.
- Properly educate employees.

The facility was in compliance during a follow-up inspection on October 21, 2010 (SPU 2010d).

Ecology conducted an inspection at ATACS on May 18, 2011. Ecology observed a 20-gallon container of phosphoric acid and five 55-gallon drums of ‘product’ stored without secondary containment. There were eight 55-gallon drums with unknown contents stored at the facility. Ecology identified the following corrective actions (Ecology 2011o):

- Properly store product/waste.
- Properly dispose of waste.

Ecology advised the facility to improve employee spill response training (Ecology 2011o). The facility returned a completed compliance certificate on August 25, 2011 (ATACS Products 2011). Ecology issued a compliance letter with the understanding that the facility would properly label waste products and designate waste for disposal (Ecology 2011x).

Ecology conducted a follow-up inspection at ATACS on November 10, 2011. ATACS removed all drums located at the property during the May 2011 property. An ATACS representative provided inspectors with disposal receipts for the drums (Ecology 2011y).

5.13.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Avidex and ATACS completed the corrective actions required by SPU in 2010 and Ecology in 2011 (Ecology 2011v, 2011x). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.

Groundwater Discharge

There is no information available that indicates soil or groundwater contamination is present at this property.

5.13.5 Data Gaps

Avidex and ATACS appear to maintain appropriate source control BMPs and have complied with corrective actions identified by SPU and Ecology. Therefore, no data gaps were identified for this property.

5.14 Puget Sound Coatings

Facility Summary: Puget Sound Coatings	
Tax Parcel No.	2433200215, 5624200190
Address	0215: 9220 8th Avenue S 98108 0190: 9400 8th Avenue S 98108
Property Owner	HTL Properties LLC
Parcel Size	0215: 3.21 acres (139,752 sq ft) 0190: 1.43 acres (62,117 sq ft)
Facility/Site ID	97263627: Puget Sound Coatings Machinists Inc. 13397378: Puget Sound Coatings Inc.
Alternate Name(s)	Puget Sound Coatings Machinists Inc.
SIC Code(s)	3479: Metal Coating and Allied Services
EPA ID No.	WAD002838068 (active) WAD980975627 (inactive)
NPDES Permit No.	WAR002142
UST/LUST ID No.	UST 3936

Puget Sound Coatings (PSC) operates at parcels 0215 and 0190 (Figure 12). The facility is bordered by Terex Utilities to the south, 8th Avenue S to the west, Stoneway Concrete Company and Gary Merlino Construction Company to the north, and Filterfresh, Halfon Candy, PNP Properties, and Mason Dixon Intermodal to the east.

King County tax assessor records indicate the following structures are present at the property:

- a 10,000 sq ft paint booth building, built in 1969, on parcel 0215;
- a 10,000 sq ft maintenance workshop, built in 1976, on parcel 0215;
- a 13,573 sq ft cleaning and loading building, built in 1982, on parcel 0215;
- a 10,000 sq ft sand blasting building, built in 1982, on parcel 0215; and
- a 12,960 sq ft industrial light manufacturing building and open office, built in 1975, on parcel 0190.

5.14.1 Current Operations

PSC began operating at the facility around the early 1980s (GeoEngineers 1998). The facility offers paint coating, pipe taping, and metalizing/flame spraying services for the industrial, architectural, marine, aerospace, commercial, and utility sectors. There are three sandblast booths and six heated paint booths located at the facility. PSC offers a variety of blast media to prepare metal surfaces for painting. PSC sandblasts pipes, metal plates, and structural frames. Spent sand blast grit is typically transported to a local cement kiln for disposal. Spent lead-contaminated blast grit is handled and disposed of as hazardous waste (Ecology 2008c).

The facility consists of several buildings and a large paved yard. Structures that contain potential stormwater pollution sources include sandblasting booths, a solvent still shed, paint rooms, maintenance building, paint storage rooms, a baghouse, and compressor room (Puget Sound Coatings 2008b). The facility loads and unloads grits, solvents, and paints for use or disposal. Works in progress are generally stored outside, on the paved storage yard, both before and after coating applications.

Historically, the facility had two discharge locations. The locations were combined into one discharge point via the installation of a connecting pipe. The former discharge outlet was sealed. The facility installed stormwater treatment system in September 2011. Stormwater is directed to a filter system that discharges to a sump. Water is pumped from the sump to an ion exchange system prior to discharge to the S 96th Street SD system (Figure 26a) (Puget Sound Coatings 2012b).

5.14.2 Historical Operations

According to a 1998 Phase I ESA, the facility and adjacent properties were developed for farmland and residences from 1903 to 1969. A warehouse garage was constructed on the property in 1969. The remaining structures were completed between 1974 and 1980. A building materials distributor, PacRim, leased the southernmost structure on the site between 1985 and 1996 (GeoEngineers 1998). Additional information regarding historical operations at this property was not available for review.

5.14.3 Regulatory History

Hazardous Waste Compliance

On November 25, 1992, Ecology conducted a source control inspection at PSC. Inspectors observed several unlabeled drums and containers stored without covers or secondary containment. According to PSC, the drums and containers held methyl ethyl ketone, paint, flammable liquids, and spent solvent (Ecology 1992q). Ecology observed spent sandblast grit on the ground and in catch basins around the sand blast grit loading area. Ecology identified the following corrective actions (Ecology 1993f:

- Construct additional containment structures for outdoor drums and containers.
- Clean out sandblast grit in the catch basins and storage yard.
- Eliminate disposal of contaminated shop rags to the dumpster.

PSC implemented the corrective actions between November 1992 and January 1993 (Puget Sound Coatings 1993).

Ecology conducted a dangerous waste compliance inspection at the facility on December 18, 1997. Inspectors identified the following corrective actions (Ecology 1998a):

- Properly label hazardous waste containers.
- Properly dispose of rags contaminated with listed solvents.

PSC submitted a completed compliance certificate on March 5, 1998. The facility labeled hazardous waste containers and contracted a third party to dispose of solvent or paint contaminated rags (Puget Sound Coatings 1998).

On September 19, 2001, Ecology conducted a dangerous waste compliance inspection at PSC. Ecology observed a staging area with buckets of spent solvent and paint cans left uncovered. The secondary containment the waste containers were stored in was nearly full with a mixture of rainwater, spilled paint, and solvents. A used oil tank (approximately 300 gallons) was located near a storm drain without secondary containment. Containers of hazardous waste and the used oil tank were not adequately labeled with contents or accumulation start dates. Steam cleaning was conducted directly over a storm drain and Ecology observed a milky white oil/water emulsion draining into the storm drain. Ecology issued the following corrective actions (Ecology 2001k):

- Drain and collect all oils and automotive fluids on a covered and curbed impermeable concrete area.
- Store used oil in leak-proof and closed containers that are properly labeled: “Used Oil Only.”
- Provide adequate secondary containment for used oil containers.
- Regularly inspect all used oil storage containers.
- Do not mix antifreeze, solvents, gasoline, brake fluid, or other substances with used oil.
- Do not dispose of used oil to the ground, storm drain, septic tank, dry well, or sewer.
- Adequately label all drums containing dangerous waste.
- Properly designate solid waste prior to disposal or treatment.

The facility returned a completed compliance certificate on October 28, 2001. The staging area was temporarily covered from rain and wind exposure. The used oil tank was pumped out, labeled, and temporarily placed inside. Accumulation containers were labeled with contents and accumulation start date. Workers disabled and locked away the steam cleaner. PSC solicited bids for a concrete containment area. The facility created a weekly inspection and dangerous waste accumulation log (Puget Sound Coatings 2001).

Ecology conducted an HWTR inspection at PSC on December 9, 2004. Ecology observed multiple pallets of paint and paint-related materials accumulated in the hazardous waste yard. The material was stored without labels or accumulation dates. Paint cans were drained in secondary containment structures at paint mixing locations. The secondary containment structures were functioning as open hazardous waste containers. Ecology instructed the facility to clean the built up paint residue out of the secondary containment areas and drum the material for shipment. PSC did not have a written training plan or training records. The facility failed to provide proper secondary containment in the paint mixing area, paint gun cleaning area, and the hazardous waste yard. The facility threw paint filters into the trash as solid waste. Ecology issued the following corrective actions (Ecology 2005b):

- Adequately label all drums containing dangerous waste with contents and accumulation start date.
- Ensure that all containers holding dangerous waste are closed.
- Prepare and maintain a written training plan and training records.
- Provide a containment system for the waste container accumulation area.
- Properly designate paint booth filters and wax-floor paint scrapings.

PSC returned a completed compliance certificate on June 6, 2005. The facility stored all cans of waste solvent on a pallet or bin and labeled the containers with contents and accumulation start dates. PSC planned to drain all containers in the paint mixing area into designated drums and cover with lids. PSC was in the process of developing a written training plan for handling paints and solvents at the facility. The facility tested paint filters and floor scraping for proper waste designation. Barium was detected at a concentration of 200 µg/L (Puget Sound Coatings 2005). Ecology determined the facility was in compliance with corrective actions on June 13, 2005 (Ecology 2005e).

Ecology conducted an HWTR compliance inspection at PSC on February 13, 2008. PSC was using secondary containment pallets as drainage reservoirs for paint cans; similar to practices observed during the 2004 inspection. Ecology observed PSC illegally dispose of a half full paint can with general solid waste. Inspectors observed approximately 70 5-gallon containers partially full or full of solvent/paint mixtures and spent solvent. The mixtures and solvent were stored prior to processing in the two distillation units at the facility. In general, waste containers at the facility were not properly labeled or closed. The facility lacked spill cleanup materials in the painting area, hazardous waste accumulation area, and solvent stills. Ecology identified the following corrective actions (Ecology 2008c):

- Properly designate wastes.
- Develop and retain a hazardous waste contingency plan.
- Prepare and maintain a written training plan and training records.
- Resume an inspection schedule for areas where containers of hazardous waste are stored.
- Properly label containers with accumulation start date and contents.

Between February and May 2008, PSC worked with Ecology to complete corrective actions. PSC submitted a completed compliance certificate on May 30, 2008 (Puget Sound Coatings 2008a). On June 9, 2008, Ecology determined the facility had satisfactorily completed corrective actions (Ecology 2008n).

On March 24, 2011, Ecology conducted an HWTR inspection at PSC. The facility was storing approximately nine 55-gallon drums of “contaminated” mud waste from the company’s plant in Auburn. PSC was waiting for analytical results before disposing the waste. Ecology identified several repeat violations from previous inspections. Drums of used oil, still bottoms, spent antifreeze, and used solvents lacked proper labels, lids, and/or accumulation start dates. The contingency plan and training plans were missing or inadequate. Ecology identified additional corrective actions (Ecology 2011f):

- Submit a Dangerous Waste Identification Form as a recycler of onsite waste.
- Submit a Generation Management form for dirty solvent and paint booth filters.
- Do not send any more designated dangerous waste to non-permitted facilities.
- Provide copies of testing results for TCLP metals for wastes recycled through cement kilns over the last five years.

Ecology received and reviewed PSC's submittals correcting items of non-compliance identified during the March 2011 inspection. On June 2011, Ecology determined there were no outstanding issues remaining at PSC (Ecology 2011r). Additional information regarding corrective actions implemented by PSC was not available for review.

<u>Stormwater Compliance</u>

On December 27, 1994, Ecology granted PSC coverage under a NPDES Permit. Coverage under the permit required the development of a SWPPP and application of BMPs (Ecology 1994i). Ecology renewed PSC's coverage under the NPDES permit in January 1996 (Ecology 1996d).

In May 1998, King County visited PSC to identify potential water quality concerns. King County identified the following corrective actions (King County 2009c):

- Reestablish the retention pond outfall and ditch to avoid flooding and surface water overflow onto the neighboring property.
- Move liquid containers under cover and provide secondary containment.
- Cover bins containing sweeper tailings.
- Provide covers for dumpsters and garbage cans.
- Provide cover for scrap material and other metals storage.
- Discharge wastewater from the steam cleaning process to the sanitary sewer.
- Provide spill response kits for the propane and diesel fueling areas.
- Provide cover for any machining, grinding, soldering, cutting, welding, or other metalwork.

Additional information regarding compliance with corrective actions was not available for review.

In September 2004, King County completed a water quality audit at the facility. The inspector observed barrels and buckets stored without cover. Sweeper tailing bins were left uncovered and exposed to stormwater. King County determined the facility needed to implement BMPs to control small particles from entering the storm drain system (King County 2009c).

On August 11, 2006, Ecology conducted a stormwater compliance inspection at PSC. Ecology observed NPDES permit violations. PSC failed to collect stormwater samples since December 2004 and did not have a spill prevention plan in place. Ecology observed zinc dust near the metal coating booths and possible emissions of metal compounds from the flame spray metal coating operations. Catch basins at the facility and the oil/water separator needed to be inspected and cleaned more frequently. Inspectors saw evidence that some equipment washing occurred near a storm drain (Ecology 2006h).

SPU conducted a source control inspection at PSC on January 17, 2007 (SPU 2007a). SPU identified the following corrective actions (SPU 2007b):

- Complete a written spill plan and post at appropriate locations.
- Obtain additional spill containment and cleanup materials.
- Clean catch basins that have been contaminated with pollutants from industrial activities.
- Provide access to the detention system lid.
- Discontinue discharge from the maintenance shop drain to the storm drain system.
- Install a berm at the entrance to the maintenance shop.
- Improve the level of housekeeping at the facility.
- Discontinue vehicle washing at the facility or obtain authorization to connect to the sanitary sewer.
- Provide secondary containment for fuels and hazardous materials.

SPU conducted a follow-up inspection on May 4, 2007. The facility posted a spill plan at the loading area. The manhole to the detention system was uncovered and accessible. PSC stopped washing practices and covered the grate that discharged to the sanitary sewer. The drain in the maintenance shop was filled with concrete. SPU planned to work with the facility to clean the storm drain system. SPU determined the facility was in compliance with corrective actions (SPU 2007c, 2007d).

On February 13, 2008, Ecology conducted a stormwater compliance inspection at PSC. Ecology and PSC reviewed permit violations noted during the August 2006 inspection. PSC eliminated the discharge of washwater to the storm drain system by installing a connection to the sanitary sewer. The facility did not conduct stormwater monitoring or complete an adequate SWPPP since the last inspection. Ecology observed sand blast grit and other solids on the ground in paved areas at the facility. PSC indicated that catch basins a cleaned approximately six times per year. Ecology recommended PSC to place inserts in catch basins at the facility. Ecology issued the following corrective actions (Ecology 2008h):

- Immediately begin stormwater sampling and reporting.
- Update and enhance the SWPPP and submit a copy to Ecology.

On April 30, 2008, PSC submitted a SWPPP to Ecology and submitted stormwater samples to a laboratory for analysis (Puget Sound Coatings 2008b). PSC revised the SWPPP five times between January 22, 2009 and May 25, 2012. The revised SWPPP included an up-to-date site map, a detailed materials inventory, existing monitoring data, and sampling procedures (Puget Sound Coatings 2012b).

On March 24, 2008, SPU collected a storm drain solids sample from catch basin CB114, located between S Barton and S Cambridge Streets. Concentrations of zinc and butyl benzyl phthalate exceeded storm drain screening levels (Table 9, Figure 4) (SPU 2010i).

King County conducted a follow-up site visit on April 1, 2009. The King County inspector determined the facility met King County maintenance standards for the storm drain system (King County 2009c).

On April 24, 2009, Ecology issued a Notice of Penalty to PSC for failure to monitor discharges during the first, third, and fourth quarters of 2007 and the first quarter of 2008 (Ecology 2009n).

In August 2010, PSC found hexavalent chromium in discharge from the facility's stormwater treatment system. The facility does not use hexavalent chromium in operations. An investigation determined shallow groundwater was entering the underground vault. PSC detected chromium concentrations at 3,000 parts per billion. PSC lined the vault to exclude groundwater intrusion. No other water quality issues were identified (Wright 2010; Ecology 2011u).

PSC exceeded the benchmark for zinc during the first, third, and fourth quarters of 2010. The facility increased sweeping, repaired asphalt holes, and performed treatment system maintenance (Puget Sound Coatings 2011).

PSC exceeded the benchmark for zinc during the first and second quarter of 2011. Zinc levels did not exceed benchmarks during the third or fourth quarter, following the installation of an ion exchange stormwater treatment system in September 2011 (Puget Sound Coatings 2012a).

SPU and Ecology conducted an inspection on September 20, 2012. SPU identified 10 corrective actions related to stormwater (7), spill prevention (2), and hazardous waste (1). Ecology identified the following corrective actions (Ecology 2013b):

- Include the Operation and Maintenance manual for the stormwater treatment system in the SWPPP
- Develop and maintain a Spill Log,
- Move or cover old electronic machines, motors and scrap metal bins.

By the end of December 2012, the facility met compliance with the corrective actions identified by SPU (Ecology 2013b).

CERCLA Section 104(e) Requests

EPA sent CERCLA Section 104(e) Request for Information Letters to Puget Sound Coatings on December 1, 2010 (USEPA 2010b). The information request included parcels 2433200215 and 5624200190. A response to the request was not available for review at the time this report was prepared.

5.14.4 Environmental Investigations and Cleanups

Five environmental investigations have been performed at this property. Sample locations are shown on Figure 26b and a summary of chemicals that exceeded soil screening levels is provided in Table 14. A summary of all chemicals detected in soil at the property is included in Appendix C, Table C-9.

A 10,000-gallon diesel UST was removed from the facility in 1988. Additional information regarding removal operations or sampling during 1988 was not available for review (GeoEngineers 1992).

Site Characterization Activities (1991 to 1992)

On November 26, 1991, nine test pits (TP-1 through TP-4, TP-6, and TP-8 through TP-11) were excavated to depths ranging from 5 to 10 feet bgs. Test pit soil samples were analyzed for VOCs and petroleum hydrocarbons. A subset of samples was analyzed for PCBs and metals. All test pit soil samples exceeded MTCA Method A cleanup levels for methylene chloride; however, may be attributed to laboratory contamination (GeoEngineers 1993b). Other VOCs and PCBs were detected below MTCA cleanup levels. Mercury concentrations in soil sample TP-9-1 exceeded the MTCA Method A cleanup level. Mercury concentrations in TP-9-1, TP-11-1, TP-2-1, and TP-3-1 exceeded the draft soil-to-sediment screening level. Arsenic concentrations in five test pit soil samples ranging in depth between 5 feet and 7.5 feet bgs exceeded the MTCA Method B cleanup level (Table 14).

Two surface soil samples containing sandblast grit were collected and analyzed for metals. One sample was collected near the baghouse (SG-1) and pipe cleaning rack and one sample was collected from the northeast corner of the site (SG-2). The samples were analyzed for EPA priority pollutant metals (GeoEngineers 1993b). Arsenic concentrations in both surface samples exceeded the MTCA Method B cleanup level for soil (Table 14).

Two surface soil samples (SG-3 and SG-4) were collected from the area adjacent to the transformer, east of the painting and coatings building. The transformer is owned and maintained by Seattle City Light. The soil samples were analyzed for petroleum hydrocarbons and PCBs. Gasoline- and diesel-range hydrocarbons were not detected. PCBs concentrations were detected below the MTCA Method A cleanup level for soil (GeoEngineers 1993b).

On March 5, 1992, hand auger borings (B-1 through B-3) were collected to evaluate whether PCB and petroleum-related contamination was present at greater depths within the transformer area. Two to three soil samples were collected from the borings at depths of 0.5 to 2 feet bgs and analyzed for TPH and PCBs. PCBs and TPH concentrations were detected below MTCA Method A cleanup levels (GeoEngineers 1993b).

Protective Coating Release (1992)

On March 5, 1992, a black tarry crust was observed on the ground near the north side of the painting and coating building. The area was used to store 55-gallon drums of protective coatings and other painting products. One soil sample was collected from the ground surface at the release (T1) and one sample was collected near the release (T2). The samples were analyzed for petroleum hydrocarbons, VOCs, SVOCs, PAHs, and metals (GeoEngineers 1993a). Antimony, arsenic, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, cPAHs and bis(2-ethylhexyl)phthalate in T1 exceeded MTCA cleanup levels for soil. Benzo(a)pyrene, naphthalene, total recoverable petroleum hydrocarbons, and cPAHs in the soil sample collected at T2 exceeded cleanup levels for soil. PAHs, phthalates, copper, and zinc exceeded the draft soil-to-sediment screening levels (Table 14).

The protective coating release was excavated in three phases. After each round of excavation, confirmation soil samples were collected and analyzed for one or more of the following contaminants: TPH, VOCs, SVOCs, PAHs, and metals. During phase I (May 13, 1992), samples T-5 and T-6 were collected from the excavation base at a depth of 6 inches bgs. Total cPAHs exceeded MTCA cleanup levels in T-5 and T-6. During phase II (June 10, 1992), samples TP-7, TP-8, and TP-9 were collected from the base of the excavation that was extended to a depth of 2.5 feet bgs. Benzo(a)pyrene and cPAHs exceeded MTCA cleanup levels in sample TP-8 (Table 14). During phase III (June 12, 1992), samples T-10 and T-11 were collected from the excavation beneath the former drain pipe. PAHs and TPH were not detected in samples T-10 and T-11. The excavation was terminated at an approximate depth of 2.5 to 3 feet. Approximately 50 cubic yards of soil was removed during the excavation and disposed of offsite. The excavation was backfilled with imported sand and gravel (GeoEngineers 1993a).

Diesel UST Remedial Excavation (1992)

On May 12, 1992, approximately 500 cubic yards of soil were removed from the former 10,000-gallon UST location, north of the baghouse. The excavation was terminated at approximately 12 feet bgs. Groundwater was observed at approximately 11 feet bgs. Eleven soil samples were collected from the excavation limits and analyzed for TPH and diesel-range hydrocarbons. Two soil samples were collected from beneath two 1-inch diameter steel product lines and analyzed for diesel-range hydrocarbons and TPH. Approximately 6 additional cubic yards of soil were excavated. Excavated soils were disposed of in landfills offsite. The excavation was backfilled with clean sand and gravel (GeoEngineers 1992). TPH and diesel-range hydrocarbons were detected below MTCA Method A cleanup levels for soil (Table 14).

Phase I Environmental Site Assessment (1998)

On March 2, 1998, a Phase I ESA was completed for PSC and PacRim (a former operator at the facility). The Phase I ESA evaluated properties from the surrounding area with the potential to impact groundwater quality at the PSC facility. The assessment determined contaminated groundwater at the former Advanced Electroplating property (Section 5.19) and releases from the oil/water separator on the former Fruehauf Trailer property (Section 5.18) have the potential to impact groundwater beneath the PSC property. The ESA did not identify evidence of significant releases of hazardous substances at the property (GeoEngineers 1998).

Results of Groundwater Sampling (1998)

On December 8, 1998, a temporary monitoring well was completed to 15 feet bgs. No soil samples were obtained from the boring. Depth to groundwater was measured at 7 feet bgs. One discrete groundwater sample was collected and analyzed for petroleum hydrocarbons. Petroleum hydrocarbons were not detected in the groundwater sample (GeoEngineers 1999).

Ecology determined the release of petroleum hydrocarbons into soil and groundwater and the release of cPAHs, PAHs, and metals into soil no longer posed a threat to human health of the environment. Ecology issued an NFA determination on March 30, 1999 (Ecology 1999c).

Groundwater analytical results were not available for review during the preparation of this Data Gaps Report.

Hexavalent Chromium Investigation (2010)

In late June 2010, PSC collected stormwater samples to gather data to design a treatment system to remove excess zinc from the facility’s stormwater. High levels of chromium were detected in the stormwater sample; however, PSC does not use chromium in operations at the site. A storm drain investigation identified leaks in a 150-foot long, 5-foot diameter underground detention pipe on the north side of the facility. Hexavalent chromium was detected at a concentration of 3,000 µg/L in a water grab sample collected from the storm drain. PSC took plugged the storm drain immediately and pumped discharge water into two 21,000-gallon baker tanks on site. In August 2010, a concrete/epoxy mixture was applied to the 5-foot detention pipe to seal cracks and leaks in the pipe. Hexavalant chromium concentrations were not detected in subsequent monitoring of the stormwater discharge from the site (Nisqually 2010).

During pipe sealing operations, soil samples were collected at 4, 5, and 6 feet bgs from soil adjacent to the detention pipe. Chromium concentrations were not detected during TCLP analysis. The investigation determined the chromium source was from groundwater infiltrating the stormwater drainage system and not site operations. A potential source of hexavalent chromium in groundwater is the former Advance Electroplating property, as described in the 1998 Phase I ESA discussed above (Nisqually 2010; GeoEngineers 1998).

5.14.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

PSC installed an ion exchange stormwater treatment system in September 2011 in an effort to reduce zinc concentrations and other pollutants in stormwater. The facility loads and unloads grits, solvents, and paints for use or disposal. Ecology identified violations of PSC's hazardous waste and materials management practices during HWTR inspections from 2004 through 2011. Ecology observed stormwater permit violations during stormwater compliance inspections in 2006 and 2008. SPU inspected the facility on September 20, 2012. Information from the inspection will be included in the final data gaps report or SCAP. It is not known if the facility currently employs appropriate source control and spill prevention BMPs to prevent stormwater contamination. The potential for sediment recontamination via the stormwater and spills pathway is low to medium.

Groundwater Discharge

Soil and groundwater remedial activities at the property included a diesel UST excavation, a protective coating contaminated soil excavation, and subsurface soil evaluation around transformer and sandblast grit areas. Contaminants of concern included petroleum hydrocarbons, cPAHs, PAHs, and metals. Following remedial activities, Ecology issued an NFA determination in March 1999.

In 2010, PSC detected hexavalent chromium concentrations in shallow groundwater that was infiltrating a stormwater storage vault. A potential source of the chromium contamination is the Advance Electroplating and Fruehauf Trailer Services properties. The potential for sediment recontamination via groundwater discharge is unknown.

5.14.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with this property is listed below:

- A follow-up inspection is needed to determine compliance with applicable regulations and BMPs for stormwater and hazardous waste management practices.
- A review of the response from Puget Sound Coatings to the CERCLA Section 104(e) Request for Information letter is needed to identify potential sources of sediment recontamination that may be associated with current and historical operations at the property.

5.15 Western United Fish Company

Facility Summary: Western United Fish Company	
Tax Parcel No.	5624200210
Address	9411 8th Avenue S 98108
Property Owner	NEVSCO SOUTHPARK LLC
Parcel Size	2.37 acres (103.286 sq ft)
Facility/Site ID	2463219: Western United Fish Company 95735434: Ecolights Northwest LLC
SIC Code(s)	2092: Prepared Fresh or Frozen Fish and Seafoods
EPA ID No.	WAH000012443: Ecolights Northwest LLC (inactive)
NPDES Permit No.	None
King County Waste Discharge Permit No.	No. 7839-01
UST/LUST ID No.	None

The Western United Fish Company (Western United Fish) operates on parcel 0210 (Figure 12) and is bordered by 8th Avenue S to the east, Western Ports Transportation and residential housing to the north, Show Quality Metal Finishing to the south and Old Dominion Freight Lines to the west. According to King County tax assessor records, a 42,240 sq ft warehouse and office building, built in 1968, is present on parcel 0210.

5.15.1 Current Operations

Western United Fish processes mostly salmon, between 35,000 and 50,000 pounds per day, and some exotic fish, between 5,000 and 7,000 pounds per day. The facility receives whole fish and fillet and re-package into smaller portions for shipping out to vendors. Wastewater is predominantly generated during fish processing and washing down equipment. The facility has trench drains in the fish processing room equipped with non-removable mesh screens. Most solids are trapped prior to entering the fish processing filtration system.

5.15.2 Historical Operations

Ecolights Northwest LLC was a historical operator at the property. According to Ecology’s Facility/Site, the facility was a hazardous waste generator between July 2000 and December 2005 and a hazardous waste transfer facility between August 2000 and December 2003.

Additional information regarding historical operations at the property was not available for review.

5.15.3 Regulatory History

Ecology conducted three inspections at Western United Fish in 2007. Following an inspection with KCIW, Ecology fined the facility for allowing fish waste to enter the outside stormwater catch basin. In late 2007, the Valley View Water District observed large amounts of fish products and Styrofoam in a pump station downstream from Western United Fish (King County 2008a). Additional details of the inspection and or corrective actions associated with discharge of fish parts to the storm drain system were not available for review.

Western United Fish submitted a Industrial Waste permit application to King County on December 12, 2007. King County issued Waste Discharge Permit No. 7839-01 on September 2, 2008. KCIW planned to conduct surcharge and pH sampling twice a year to characterize the waste stream (King County 2008a). Additional information regarding KCIW's interactions with Western United Fish was not available for review.

5.15.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Western United Fish was fined for discharge of fish products and Styrofoam to the stormwater system in 2007. Western United Fish has not been inspected since 2007. KCIW granted the facility a waste discharge permit in 2008. Information was not available to determine if all discharge goes to the sanitary sewer or the S 96th Street SD system. The potential for sediment recontamination via the stormwater and spills pathway is unknown.

Groundwater Discharge

There is no information available that indicates that soil or groundwater contamination is present at this property.

5.15.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- A facility inspection is needed to determine compliance with applicable regulations and BMPs for stormwater and hazardous waste management practices.

5.16 Absolute German

Facility Summary: Absolute German	
Tax Parcel No.	5624200091, 5624200097
Address	0097: 9525 14th Avenue S 98108 0091: 9510 14th Avenue S 98108
Property Owner	0097: Global Business MGMT 0091: QM LLC

Facility Summary: Absolute German	
Parcel Size	0097: 1.02 acres (44,290 sq ft) 0091: 0.42 acre (18,395 sq ft)
Facility/Site ID	10207: Absolute German 231954: MKT Southpark LLC 22342251: All City Auto Wrecking & Sales Inc. 27778576: South Park Chevron
Alternate Names	All City Auto Wrecking & Sales, Inc., MKT Southpark LLC, Pac West Seattle, South Park Chevron
SIC Code(s)	3711: Motor Vehicles and Car Bodies 5015: Motor Vehicle Parts 5521: Used Car Dealers
EPA ID No.	WA0000894238: All City Auto Wrecking (inactive)
NPDES Permit No.	WAR125038: Absolute German
UST/LUST ID No.	None

Absolute German operates at parcel 0091 and South Park Chevron operates on parcel 0097 (Figure 12), which are bordered by S 96th Street to the south, 14th Ave S to the west, and WA-99 to the north and east.

According to King County tax assessor records, a 1,024 sq ft auto repair shop, built in 2005, is present on parcel 0091. Former All City Auto Wrecking & Sales Inc. (former All City Auto Wrecking) historically operated on parcel 0091 and parcel 0097. A 2,112 sq ft convenience store, built in 2000, is present on parcel 0097.

5.16.1 Current Operations

Absolute German currently operates at parcel 9510 14th Avenue S on parcel 0091 (east parcel). According to the company's website, Absolute German is a full-service auto recycler and used vehicle dealer (Absolute German 2012). According to a February 2012 Ecology inspection, the facility stores oily engines, engine parts, and equipment outside and exposed to stormwater. Oily sheens were observed entering catch basins at the property (Ecology 2012b). The facility's SWPPP indicates there is an oil/water separator located in the northeast area of the property. Stormwater is conveyed from the oil/water separator to a stormwater filter system prior to discharge to the S 96th Street storm drain ditch at the southern boundary of the property (Figure 27a) (Absolute German 2010).

The South Park Chevron facility information will not be reviewed due to SAIC/Chevron organizational conflicts of interest. The facility and related service station operations on parcel 0097 will not be discussed further in this report.

5.16.2 Historical Operations

Former All City Auto Wrecking operated on parcels 0091 and 0097. Auto wrecking activities began on the parcels in 1975. Prior to auto wrecking activities parcel 0097 was a grocery store and tavern. Operations on parcel 0097 included parts storage and disassembly building. The parcel contained the majority of wrecked cars, motor-core and transmission-core storage. Approximately 20 to 30 wrecked cars were stored on parcel 0091 (Floyd Snyder 1999a).

5.16.3 Regulatory History

Former All City Auto Wrecking

Historical auto wrecking and storage activities at the site resulted in the limited release of petroleum hydrocarbons, lead, and arsenic into surface soil. Former All City Auto Wrecking entered Ecology's VCP in January 1999 (Floyd Snyder 1999a). Following remedial activities, Ecology issued an NFA determination and a restrictive covenant was filed for the facility in June 1999 (Ecology 1999d).

Absolute German

According to Ecology's PARIS database, Ecology issued Absolute German an ISGP on October 21, 2009. Ecology conducted a stormwater compliance inspection on February 1, 2012. Inspectors identified the following corrective actions (Ecology 2012b):

- Cleanup spills and leaks to prevent the discharge of pollutants.
- Do not store oily engines, engine parts, or equipment outside exposed to stormwater.
- Ensure monthly inspections are conducted and documented.
- Complete DMRs and send to Ecology.

Absolute German exceeded ISGP benchmarks for copper and turbidity during the first quarter of 2012. Analysis was not conducted for TPH, total lead, or total zinc. Additional information regarding compliance with corrective actions was not available for review.

5.16.4 Environmental Investigations and Cleanups

Two environmental investigations have been performed at this property. Sample locations are shown on Figures 27b and 27c and a summary of chemicals that exceeded soil and groundwater screening levels is provided in Tables 15 and 16. Summaries of all chemicals detected in soil and groundwater at the property are included in Appendix C, Tables C-10 and C-11.

Voluntary Cleanup Action (1997 to 1999)

In April 1997, wells MW-1 through MW-4 were installed at the property. Soil samples collected from the well borings were analyzed for petroleum hydrocarbons and lead. Lead and diesel- and heavy-oil range hydrocarbons exceeded MTCA Method A cleanup levels in the areas of wrecked car parking (Floyd Snyder 1999a). Additional information regarding the study was not available for review.

In January 1999, 18 soil samples were collected at a depth between 0 and 5 feet bgs. Samples were collected from both the eastern (parcel 0097) and western (parcel 0091) parcels. All soil samples were analyzed for lead and diesel- and heavy-oil range hydrocarbons. Four samples were analyzed for gasoline-range hydrocarbons and PAHs (Floyd Snyder 1999a). Gasoline-range hydrocarbons and PAHs concentrations were below MTCA cleanup levels. Lead and diesel- and heavy-oil range hydrocarbon concentrations exceeding MTCA Method A cleanup levels were detected across the site. Lead concentrations did not exceed the draft soil-to-sediment screening level (Table 15).

In April 1997 and January 1999, groundwater samples were collected from the monitoring wells. Groundwater samples were analyzed for petroleum hydrocarbons, BTEX, cPAHs, and total arsenic, cadmium, chromium, and lead (Floyd Snyder 1999a). In January 1999, diesel-range hydrocarbons exceeded the MTCA Method A cleanup level in groundwater collected from well MW-2 (located on the western parcel). Arsenic concentrations in wells MW-1, MW-2, MW-3 (west parcel), and well MW-4 (east parcel) exceeded the MTCA Method A cleanup level. The cadmium concentration in well MW-3 exceeded the MTCA Method A cleanup level and the draft groundwater-to-sediment screening level (Table 16). PAHs were not detected.

Voluntary Cleanup Program Site Closure Report (1999)

On April 27, 1999, nineteen excavation areas were completed to depths ranging between 6 and 12 inches bgs. The larger excavation around MW-2 ranged from 4 to 6 feet bgs. Approximately 150 cubic yards of contaminated soil were excavated from the site. Twenty-three confirmation soil samples were collected from the petroleum hydrocarbon- and lead-contaminated soil excavation areas during site remediation. An additional 50 cubic yards of soil was excavated following the detection of lead, diesel- and oil-range hydrocarbons concentrations above MTCA Method A cleanup levels in confirmation samples. Diesel-range hydrocarbon- and lead-contaminated soil was left in place because the concentrations did not exceed Ecology’s historical Interim TPH policy (7,000 mg/kg) or MTCA Method A industrial soil cleanup level for total lead (1,000 mg/kg) (Floyd Snyder 1999b).

A final round of groundwater sampling was conducted in May 1999. Petroleum hydrocarbons were not detected. Arsenic concentrations in groundwater samples collected from all four monitoring wells exceeded the MTCA Method A cleanup level (Table 16). Chromium and lead were detected at concentrations below cleanup levels. The closure report attributed elevated levels of arsenic and lead in groundwater to upgradient soil and groundwater sources near the site (Floyd Snyder 1999b).

On June 24, 1999, Ecology issued an NFA determination for the property. A restrictive covenant filed on June 16, 1999, remains a condition of Ecology’s NFA determination. The restrictive covenant limited the property to commercial and/or industrial uses only, prevented use of groundwater, and required development and capping of the western parcel. Ownership and leasing activities were also limited at the property (Ecology 1999d).

Periodic Review (2009)

In June 2009, Ecology reviewed post-cleanup site conditions and monitoring data to ensure that human health and the environment are protected at the facility. The review determined cleanup actions at the site appear to be protective of human health and the environment. The site continues to meet requirements of the restrictive covenant. No additional cleanup actions were required (Ecology 2009o).

5.16.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Ecology completed a stormwater compliance inspection at Absolute German in February 2012. Ecology issued corrective actions for leaky equipment exposed to stormwater, lack of BMPs for source control, and failure to submit DMRs. Information regarding compliance with Ecology's corrective actions was not available for review. The potential for sediment recontamination via the stormwater and spills pathway is low to medium.

Groundwater Discharge

Historical auto wrecking and storage activities at the site resulted in the release of petroleum hydrocarbons and lead into soil. Approximately 200 cubic yards of contaminated soil was removed from the facility. The most recent groundwater sampling at the facility was conducted in 1999. Arsenic and cadmium concentrations in the groundwater samples from wells at both east and west parcels exceeded MTCA Method A cleanup level. The cadmium concentration also exceeded the draft groundwater-to-sediment screening level. Groundwater has the potential to discharge to a drainage ditch located at the southern boundary. The drainage ditch is part of the S 96th Street SD basin. The potential for sediment recontamination via groundwater discharge is low to medium.

5.16.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with this property is listed below:

- Additional information regarding Absolute German's compliance with corrective actions identified during Ecology's February 2012 stormwater inspection is needed to assess the potential for sediment recontamination associated with the stormwater pathway.
- A review of information regarding the operations at the South Park Chevron is needed to determine the potential for sediment recontamination (if any) associated with the facility.

5.17 Simplex Grinnell/Sherwin Williams/NRC Environmental Services

Facility Summary: Simplex Grinnell/Sherwin Williams/ NRC Environmental Services	
Tax Parcel No.	5624200150
Address	9520 10th Avenue S, Suite 100 98108 (Simplex Grinnell) 9520 10th Avenue S, Suite 150 98108 (NRC Environmental; Former Teris LLC) 9530 10th Avenue S 98108 (Sherwin Williams)
Property Owner	Seattle Commercial Development
Parcel Size	4.43 acres (193,122 sq ft)
Facility/Site ID	2263: Markey Property Parcel 4 19871: NRC Environmental Services 2236438: Simplex Grinnell 19959367: Bayside Automotive Storage Inc. 79578412: NRC Environmental Services; Former Teris LLC 39258864: Sherwin Williams Store 4317

Facility Summary: Simplex Grinnell/Sherwin Williams/ NRC Environmental Services	
SIC Code(s)	5231: Paint, Glass, and Wallpaper Stores (Sherwin Williams) 5198: Paints, Varnishes, and Supplies (Sherwin Williams) 4953: Refuse Systems (Former Markey Property)
Alternate Name(s)	Bayside Automotive Storage Inc., Holnam Markey, Markey Property Parcel 4, Sea Con Property, NRC Environmental Services, Teris LLC dba Division Transport
EPA ID No.	WAD988500518: Bayside Automotive Storage Inc. (inactive) WAH000019661: NRC Environmental Services (inactive) WAH000036171: NRC Environmental Services WAH000013730: Sherwin Williams
NPDES Permit No.	None
UST/LUST ID No.	None

Simplex Grinnell, NRC Environmental Services (NRCES), and Sherwin Williams operate at parcel 0150 (Figure 12), which is bordered by S 96th Street to the south, 10th Avenue S to the west, S 95th Street Wetland to the north, and Cascade Pipe and Supply to the east. According to King County tax assessor records, a 46,000 sq ft warehouse, built in 2001, and a 29,200 sq ft warehouse, built in 2001, are present on parcel 0150.

5.17.1 Current Operations

Sherwin Williams

Sherwin Williams operates a warehouse used for paint mixing and distribution at the 9530 10th Avenue S location. The warehouse is located on the southern portion of the property. Sherwin Williams has operated at the property since 2001. The warehouse consists of an office area in the southwest corner, a computer lab and mixing room in the south side, with the rest of the space dedicated to product storage. Floor grading and a 4-inch concrete berm provide secondary contaminant inside the warehouse. The warehouse does not have any floor drains (Ecology 2010j). All activities are conducted indoors.

NRC Environmental Services

NRCES operates a 10-day hazardous waste transfer facility at the 9520 10th Avenue S location. The facility began operation at the location in August 2009. The facility stores hazardous waste and products across the street in a storage container. NRCES attempts to transport waste directly from the generator to the final destination without storage at the facility (Ecology 2009t).

Simplex Grinnell

Simplex Grinnell operates a fire extinguisher servicing and test company at the 9520 10th Avenue S location (Gray 2010). Additional information regarding current operations at the facility was not available for review.

5.17.2 Historical Operations

Bayside Automotive Storage Inc.

Ecology's Facility/Site database indicates Bayside Automotive Storage Inc. operated at the northeast corner of S 96th Street and 10th Avenue S. The facility was a hazardous waste generator between February 1992 and December 31, 1992. Additional information regarding historical operations by Bayside Automotive Storage Inc. was not available for review.

Markey Property Parcel 4

Information regarding historical operations prior to 1977 was not available for review. Between 1977 and 1978, approximately 50,000 cubic yards of CKD was used as fill material at the Markey Machinery Company property (Markey Property). Lead levels in CKD were detected over 1,000 mg/kg. Markey Property received the CKD from the Holnam Cement Company. In 1995, Holnam bought the property from Markey Machinery Company as part of a CKD liability settlement (Ecology 1996a). In 1998, Seattle Commercial Development purchased the property from Holnam Cement. Seattle Commercial Development completed construction of the current buildings on the property in 2001 (Seattle Commercial 2001b).

Teris LLC

In November 2001, Teris LLC (Teris) began operating at the newly constructed buildings at 9520 10th Avenue S. Teris operated as a transporter and a 10-day transfer facility of dangerous waste. The facility did not generate any hazardous waste. Trucks collected wastes from generators and transported it back to the facility for loading on trucks awaiting further transfer. The trucks carried over pack drums and spill kits (Ecology 2002b). The facility withdrew as an LWG in January 2007 (Ecology 2011i).

5.17.3 Regulatory History

Markey Property

In November 1998, Seattle Commercial Development purchased the property from Holnam Cement. Seattle Commercial Development entered Ecology's Voluntary Cleanup Program (VCP) (Seattle Commercial 1998). Seattle Commercial Development removed CKD from the buffer area for Hamm Creek and capped the site with asphalt and concrete. Ecology reviewed independent remedial actions conducted at the Markey property and determined the release of lead and arsenic from CKD fill into soil no longer posed a threat to human health or the environment. On August 10, 2001, Ecology issued an NFA for the site. The NFA required that Seattle Commercial Development monitor leachate and surface water for five years and file a restrictive covenant on the property (Ecology 2001i).

Teris LLC

Ecology conducted an HWTR compliance inspection at the Teris on March 14, 2012. Inspectors reviewed the facility's contingency plan, training documents, shipping papers, monthly inspection sheets, and 10-day transfer log. Ecology requested Teris to update the facility's waste handling training plan. Inspectors did not observe any areas of non-compliance with dangerous waste regulations (Ecology 2002b).

Ecology conducted a follow-up HWTR inspection on May 11, 2006. The facility was listed as a large quantity generator of hazardous waste. Inspectors did not observe any areas of non-compliance or violations (Ecology 2006e).

Simplex Grinnell

On September 1, 2005, a 55-gallon drum of fire suppressant liquid broke and spilled into a storm drain. Simplex Grinnell was able to control the spill before the liquid reached the storm drain system and reported the incident to KCIW and Ecology. Simplex Grinnell discontinued using the drums that accidentally spilled to the storm drain. KCIW determined the facility was in compliance during a follow-up inspection on December 31, 2008 (King County 2009a).

Ecology and King County conducted an HWTR inspection at Simplex Grinnell in August 2010. Inspectors observed minor housekeeping issues (Gray 2010). Additional information regarding the HWTR inspection and compliance with corrective actions (if any) was not available for review.

NRC Environmental Services

Ecology conducted an HWTR compliance inspection at NRCES on October 28, 2009. Inspectors observed improper drum labeling, waste hold time exceedances, and a missing signed manifest. A written training plan and contingency plan were not available for review. Ecology issued the following corrective actions (Ecology 2009t):

- Conduct training to ensure 10-day transfer holds are met.
- Properly label drums.
- Cease transporting dangerous waste off site without proper manifest.

Following the inspection, NRCES submitted an employee training plan and a contingency plan to Ecology (Ecology 2009t). The facility trained employees on drum and container labeling, safe drum handling, waste sampling, hazardous waste regulations, and the contingency plan (Potts 2009). NRCES submitted a completed compliance certificate on December 11, 2009 (NRC Environmental 2009).

Ecology conducted an Urban Waters Environmental Compliance inspection at NRCES on August 26, 2010. Inspectors observed the outdoor product storage area lacked adequate secondary containment and the flammable product storage container did not have a lid to prevent spills. Ecology observed improper wash practices and oil stains from leaking vehicles. Ecology issued the following corrective actions (Ecology 2010r):

- Properly store/product waste.
- Ensure proper vehicle washing practices.
- Implement good housekeeping.

NRCES returned a completed compliance certificate on November 15, 2010. The facility purchased additional secondary containment, labeled and sealed drums, and stored flammables properly (NRC Environmental 2010). Ecology determined the facility was in compliance on January 14, 2011 (Ecology 2011a).

Ecology conducted an HWTR inspection at NRCES on April 11, 2011. Ecology requested the facility to ensure that all emergency equipment in the hazardous waste storage area was properly maintained. NRCES submitted a completed compliance certificate on May 11, 2011. Ecology determined the facility was in compliance with corrective actions (Ecology 2011m).

Sherwin Williams

On October 9, 2007, Ecology conducted an HWTR inspection at Sherwin Williams. The warehouse was full of paints and solvents that are stock items and custom mixed paints awaiting shipment. Ecology noted air quality concerns related to a heavy solvent smell in the product service room. Hazardous waste drums were improperly labeled. Ecology issued the following corrective actions (Ecology 2007k):

- Adequately label all drums containing dangerous waste.
- Ensure that all containers holding dangerous waste are closed except when actively addition or removing waste.

On October 30, 2007, Sherwin Williams completed a compliance certificate and sent Ecology photos documenting corrective actions (Sherwin Williams 2007). On November 9, 2007, Ecology determined the facility satisfactorily completed the compliance items (Ecology 2007n).

On May 25, 2010, Ecology conducted an HWTR inspection at the facility. The facility had repeat violations from the October 2007 inspection. Ecology issued the following corrective actions (Ecology 2010j):

- Adequately label all containers of dangerous waste at the facility.
- Write accumulation start date on all containers holding dangerous waste.
- Close all containers holding dangerous waste.

On August 18, 2010, Sherwin Williams sent a completed compliance certificate and sent photos documenting corrective actions to Ecology. Ecology determined the facility satisfactorily completed the compliance items on August 27, 2010 (Ecology 2010q).

On February 17, 2011, Ecology conducted an Urban Waters Environmental Compliance inspection at Sherwin Williams. Ecology instructed the facility to increase the sweeping frequency of the outside parking lot, cover dumpsters, and clean up spills as they occur (Ecology 2011d). Following the inspection, Sherwin Williams sent Ecology information addressing corrective actions. On May 23, 2011, Ecology determined the facility was in compliance with the corrective actions (Ecology 2011l).

5.17.4 Environmental Investigations and Cleanups

Several environmental investigations have been performed at this property. Sample locations are shown on Figures 28a and 28b and a summary of chemicals that exceeded screening levels in soil, groundwater, and surface water are provided in Tables 17 through 19. Summaries of all chemicals detected in environmental media at the facility are included in Appendix C, Tables C-12 through C-14.

Markey Property

Environmental Site Assessment (1989)

In April 1989, an ESA was conducted at the Markey Property to evaluate the use of CKD as fill material. Approximately 50,000 cubic yards of CKD was deposited at the property between 1977 and 1978. At the time of the assessment, a container storage yard was present to the south and west, a drainage ditch (referred to as the 96th Street Ditch and as Hamm Creek) was present north of the property, and stockpiled commercial topsoil was present to the east of the facility (GeoEngineers 1989a).

GeoEngineers reviewed sediment and surface water sample results from an Ecology site visit in May 1988. Ecology sampled and analyzed water quality in the S 96th Street drainage ditch and standing surface water from an area east of the CKD. Ecology also composited samples of soil from six locations surrounding the CKD fill. According to the ESA, Ecology sampling results showed no significant impact of the CKD on surface water quality in the stream. Metal concentrations in the composite sediment sample were generally low (GeoEngineers 1989a). However, arsenic exceeds the current MTCA Method B cleanup level and copper and zinc exceeded draft soil-to-sediment screening levels (Table 17).

In April 1989, four groundwater monitoring wells and 24 test pits were completed at the property. Arsenic concentrations in monitoring wells MW-1, MW-3, and MW-4 and chromium concentrations in well MW-4 exceeded MTCA cleanup levels (Table 18). The average pH level for the soil samples was between 12.3 and 12.4 and CKD fill was encountered at an average thickness of 7.2 feet in 22 of the 24 test pits. Soil samples collected from four of the test pits were analyzed for pH and metals (GeoEngineers 1989a). Arsenic, cadmium, lead, and PCB concentrations in one or more samples exceeded MTCA cleanup levels for soil. Cadmium, copper, lead, and zinc concentrations exceeded the draft soil-to-sediment screening levels (Table 17).

Additional uncharacterized “upper fill” was encountered above the CKD in the central portion of the property. The fill averaged 3.8 feet thick and its volume was approximately 1,000 cubic yards. Test pit soil samples collected from the additional fill were composited and analyzed for chlorinated solvents, petroleum hydrocarbons, total metals, PCBs, PAHs, and pesticides (GeoEngineers 1989a). PAHs, chlorinated solvents, and pesticides were detected below MTCA cleanup levels. Arsenic, cadmium, lead, zinc, methylene chloride, and PCBs exceeded MTCA cleanup levels for soil. Benzo(g,h,i)perylene, cadmium, copper, lead, zinc, methylene chloride, and PCBs exceeded the draft soil-to-sediment screening levels (Table 17).

Water level measurements in the wells indicated that groundwater from beneath the CKD discharges to the 96th Street Ditch. Four surface water samples were collected from the perimeter of the property and analyzed for dissolved metals (GeoEngineers 1989a). Copper and lead exceeded chronic surface fresh water quality standards in the in one or more samples (Table 19).

A limited evaluation of site chemistry and surface water conditions was conducted in October 1989, as part of a prior inquiry into purchase of the property. Two soil borings were advanced at the property. A soil sample was collected from near the ground surface and near the base of the CKD. Four soil samples were analyzed for EP Toxicity metals and pH. The study found low concentrations of leachable metals and an average pH of 13 (GeoEngineers 1989a). The analytical data were not available for review.

The ESA concluded the development of the site with the CKD left in place was a viable option. The ESA recommended that approximately 1,000 cubic yards of “upper fill” be excavated from the property due to concentrations of lead and PCBs that exceeded regulatory cleanup levels (GeoEngineers 1989a).

Environmental Sampling Report (1990)

Additional sampling of the upper fill material was conducted in January 1990. Fifteen hand borings were collected to examine the character and thickness of the upper fill. Sample depth ranged from the surface to approximately 2.7 feet bgs. The upper fill was approximately 3.1 feet thick and consisted of loose brown sand and gravel with occasional pieces of debris such as brick, concrete, glass, paper, and metal pipe. Six of the fifteen soil samples were randomly selected for analysis of PCBs, TPH, and EP Toxicity metals. EP Toxicity metals results indicated no significant leachable concentrations for metals (GeoEngineers 1990). TPH concentration were below the MTCA Method A cleanup level at all locations. PCBs concentrations exceeded the MTCA Method A cleanup level and the draft soil-to-sediment screening level at all sample locations (Table 17). Sample locations from this investigation were not available for review.

On July 18, 1990, Ecology added the facility to the CSCSL (Ecology 1990f). The facility notified Ecology that the 1,000 cubic yards of upper fill material was removed from the property in the summer of 1992 (HFMTH 1992).

Site Hazard Assessment (1992)

Ecology completed a site hazard assessment (SHA) at the Markey Property on September 10, 1992. Ecology assigned a ranking of 3 (with 1 being the highest risk and 5 being the lowest risk) for the Markey Property (Ecology 1992m). The ranking was based on CKD remaining on the property, as well as the apparent release of lead from the site to surface water and groundwater. Ecology’s primary concern was leaching of CKD contaminants to the drainage ditch north of the property, a tributary to Hamm Creek (Ecology 1993i).

Environmental Study and Remedial Action Evaluation (1996)

In October 1996, an environmental study and remedial action evaluation were completed to establish environmental controls for potential impacts from CKD to the property’s stormwater and groundwater. Additionally, remedial actions were evaluated to reclaim and create a functional site, suitable for industrial manufacturing and commercial office activities. The environmental study evaluated upgradient and downgradient chemical data for offsite monitoring wells. In general, metal concentrations decreased from upgradient to downgradient wells (Hart Crowser 1996).

In June 1996, four groundwater samples were collected from monitoring wells and analyzed for dissolved and total metals and pH (Hart Crowser 1996). Arsenic concentrations in all groundwater samples exceeded the MTCA Method A cleanup level for groundwater. Lead concentrations at three locations exceeded the MTCA cleanup level and the draft groundwater-to-sediment screening level. Zinc concentrations exceeded the draft groundwater-to-sediment screening level at two locations (Table 18).

In July 1996, two surface water samples were collected from the ditch on the southwest side of the property. The surface water samples were analyzed for dissolved and total metals and pH. The results included pH values of 8.8 and 9.2 (Hart Crowser 1996). Arsenic concentrations in both samples exceeded the MTCA Method B cleanup level. Copper and lead in both samples and zinc in sample SW-2 exceeded chronic surface fresh water quality standards (Table 19).

Soil samples collected from the perimeter drainage ditches at the property indicated the likely presence of sediments containing CKD (Hart Crowser 1996). Arsenic concentrations in one or more samples from each ditch exceeded the MTCA Method B cleanup level. The lead concentration in one sample collected from the 96th Street Ditch/Hamm Creek exceeded the MTCA Method A cleanup level. Copper, lead, and zinc in one or more samples from each ditch exceeded the draft soil-to-sediment screening levels (Table 17).

The remedial action evaluation determined the preferred remedial approach included site capping, creek bank protection, and wetland enhancement alternatives (Hart Crowser 1996).

Remedial Action (2001)

Between 1999 and 2000, all CKD within 100 feet (buffer zone) of Hamm Creek and surrounding street right of ways was removed from the property. The CKD was placed on the balance of the site and the remaining exposed CKD was capped with soil, asphalt, and concrete. Stormwater conveyance systems were installed in the capped areas to channelize surface runoff to the clean buffer zone and ultimately Hamm Creek (Seattle Commercial 2001a). Seattle Commercial Development filed a restrictive covenant agreement with King County Assessor on June 7, 2001 (Ecology 2001i).

Ecology reviewed independent remedial actions conducted at the Markey property and determined the release of lead and arsenic (from CKD fill) into soil no longer posed a threat to human health or the environment. On August 10, 2001, Ecology issued an NFA for the site. The NFA required that Seattle Commercial Development monitor leachate and surface water for five years and file a restrictive covenant on the property (Ecology 2001i).

Groundwater and surface water were monitored at the site bi-monthly during the first year and quarterly for the next four years. Monitoring started in October 2001 and ended in August 2006. Ecology removed the facility from the Hazardous Sites List on September 21, 2009 (Ecology 2012g). Monitoring data were not available for review.

5.17.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Simplex Grinnell and Sherwin Williams conduct the majority of industrial activities indoors. Ecology identified minor housekeeping corrective actions at Simplex Grinnell during an HWTR inspection in August 2010. Sherwin Williams completed compliance items identified during an HWTR inspection in February 2011. The potential for sediment recontamination associated with the facilities is low provided that Simplex Grinnell and Sherwin Williams maintains appropriate source control BMPs.

Groundwater Discharge

CKD material was used a fill material at the facility between 1977 and 1978. Chemicals detected in soil and groundwater above state cleanup levels were lead, arsenic, and chromium from the cement kiln dust. In 1982, additional non-CKD fill material was placed on the central portion of the facility. The additional fill material consisted of loose brown sand and gravel with occasional pieces of debris such as brick, concrete, glass, paper, and metal pipe. Soil samples indicated the presence of arsenic, cadmium, lead, and PCB concentrations above MTCA cleanup levels and/or soil-to-sediment screening levels. The additional fill material was removed from the facility in the summer of 1992. Between 1999 and 2000, all CKD at the Markey Property within 100 feet of Hamm Creek and surrounding street right of ways was removed. The CKD was placed on the balance of the site and the remaining exposed CKD was capped with soil, asphalt, and concrete. Ecology issued the facility an NFA determination in August 2001. The potential for sediment recontamination via this pathway is low.

5.17.6 Data Gaps

Simplex Grinnell, NRCES, and Sherwin Williams appear to maintain appropriate source control BMPs and have complied with corrective actions identified by Ecology HWTR inspectors. Therefore, no data gaps were identified for this property.

5.18 Terex Utilities

Facility Summary: Terex Utilities	
Tax Parcel No.	5624200191
Address	9426 8th Avenue S 98108
Property Owner	South Park Industrial Properties LLC
Parcel Size	2.95 acres (128,647 sq ft)
Facility/Site ID	3291: Terex Utilities 27446996: Fruehauf Trailer Services
SIC Code(s)	3713: Truck and Bus Bodies 3715: Truck Trailers 5012: Automobiles and Other Motor Vehicles 7699: Repair Shops and Related Services
EPA ID No.	WAD006009401: Terex Utilities (inactive) WAD00948107: Fruehauf Trailer Services (inactive)
NPDES Permit No.	WAR010446: Terex Utilities (inactive)
UST/LUST ID No.	LUST 101856: Fruehauf Trailer Services

Terex Utilities operates at parcel 0191 (Figure 12), which is bordered by S 96th Street to the south, 8th Avenue S to the west, Puget Sound Coatings to the north, and a truck container storage lot to the east.

According to King County tax assessor records, a 18,590 sq ft service repair garage, built in 1959, and a 4,720 sq ft warehouse, built in 1974, are present on parcel 0191.

5.18.1 Current Operations

Terex Utilities specializes in servicing truck cranes, manlifts, scissorlifts, and street sweepers for private companies as well as different government agencies. Industrial activities include drilling, welding, changing hydraulic and motor oils, and repair and replacement of hydraulic hoses and cylinders. All maintenance activities are conducted inside the facility’s warehouse. All materials used for maintenance are also stored inside. A portion of the facility is leased for storage of piling, steel structures, and steel plates. No fueling operations are conducted at the property (Terex 2008).

Vehicle washing is conducted outside in a designated covered area. Washwater is discharged to the sanitary sewer. All of the facility’s storm drains are located on the western portion of the property, which is the highest sloped area at the site. Employee parking occurs on the western portion of the property. The site slopes eastward and the majority of stormwater sheetflows eastward off the facility’s property (Ecology 2007h).

Terex Utilities acquired the Pacific Utility Equipment Company in 2002 (DJC Oregon 2002). The Pacific Utility Equipment Company historically operated at parcel 5624200360 (1303 S 96th Street) (Terex 2008) and is discussed in Section 5.27.

5.18.2 Historical Operations

Fruehauf Trailer Service (Fruehauf) was operating at the property in January 1967 (Fruehauf 1967). Information regarding when Fruehauf began operating at the facility was not available for review.

Fruehauf installed a wastewater treatment and control system at the facility in 1969. The treatment system consisted of a 1,000-gallon tank that could be used to batch treat effluent at a rate of approximately 3,000 gallons per week. The treatment system removed floating material and adjusted pH. The treated water was discharged to a 250-foot drain field near the S 96th Street drainage ditch (WPCC 1969a).

Terex Utilities acquired Fruehauf in 1989 (New York Times 1989). Fruehauf conducted truck-trailer repair services at the property prior to the acquisition. Fruehauf did not conduct truck engine repair at the facility. The facility operated a paint shop inside a maintenance shop on the property. The company operated a steam cleaner on a wash pad behind the maintenance shop. A drain on the wash pad conveyed washwater to an oil/water separator. The facility had three USTs that collected and stored stormwater. The USTs were cleaned once a year (Ecology 1991f).

5.18.3 Regulatory History

Fruehauf Trailer Services

Fruehauf submitted a waste discharge permit renewal form for the facility in January 1967 (Fruehauf 1967). On December 16, 1969, the Water Pollution Control Commission (WPCC) issued Fruehauf Waste Discharge Permit No. 3239 (WPCC 1969b). Ecology cancelled the facility's waste discharge permit on April 13, 1979 (Ecology 1979a). The reason for the permit cancellation is not known.

In 2003, South Park Industrial Properties, LLC (SPIP) intended to purchase the Fruehauf property and Advance Electroplating Inc. (AEI) property on the west side of 8th Avenue S (Figure 7). In October 2003, EPA and SPIP entered into a Prospective Purchaser Agreement (PPA). The PPA indicated that concentrations of metals, VOCs, and TPH in soils did not exceed the State of Washington's limits for direct contact based on industrial use. Concentrations of nickel, cadmium, and VOCs exceeded the State of Washington's limits for protection of groundwater. Concentrations of 1,1,1- trichloroethane, 1,2-dichloroethene, TCE, PCE, cadmium, copper, nickel, and hexavalent chromium in groundwater exceeded State of Washington limits. The full vertical and horizontal extent of the groundwater plume was not determined. The PPA indicated soils on the Fruehauf Trailer property contain VOCs that appear to have migrated from the AEI property through sewer drainage or shallow groundwater. Shallow and deep groundwater at Fruehauf Trailer appears to contain elevated levels of VOCs and chromium that migrated from the AEI property. Chemical concentrations and State of Washington limits were not included in the PPA (USEPA 2003).

EPA required SPIP to install and maintain three groundwater monitoring wells and two groundwater circulation wells. Groundwater samples were to be analyzed for VOCs. Additional work included vapor intrusion testing at existing buildings to determine the potential occupant exposure to off-gassing of VOCs from the groundwater table. EPA required a low permeability cap and stormwater controls to mitigate surface water infiltration through contaminated soil. SPIP was required to execute and record a restrictive covenant for the property (USEPA 2003). Additional information regarding sample locations, results, and/or permeability cap installation was not available for review.

Additional information regarding contaminant levels at AEI and migration to the Fruehauf property is provided in Section 5.19.

Terex Utilities

Ecology conducted a stormwater compliance inspection at Terex Utilities on June 20, 2007. Terex Utilities told inspectors that the company moved locations a few years prior to 2007 and did not believe they required an updated ISGP. Ecology informed Terex Utilities that the facility required permit coverage because the company conducted industrial activities that had potential to contaminate surface waters of the State. Ecology issued the following corrective actions (Ecology 2007h):

- Update permit to reflect the status of the facility.
- Begin collecting quarterly monitoring samples.
- Develop a SWPPP.

- Monitor and cover machinery stored outdoors.
- Ensure chemicals and solvents are stored appropriately.
- Ensure that all vehicle and equipment washwater is discharged to the sanitary sewer.

Terex Utilities submitted a new ISGP application and SWPPP to Ecology on January 30, 2008 (Terex 2008). Ecology granted Terex Utilities coverage under an ISGP on March 20, 2008. The permit required the facility to collect and analyze stormwater samples for oil and grease, TSS, turbidity, pH, and total zinc (Ecology 2008e).

Ecology and King County conducted a stormwater compliance inspection at Terex Utilities on June 9, 2010. Inspectors determined the facility did not require coverage under an ISGP because the facility only performed service and maintenance on utility trucks indoors. Ecology terminated Terex Utilities' coverage under the permit on August 10, 2010 (Ecology 2010s).

5.18.4 Environmental Investigations and Cleanups

An environmental investigation has been performed at this property. Sample locations are shown on Figure 29 and a summary of chemicals that exceeded soil screening levels is provided in Table 20. A summary of all chemicals detected in soil at the facility is included in Appendix C, Table C-15.

UST Assessment Report (1999)

On April 23, 1998, a 2,000-gallon UST was decommissioned and excavated from the Fruehauf facility. The excavation was completed to approximately 10 feet bgs. No groundwater was encountered during the excavation. One soil sample was collected from beneath the UST, one soil sample was collected from each sidewall, and one soil sample was collected from the excavated fill material. Soil samples were analyzed for petroleum hydrocarbons. A subset of samples was analyzed for VOCs, metals, PCBs, and PAHs. Heavy-oil range hydrocarbons exceeded the MTCA Method A cleanup level in the sample collected from the bottom of the excavation (S4-8) (Table 20). Additional soil was excavated from the site. Approximately 84 tons of soil was excavated during the tank removal and over excavation activities (ATC 1999).

On July17, 1998, the oil/water separator was removed from the project area. Approximately 6 tons of soil was removed from the oil/water separator area. Three confirmation soil samples were collected from the oil/water separator excavation and analyzed for diesel-range hydrocarbons, metals, and VOCs. Arsenic, diesel-range hydrocarbons, xylenes, and PCE concentrations in the sample collected from the north side of the oil/water separator excavation (S2A-4) exceeded MTCA cleanup levels for soil. Mercury concentrations in the soil sample collected from the south side of the excavation (S3A-4) exceeded the draft soil-to-sediment screening level (Table 20). Additional soil was not removed from the oil/water separator excavation due to the close proximity to the adjacent building (ATC 1999).

5.18.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Ecology determined Terex Utilities did not require coverage under an ISGP following an inspection on June 9, 2010. Ecology terminated the facility's ISGP on August 10, 2010. The potential for sediment recontamination via the stormwater and spills pathway is low.

Groundwater Discharge

An UST and oil/water separator were excavated from the property in 1998. Approximately 90 tons of soil were removed from the property. Soil samples collected from the oil/water separator excavation contained concentrations of arsenic, diesel-range hydrocarbons, xylenes, and PCE above MTCA cleanup levels. Mercury exceeded the draft soil-to-sediment screening levels in one sample. Contaminants in groundwater have the potential to infiltrate the S 96th Street SD system; however, arsenic, diesel-range hydrocarbons, xylenes, PCE, and mercury have not exceeded SMS in sediments adjacent to Outfall 2100(A). The potential for sediment recontamination via the groundwater discharge pathway is low.

5.18.6 Data Gaps

Terex Utilities appears to maintain appropriate source control BMPs and have complied with corrective actions identified by Ecology inspectors. All operations are conducted indoors. Therefore, no data gaps were identified for this property.

5.19 Former Advance Electroplating Inc.

Facility Summary: Former Advance Electroplating Inc.	
Tax Parcel No.	5624200208
Address	9585 8th Avenue S 98108
Property Owner	South Park Industries
Parcel Size	1.26 acres (54,827 sq ft)
Facility/Site ID	2079: Advance Electroplating 4914796: CB Finishing
Alternate Name(s)	Advance Co Inc., CB Finishing Inc., Concrete Restoration, CRJ Construction Co, Pro Weld, Show Quality Metal Finishing, South Park Industrial Properties LLC
SIC Code(s)	3471 Electroplating, plating, polishing
EPA ID No.	WAD009278847: Advance Electroplating (inactive)
NPDES Permit No.	WAR002274: CB Finishing (inactive)
UST/LUST ID No.	None

Show Quality Metal Finishing (Show Quality Metal) and Concrete Restoration Inc. (CRI) operate at parcel 0208 (Figure 12). The parcel is bordered by S 96th Street to the south, Old Dominion Freight Lines to the west, 8th Avenue S to the east, and Western United Fish to the north.

According to King County tax assessor records, the following buildings are present on parcel 0208:

- a 9,160 sq ft electroplate shop and office, built in 1923;
- a 5,500 sq ft storage warehouse, built in 1970; and
- a 15,840 sq ft storage warehouse, built in 1984.

5.19.1 Current Operations

Show Quality Metal Finishing

Show Quality Metal began operating at parcel 0208 in January 2010. The company conducts metal restoration, finishing, and chrome plating (Show Quality Metal 2012). The company formerly operated at 1115 S Elizabeth Street, located adjacent to North Boeing Field (Gray 2011).

Concrete Restoration Inc.

CRI began operating at parcel 0208 in August 2010. According to CRI’s website, the company specializes in concrete restoration, repair, rehabilitation, protection, coating, and decorative enhancements for commercial and multi-use structures (Concrete Restoration 2012).

The facility formerly operated at 4025 West Marginal Way SW, located in the Spokane Street to Kellogg Island source control area. Data Gaps pertaining to operations at the former location are discussed in the Spokane Street to Kellogg Island Summary of Existing Information and Identification of Data Gaps (SAIC 2012b).

Limited information regarding current operations at either facility was available for review.

5.19.2 Historical Operations

Advance Electroplating

AEI conducted chrome and zinc plating operations at parcel 0208 from 1964 to 1992. The plating operations were housed in separate buildings at the facility (Figure 30). The facility used zinc, copper, chromium, nickel, methylene chloride, and TCE in electroplating and metal finishing operations (E&E 1986a). In 1969, operations at the facility included plating of truck parts, auto bumpers, aircraft, and miscellaneous parts. Sludges from the treatment tanks were reportedly buried or sent to a disposal facility. From 1972 through 1981, hazardous waste generated at the facility included zinc and copper cyanide wastes, waste chromic acid, and spent nickel strip (Ecology 1990a).

The facility’s Waste Discharge Permit was replaced by a NPDES permit in the 1970s. Rinse water and paint stripper tanks were allowed to overflow to the storm drain system at this time. A number of wastewater treatment systems were installed at the site in 1976. AEI also installed three underground settling tanks and filters for sludge filtering and drying. The facility eliminated its cadmium plating operation in 1976. Ecology collected effluent samples in 1972, 1974, 1976, 1977, 1978, and 1981. Concentrations of lead, chromium, cadmium, copper, zinc, cyanide, and pH in discharge samples exceeded permit limits (Ecology 1990a).

In July 1977, two AEI employees notified Ecology of improper waste disposal practices by AEI. The employees indicated that waste sludges of cyanide, copper, zinc, chrome, paint, and acidic solvents were placed in 55-gallon drums and buried in a trench on the west side of the facility. Additionally, waste sludges were mixed with sawdust and disposed of in a dumpster. The employees indicated a waste hauler removed the dumpster waste on a regular basis (Ecology 1977).

In 1985, a fire occurred in the new plating building at the facility. Approximately 6,750 gallons of chromic acid wastewaters were generated by the fire-fighting efforts. The wastewaters were disposed of offsite at an unknown location (Ecology 1990a).

Two storm drains were located along the east side of the facility and one storm drain was located at the corner of S 96th Street and 8th Avenue S. Waste generated during plating operations included liquids, sludges, and solids that contained varying concentrations of heavy metals. Between 1964 and 1981, AEI discharged wastewater to a ditch that ran along S 96th Street and eventually discharged to the LDW. AEI backfilled in the drainage ditch and began discharging wastewater to the sanitary sewer in September 1981. Waste handling practices resulted in chlorinated solvents and heavy metals release to soil and groundwater at the facility (E&E 1986a).

CB Finishing

CB Finishing operated a small metal grinding, polishing, and buffing shop at the property until 2009. During an inspection in 2008, CB Finishing told Ecology that the shop had operated at the property for 20 years. It is assumed CB Finishing began operation at the facility around the time AEI stopped operations. All facility operations were conducted indoors. Floor sumps and trench drains in the building were left over from Advance Electroplating operations. CB Finishing indicated that the sumps and drains were all plugged. A blower system was used to collect two 55-gallon drums of dust per week. At the time of the inspection, CB Finishing disposed of dust collected from sandblast cabinets and floor sweepings as solid waste (Ecology 2008k).

5.19.3 Regulatory History

Advance Electroplating

In December 1964, the WPCC conducted a site visit at Advance Electroplating. Rinse water and part washer drag out was conveyed to a ditch along 8th Avenue S (WPCC 1964).

In September 1969, METRO conducted a site visit at the facility as part of a survey of metal finishing and plating industries. Inspectors determined the facility discharged directly to the LDW via a storm drain ditch adjacent to the property. There were no sanitary sewers available in the area at the time. METRO raised concerns with AEI regarding the water quality of effluent discharged to the drainage ditch (METRO 1969).

On January 29, 1970, the WPCC collected two effluent discharge samples from the south and north side of AEI. Sample results had elevated levels of copper, nickel, and chromium (WPCC 1970a). A survey conducted in February 1970 indicated that discharge from the ditch adjacent to AEI contributed to elevated heavy metals concentrations in the historical Salmon Creek (WPCC 1970b). It is assumed that the historical Salmon Creek is part of the present day Hamm Creek watershed. On April 10, 1970, additional effluent samples were collected from AEI and analyzed for pH and metals. Sample results indicated elevated levels of chromium, copper, and nickel compared with other sample locations from the drainage area (WPCC 1970c).

On November 18, 1970, Ecology issued a Waste Discharge Permit to AEI. The permit allowed a daily maximum of 105,000 gallons of wastewater to be discharged to a drainage ditch near the southeast end of the property. Ecology required AEI to treat wastewater with neutralization and evaporation prior to discharge. Chemical sludges resulting from neutralization could not be disposed of in state waters. Effluent limits were included in the permit for total cyanide, total chromium, zinc, copper, and nickel. The permit required all wastewater to be discharged to a sanitary sewer when a sanitary sewer system became available within a reasonable distance to AEI (Ecology 1970a). Ecology issued a NPDES Waste Discharge Permit on January 13, 1976 (Ecology 1976). Ecology reissued the permit in 1977 and required AEI to discharge pretreated effluent to a municipal sanitary sewer system by July 8, 1980 (Ecology 1979b).

On December 18, 1972, Ecology collected water samples to characterize industrial discharges from AEI to the drainage ditch that ran adjacent to the facility. Cadmium, chromium, zinc, copper, and nickel concentrations exceeded the facility’s permit effluent limits (Ecology 1973a). Ecology collected a sample from AEI’s effluent stream on July 5, 1974. Zinc, copper, and nickel concentrations exceeded the facility’s permit effluent limits (Ecology 1974).

On October 10, 1979, Ecology issued NPDES Permit No. WA-000172-4 to AEI. Ecology issued Order Docket No. DE 79-521 as an amendment to the permit. The amendment ordered the facility to intercept and discharge contaminated process water to the sanitary sewer by September 1, 1980 (Ecology 1981a).

Ecology inspected Advance Electroplating on September 18, 1981. Inspectors observed a rinsewater tank was overflowing into a drainage ditch. Ecology sampled the effluent and found significant concentrations of copper and chromium (results were unavailable for review). The overflow discharge pipe from a wastewater-holding tank conveyed wastewater to a storm drain (Ecology 1981b). METRO issued an Industrial Waste Discharge Permit in 1981 and allowed the facility to connect to the sanitary sewer system (Ecology 1990a). AEI disconnected and capped the wastewater discharge line to the storm drain and connected the line to the sanitary sewer on September 24, 1981 (Advance Electroplating 1982).

AEI submitted two Notification of Dangerous Waste Activity forms in 1982. The company listed 7,200 pounds of electroplating sludge, 1,540 pounds of spent methylene chloride, and 400 pounds of electroplating wastewater treatments. In 1983, the company generated 14,500 pounds of dewatered electroplating sludges (Ecology 1990a). In March 1983, Ecology assigned AEI EPA/State identification number WAD009278847 (Ecology 1983).

On April 6, 1984, Ecology inspected AEI in response to complaints of a strong solvent odor detected by construction workers at the facility. The construction workers encountered the strong odor while installing a drainage line for a new warehouse. The workers filled the trench following the installation of the drain line. During the inspection, Ecology did not observe any drums or containers that might have held chemicals in the area of the reported odor (Ecology 1984a).

Between 1982 and 1984, METRO sampled industrial wastewater discharge at AEI. METRO identified concentrations of lead, chromium, copper, nickel, and zinc were above permit discharge limits. In 1984, the facility failed to notify METRO of a hazardous spill to the sewer system and was assessed a civil penalty (Ecology 1990a).

METRO inspected the facility in late 1984. The facility conducted processing operations on an unpaved section of the site. Tanks and containers identified in the area included TCE and fuel storage tanks, chromium and sludge boil down tanks, caustic cleaning tanks, and assorted drums. Processing and effluent transfer lines and sumps were also situated in the area. The sumps were exposed to stormwater contact. Inside the facility, sludges were observed on the plating floor, in a trench area, and in a floor sump. METRO issued a compliance order to the facility as a follow-up to the inspection (Ecology 1990a).

On March 16, 1985, Ecology conducted a potential hazardous waste site preliminary assessment at AEI. The assessment determined the potential for groundwater contamination associated with leaking process lines and spills was low. Inspectors determined process tanks in an unpaved alley had the potential to spill or overflow to soils and/or storm drains. Inspectors observed a leaking zinc line in the alley. A review of Ecology and METRO files indicated poor process and waste management practices (Ecology 1985a).

METRO conducted a follow-up inspection to investigate progress with a compliance order issued in 1984. AEI installed a batch treatment system at the facility. The previously unpaved outdoor storage area and process area was paved and fenced. The six treatment tanks were roofed and bermed. AEI constructed a roof over the facility’s empty drum storage area (Ecology 1990a).

In 1986, the annual wastes generated by the facility included 16 drums of solid material and 100,000 pounds of sludge, 50,000 pounds of waste chromic acid solution, and 5,000 pounds of 1,1,1-trichloroethane (Ecology 1990a).

On October 28, 1987, Ecology inspected the AEI facility. AEI emptied dust sweepings from the chrome plating area in to the dumpster. The dumpster was overflowing and did not have secondary containment. There was a leak at the stripping area berm in the zinc plating building. At the southwest corner of the property, the pipe in the S 96th Street ditch was clogged. Ecology planned to contact King County to have the pipe cleaned (Ecology 1987e). Ecology issued the following corrective actions (Ecology 1988d):

- Conduct toxicity tests on floor sweepings.
- Provide documentation of repairs to the stripping area berm.
- Install a berm for the dumpster storage area.

AEI submitted metals toxicity test results from two containers of floor sweepings in April 1988 (Advance Electroplating 1988). Copper, nickel, and zinc concentrations exceeded 5 mg/L. Ecology reviewed the results and requested a bioassay analysis for the material (Ecology 1988f). AEI completed berm repairs in September 1988 (ERC 1988). AEI submitted fish bioassay results for floor sweepings in November 1988. The results indicated a gradual increase of fish deaths over the test period. The laboratory classified the floor sweepings as a dangerous waste (Pedone 1988).

In 1989, the company generated 4,000 pounds of 1,1,1-trichloroethane and 32,000 pounds of electroplating wastewater treatment sludges. METRO issued an informal compliance schedule for AEI to reduce copper and nickel concentrations in discharge below permit limits (Ecology 1990a).

Ecology conducted a source control inspection at AEI on May 30, 1991. AEI was in the process of constructing a new building on the property. All metal plating tanks and lines were housed within a concrete berm. Spent caustics and acids were treated in a large metal tank and discharged to the sanitary sewer. Treated sludge was disposed of offsite. Other parts of the old building were used for metal polishing, cleaning, painting, and maintenance. The facility had solvent ASTs within secondary containment. Ecology did not issue any corrective actions (Ecology 1991b).

Ecology completed an SHA at the facility in August 1991. Ecology ranked the facility a 4 (with 1 being the highest risk and 5 being the lowest risk) (Ecology 1991c, 1991i). Ecology revised the ranking to a 5 after adding additional facilities to the ranking database (Ecology 1992j).

Ecology conducted a dangerous waste compliance inspection at AEI on September 15, 1992. Ecology identified the following non-compliance issues (Ecology 1992p):

- Label and date containers of hazardous waste properly.
- Close all containers in the waste accumulation area.
- Identify and containerize all spills in the treatment area.
- Retain all hazardous waste manifests on site.
- Develop a spill contingency plan and train employees.

AEI did not implement any corrective actions identified during the September 1992 inspection. Ecology, METRO, and King County conducted a follow-up inspection at the facility on March 16, 1993. Tanks, drums, and a large volume of wastewater had accumulated in the bermed area outside at the west end of the property. Inspectors determined the facility needed to move the materials indoors and manage the waste streams properly. Ecology requested AEI to provide documentation of corrective actions by May 30, 1993 (Ecology 1993m).

On June 3, 1993, Ecology conducted a hazardous waste compliance inspection at AEI. Containers in the waste treatment area were left open and unlabeled. Ecology observed evidence of spills to secondary containment in the facility’s treatment area (Ecology 1993o). Additional information regarding compliance with Ecology corrective actions was not available for review.

In March 1995, EPA inspected AEI and found over 35,000 gallons of improperly stored hazardous waste and chemicals at the facility. Hazardous substances identified during the inspection included cyanide, acids, caustics, solvent wastes with high levels of TCE, PCE, methyl ethyl ketone (MEK), hydrogen peroxide, chromium, lead, and nickel. Hazardous chemicals, solvents, and wastes were stored in bulk tanks, drums, bags, and containers inside the buildings and on the property. EPA found soil contaminated with TCE, PCE, chromium, and other VOCs and heavy metals (USEPA 1995a). Between June 1995 and March 1996, approximately 1,725 tons of hazardous waste was containerized and disposed of offsite (USEPA 1995b).

In August 1995, the owner of AEI was sentenced to four months house arrest and ordered to pay a civil penalty for illegally storing the hazardous waste at the AEI facility (Seattle Times 1995).

In 2003, SPIP intended to purchase the AEI property and Fruehauf Trailer property (parcel 0191, Figure 12). In October 2003, EPA and SPIP entered into a PPA. The PPA stated that concentrations of metals, VOCs, and TPHs in soils did not exceed the State of Washington’s limits for direct contact based on industrial use. Concentrations of nickel, cadmium, and VOCs in soil exceeded the State of Washington's limits for protection of groundwater. Concentrations of 1,1,1- trichloroethane, 1,2-dichloroethene, TCE, PCE, cadmium, copper, nickel, and hexavalent chromium in groundwater exceeded State of Washington limits. The full vertical and horizontal extent of the groundwater plume was not determined, but VOCs originating at the AEI property appeared to have migrated to the Fruehauf property (Section 5.18.3) (USEPA 2003).

EPA required SPIP to install and maintain three groundwater monitoring wells and two groundwater circulation wells. Groundwater samples were to be analyzed for VOCs. Additional work included vapor intrusion testing at existing buildings to determine the potential occupant exposure to off-gassing of VOCs from the groundwater table. EPA required a low permeability cap and stormwater controls to mitigate surface water infiltration through contaminated soil. SPIP was required to execute and record a restrictive covenant for the property (USEPA 2003). Additional information regarding soil capping and stormwater controls was not available for review.

CB Finishing

Ecology conducted a site visit at CB Finishing in August 1994. Inspectors determined the facility required coverage under the ISGP (Ecology 1994g). CB Finishing submitted an NOI for a Baseline General Permit to Discharge Stormwater Associated with Industrial Activity on February 24, 1995 (CB Finishing 1995). Ecology granted the facility coverage under an ISGP in March 1995 and required the facility to develop and implement a SWPPP (Ecology 1995b). CB Finishing reapplied for a stormwater permit in April 2000 (CB Finishing 2000). The facility submitted a SWPPP in October 2001 following a formal request from Ecology (Ecology 2001l; CB Finishing 2001).

In February 2003, King County conducted a business visit to identify potential water quality issues at CB Finishing. The inspectors identified the following corrective actions (King County 2004):

- Clean the strip drain along the west side of the building.
- Provide secondary containment or remove the two large tanks on the south side of the building.
- Remove piles of concrete located between two buildings at the property.
- Raise items stored in the covered area between the buildings off the ground.
- Properly label and store containers that have the potential to spill or leak.
- Train employees on spill response procedures.

King County conducted a follow-up visit in August 2004. Inspectors observed the strip drain on the west side of the building was clean and free of debris. CB Finishing removed the two large tanks on the south side of the building and piles of concrete between the buildings. Most containers of liquids were stored inside and spill control materials were kept on site. King County requested CB Finishing to label onsite catch basins and sweep the facility regularly (King County 2004).

Ecology conducted a stormwater compliance inspection at CB Finishing on April 24 and May 30 2007. CB Finishing could not provide inspectors with a copy of the facility's NPDES permit,

permit cover letter, SWPPP, DMRs, or visual inspection notes. The facility had only submitted one DMR between 2003 and 2006. Inspectors determined all of the facility's industrial operations appeared to be conducted inside. An alleyway behind CB Finishing contained barrels of wood chips from an adjoining door making facility and some metal storage from another facility. The ground was littered with accumulated wastes. A large piece of cardboard partially covered the facility's shared storm drain. CB Finishing stored uncovered machinery on the north side of the facility. Ecology determined the facility might be eligible for coverage under a CNE if the facility implemented the following recommendations (Ecology 2007l):

- Initiate a thorough cleaning and sweeping protocol for the facility.
- Remove accumulated dirt, debris, and other industrial waste from the facility's lot.
- Completely cover the machinery stored on the north side of the facility.

CB Finishing submitted an application for a CNE on January 7, 2008. On April 8, 2008, Ecology conducted a stormwater compliance inspection at the facility to determine if the facility qualified for a CNE. Inspectors recommended the facility to improve the dust collection system and characterize wastes disposed of as solid waste (Ecology 2008i).

It is assumed source control issues associated with CB Finishing were resolved when the company stopped operating at the property in 2009.

Show Quality Metal Finishing

Ecology inspected Show Quality Metal on January 26, 2010. Inspectors determined the facility was eligible for a CNE. Ecology did not receive a CNE application and recommended a follow-up inspection (Wright 2010). In early 2011, Ecology and KCIW attempted to inspect Show Quality Metal at the 9858 8th Avenue S. Show Quality Metal denied inspectors access to the facility (Gray 2011).

Concrete Restoration Inc.

Ecology inspected the facility on October 27, 2010. Inspectors identified corrective actions related to solvent waste disposal, storm drain clean out, spill response procedures, housekeeping practices. Ecology determined the facility was in compliance with corrective actions during a follow-up inspection on January 5, 2011 (Ecology 2012h).

5.19.4 Environmental Investigations and Cleanups

At least three environmental investigations have been performed at this property. Sample locations are shown on Figure 30 and a summary of chemicals that exceeded soil and groundwater screening levels is provided in Tables 21 and 22. Summaries of all chemicals detected in soil and groundwater at the facility are included in Appendix C, Tables C-16 and C-17.

Site Inspection Report (1986)

On March 6, 1986, EPA and Ecology conducted a site inspection at AEI. The inspection was conducted to accurately profile the nature and extent of past wastewater disposal activities at the site. AEI notified inspectors that a fire in November 1985 had heavily damaged the new plating line in the southwest corner of the building. The fire partially melted several plastic carboys in the solvent storage area; however, there were no reported leaks. The inspectors identified ASTs containing chrome plating sludge, caustic waste, acid waste, and chrome waste located along the western edge of the facility. An underground sump was used for secondary containment (E&E 1986a).

The inspectors reviewed previous wastewater effluent sampling data collected by METRO in February 1980. Results showed that NPDES effluent limitations for heavy metals were exceeded. On July 23, 1981, Ecology collected two samples of effluent from a catch basin at the southeast corner of the property and another from approximately 80 feet north of the sample location. Chromium, copper, and zinc concentrations exceeded acute and chronic water quality criteria. According to the investigation in 1986, AEI had several METRO violations for heavy metals since the company's connection to the sanitary sewer in 1981 (E&E 1986a).

The inspectors determined sediments in the ditch and the river may have been contaminated with heavy metals due to historical waste disposal practices. Between 1964 and 1981, AEI discharged wastewater to a ditch that ran along S 96th Street and eventually to the LDW. AEI may have contaminated soil around the plating shops before the facility paved the site. Groundwater contamination from downward migration of contaminants may be possible (E&E 1986a).

Site Hazard Assessment (1991)

On May 9, 1991, a groundwater monitoring well (MW-1) was advanced at the northwest corner of 8th Avenue S and S 96th Street. The well was completed to a depth of approximately 15 feet bgs. Groundwater was encountered between seven to 9 feet bgs. Three six-inch subsurface soil samples were collected at depths starting at 3.5 feet, 6.5 feet, and 9.5 feet bgs. A duplicate soil sample was collected from a depth of 9.5 feet bgs. The samples were analyzed for pH, VOCs, cyanide, and total metals. On May 13, groundwater samples were collected and analyzed for VOCs and cyanide. On May 14, groundwater samples were collected and analyzed for total and dissolved metals (Parametrix and SAIC 1991b).

Detected concentrations of VOCs in soil were below MTCA cleanup levels, with the exception of the TCE concentration in the soil sample collected from 9.5 feet bgs. Arsenic concentrations in all four-soil samples exceeded the MTCA Method B cleanup level. Zinc concentrations at well MW-1 exceeded the draft soil-to sediment screening level (Table 21). In groundwater, concentrations of 1,1,1-trichloroethane, PCE, TCE, arsenic, cadmium, chromium, copper, and zinc exceeded MTCA cleanup levels. Cadmium, copper, and zinc concentrations exceeded the draft groundwater-to-sediment screening levels (Table 22).

Ecology completed an SHA for the facility in August 1991. Ecology ranked the facility a 4 (with 1 being the highest risk and 5 being the lowest risk) (Ecology 1991c, 1991i). Ecology revised the ranking to a 5 after adding additional facilities to the ranking database (Ecology 1992j).

Removal Action (1995)

EPA found over 35,000 gallons of improperly stored hazardous waste and chemicals at the facility during an inspection in March 1995. Hazardous substances identified during the inspection included cyanide, acids, caustics, solvent wastes with high levels of TCE, PCE, MEK, hydrogen peroxide, chromium, lead, and nickel. Hazardous chemicals, solvents, and wastes were stored in bulk tanks, drums, bags, and containers inside the buildings and on the property. EPA found soil contaminated with TCE, PCE, chromium, and other VOCs and heavy metals (USEPA 1995a).

In the summer 1995, EPA determined the levels of contaminants at the facility presented an imminent and substantial endangerment to health and the environment. Approximately 105 subsurface soil borings were analyzed for VOCs and heavy metals to delineate the extent of subsurface contamination. Subsurface soil contamination included TCE, PCE, chromium, cadmium, nickel, lead, and copper. Approximately 1,400 tons of soils were excavated and treated with a vapor extraction system (VES) to remove TCE and solvents. The treated soil was transported to a hazardous waste landfill. Personal air monitors, high volume air samples, and VOC samples confirmed contaminants did not impact air quality (USEPA 1995b). Sample results were not available for review.

EPA characterized hazardous substances stored in over 550 open vats, drums, bags, and containers in poor and failing condition. Between June 1995 and March 1996, hazardous wastes including cyanides, VOCs, concentrated acids, bases, oxidizers, flammables, poisons, organic peroxides, and heavy metal-contaminated soils and debris were containerized into over 80 truckloads and disposed of offsite. EPA removed approximately 1,725 tons of hazardous waste from the facility (USEPA 1995b, 1996).

Additional information regarding contaminants in soil and groundwater left in place was available for review.

5.19.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Show Quality Metal denied Ecology access to inspect the facility in early 2011. Current operations at Show Quality Metal may have the potential for sediment recontamination via the stormwater pathway.

CRI complied with corrective actions identified by Ecology in October 2010. The potential for sediment recontamination via the stormwater pathway is low provided that the facility maintains appropriate source control BMPs.

Groundwater Discharge

The historical operator, AEI, discharged industrial wastewater to a drainage ditch at the southeast corner of the property from the start of operations in 1964 until the facility was tied into the sanitary sewer in 1981. Industrial effluent sampling by the WPCC and Ecology in the 1970s detected elevated concentrations of zinc, chromium, copper, and nickel. An SHA conducted in 1991 identified concentrations of arsenic and TCE in soil samples collected from the southeast corner of the property above MTCA Method A cleanup levels. Concentrations of 1,1,1-trichloroethane, TCE, arsenic, cadmium, chromium, and zinc in groundwater exceeded MTCA Method A cleanup levels.

In 1995, EPA analyzed approximately 105 subsurface soil samples for VOCs and heavy metals to delineate the extent of subsurface contamination though plume boundaries remain undefined. Subsurface soil contaminants included TCE, PCE, chromium, cadmium, nickel, lead, and copper. Approximately 1,400 tons of soils were excavated and treated with a VES to remove TCE and solvents. The treated soil was disposed of offsite.

A PPA signed by EPA and SPIP in 2003 indicated that the full vertical and horizontal extent of the contaminated groundwater plume was not determined. Contaminated groundwater at the facility has the potential to infiltrate the S 96th Street drainage ditch system and migrate to the LDW. The potential for sediment recontamination via the groundwater pathway is unknown.

5.19.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with this property is listed below:

- Additional information regarding the current operations at Show Quality Metal is needed to determine the potential for sediment recontamination via the groundwater discharge pathway.
- Due to the potential for metals contamination in soil and groundwater beneath this property and potential for offsite migration, additional information is needed to determine if metals are present in groundwater at concentrations exceeding current MTCA cleanup levels. A review of the remedial actions performed by the EPA is needed.

5.20 Old Dominion Freight Line

Facility Summary: Old Dominion Freight Line	
Tax Parcel No.	3224049034, 5624200213, 5624200211, 562400212
Address	9034: 600 S 96th Street 98108 0213, 0211: 9365 7th Avenue S 98108 0212: 700 S 96th Street 98108
Property Owner	Old Dominion Freight Line I
Parcel Size	9034: 6.36 acres (277,042 sq ft) 0213: 0.35 acre (15,124 sq ft) 0211: 0.54 acre (23,388 sq ft) 0212: 3.31 acres (144,347 sq ft)
Facility/Site ID	1878836
Alternate Name(s)	Desimone Trust Property, Old Dominion Freight Line, Roadway Express Inc. T870, Roadway Express Inc. 96th, YRC Inc. Seattle
SIC Code(s)	4213: Trucking Except Local
EPA ID No.	WAH000014712: YRC Inc. Seattle (inactive)
NPDES Permit No.	WAR126316: Roadway Express (inactive)
UST/LUST ID No.	None

Old Dominion Freight Line (Old Dominion) operates at parcel 9034 (Figure 12). The facility is bordered by S 96th Street to the south, the South 96th Business Park and The Revere Group to the west, Western United Fish and Show Quality Metal Finishing to the east, and residential properties to the north.

According to King County tax assessor records, a 46,450 sq ft transit warehouse, built in 2001, is present on the parcel. Parcels 0213, 0211, and 0212 are vacant lots.

5.20.1 Current Operations

King County tax assessor records indicate Old Dominion purchased the property in 2008. Old Dominion operates a truck shipping and receiving facility at the 600 S 96th Street location. Additional information regarding current operations was not available for review.

5.20.2 Historical Operations

The property was previously known as the Desimone Trust Property (SKPDH 2002). Additional information about operations at the Desimone Trust Property was not available for review.

In January 2001, Roadway Express notified Ecology that the company planned to move operations to the 600 S 96th Street facility in April 2001 (Roadway Express 2001). According to the company’s website, YRC Freight (YRC) acquired Roadway Express in 2003 (YRC Freight 2013). It is not clear when the facility’s name changed from Roadway Express to YRC. Both YRC and Roadway Express conducted truck shipping and receiving operations at the facility. The company stored trailers, truck cabs, and forklifts outside. Vehicle cleaning was not conducted on site. Fueling was conducted by a contracted mobile fuel service. The northeast portion of the facility was used for truck and trailer maintenance (Ecology 2007e).

Additional information regarding historical operations at the property prior to Roadway Express was not available for review.

5.20.3 Regulatory History

Roadway Express

Ecology issued Roadway Express coverage under an ISGP on January 21, 2003 (Ecology 2003a).

Ecology inspected Roadway Express on April 26, 2007. DMR records indicated that the facility failed to collect stormwater samples since the third quarter of 2004. Ecology instructed the facility to collect and submit a stormwater sample even if not all sample collection criteria were met. The facility indicated new management recently took over and would improve compliance with the ISGP (Ecology 2007e). The facility had 14 catch basins located throughout the storage lot that drain stormwater to an oil/water separator. The oil/water separator discharged to a detention vault under the employee parking area. Inspectors observed fresh oil stains on asphalt below two parked trucks in the maintenance area at northeast corner of the facility. Several open drums and an open metal dumpster filled with greasy parts, were stored in the maintenance area. The storm drain in the maintenance area had a filter insert. Ecology observed three full drums of oil, a half empty drum of antifreeze, and several empty barrels in the western lot. Ecology issued the following corrective actions (Ecology 2007e):

- Immediately obtain a current copy of the ISGP.
- Collect quarterly stormwater monitoring samples.
- Retain DMRs on site.
- Inspect the facility on a quarterly basis.
- Construct secondary containment around all chemical drums.
- Implement good housekeeping practices to reduce stormwater pollution potential.
- Cover machinery and equipment stored outdoors to prevent contaminating stormwater.

Additional information regarding corrective actions implemented by Roadway Express was not available for review. It is assumed trucks, trailers, chemicals, and other materials were removed from the facility when Old Dominion purchased the property in 2008.

According to Ecology’s PARIS database, Old Dominion applied for coverage under a CNE on December 17, 2009. Ecology approved the CNE on March 17, 2010.

King County inspected Old Dominion between October and December 2010. No corrective actions were identified.

5.20.4 Environmental Investigations and Cleanups

One environmental investigation was performed at this property in the early 1990s. The original report documenting the investigation was not available for review; however, some of the groundwater monitoring data were included in S 96th Street Water Quality Engineering Report (Herrera 1994). A summary of chemicals that exceeded groundwater screening levels is provided in Table 23. A summary of all chemicals detected in groundwater at the facility is included in Appendix C, Table C-18.

Benzene, cadmium, and zinc concentrations in groundwater exceeded MTCA cleanup levels. Cadmium and zinc concentrations also exceeded the draft groundwater-to-sediment screening levels (Table 23).

5.20.5 Potential for Sediment Recontamination

The potential for sediment recontamination associated this property is summarized below by transport pathway.

Stormwater and Spills

Limited information regarding current operations by Old Dominion was available for review. The facility received a CNE in March 2010; therefore, the potential for sediment recontamination associated with the current operations at the facility is low.

Groundwater Discharge

Groundwater monitoring data from the early 1990s indicates that benzene, cadmium, and zinc were present in concentrations that exceeded MTCA cleanup levels. In addition, cadmium and zinc concentrations exceeded the draft groundwater-to-sediment screening level. There is potential for sediment recontamination associated with groundwater discharge from this property. Zinc concentrations in sediment near the Sea King Industrial Park source control area have exceeded the SMS criteria.

5.20.6 Data Gaps

Old Dominion appears to maintain appropriate source control BMPs and was in compliance during a recent King County inspection. Therefore, no data gaps were identified regarding the current operations at this property. Information needed to assess the potential for sediment recontamination associated with historical operations at this location is listed below:

- Additional groundwater sampling data are needed to determine the potential for sediment recontamination via the groundwater discharge pathway.

5.21 South 96th Business Park

Facility Summary: South 96th Business Park	
Tax Parcel No.	3224049071
Address	400 S 96th Street 98108 (Repair Technology Inc.) 410 S 96th Street 98108 (South 96th Business Park) 420 S 96th Street 98108 (AERO LAC INC) 430 S 96th Street 98108 (Centimark Corp Seattle Office)
Property Owner	Harasch Investment Properties, LLC
Parcel Size	5.26 acres (229,300 sq ft)
Facility/Site ID	2080: Repair Technology Inc. 11972772: Centimark Corp Seattle Office 82395194: Aero-Lac Inc.
Alternate Name(s) and Current or Former Tenants	Advance Hard Chrome Inc., Aero-Lac Inc., Centimark Corp Seattle Office, Repair Technology Inc.
SIC Code(s)	3471: Electroplating, Plating, Polishing (Repair Technology) 3589: Service Industry Machines (Repair Technology) 7699: Repair Services (Repair Technology) 9999: Nonclassifiable Establishments (Centimark Corp Seattle Office)
EPA ID No.	WAH000001818: Repair Technology (active) WAH000001016: Centimark Corp Seattle Office (inactive)
NPDES Permit No.	None
UST/LUST ID No.	None

The South 96th Business Park located on parcel 9071 (Figure 12) is bordered by S 96th Street to the south, Old Dominion to the east, The Revere Group to the north, and 4th Avenue S to the west.

According to King County tax assessor records, three multi-unit warehouses with office space are present on parcel 0005:

- Building 1: 39,984 sq ft built in 1974
- Building 2: 23,520 sq ft built in 1974
- Building 3: 34,758 sq ft built in 1966.

5.21.1 Current Operations

South 96th Business Park

The South 96th Business Park is an industrial warehouse rental facility, owned by Harasch Investment Properties LLC. The facility has a variety of manufacturing, fabrication, and distribution tenants. The property consists of primarily buildings and paved areas. Small-vegetated strips are scattered throughout the property.

Ecology has not assigned the South 96th Business Park facility an FSID number. Limited information regarding current operations was available for review. Tenants conduct the majority of operations indoors. Current tenants with Ecology FSIDs are discussed below.

Aero-Lac Inc.

Aero-Lac Inc. (Aero-Lac) began operating at the current location in the mid-1970s. Aero-Lac provides custom finishes for cabinets, fiberglass, metal, millwork, stair parts, and windows. The 20,000 sq ft facility has three large spray booths, two automatic door lines, and two automatic millwork machines. The paint booths are equipped with air filters and are permitted through PSCAA. The facility uses lacquer, urethane, varnish, paint, primer, glazing and fiberglass as finishing material. Aero-Lac operates a still to reclaim thinners. All chemicals are stored in enclosed cabinets (Aero-Lac 2013).

Repair Technology Inc.

Repair Technology Inc. (RTI) previously operated as Advance Hard Chrome, a division of Advance Electroplating Inc. In September 1985, the facility changed ownership and company name to Repair Technology Inc. (E&E 1986b). RTI is a hard chrome plating and machine repair shop. Hazardous wastes generated at the facility include chrome plating sludge, chrome-contaminated debris, parts cleaning solvents, solvents rags, evaporator sludge, polishing/grinding/blasting dusts and sludges, machine coolant and lubricating oils, and scrap metals. The facility has a permit issued by PSCAA for chrome plating tank ventilation and an evaporator. RTI does not discharge industrial waste to the sewer. All water from the plating operation is reused or evaporated (Ecology 2008m).

The facility maintains three chromic acid hard chrome baths used to plate a wide variety of metals. The baths are heated and surrounded by secondary containment. A 55-gallon drum located near the plating tanks is used to cool parts after plating. The water is added back to the baths periodically and not considered a waste. Parts removed from the bath are rinsed with freshwater over the plating tank that supplies water from the evaporator. Chrome is removed from some parts in a small chrome strip tank that utilizes a solution of sodium hydroxide and sodium carbonate. The shop operates blast cabinets using glass, steel shot, and sand. Dusts from the blast cabinets are disposed of as solid waste. RTI performs wet polishing/grinding operations and disposes the wet sludge as solid waste. The facility has numerous milling, cutting, and drilling machines that generate used oils and machine coolant waste (Ecology 2008m).

5.21.2 Historical Operations

Advance Hard Chrome

Advance Hard Chrome began operating at the current location of RTI in 1971. From 1971 through 1985, Advance Hard Chrome operated as a division of Advance Electroplating. The facility sandblasted metal products with aluminum oxide in the plating room. Sandblasted parts were wiped down with MEK to remove excess sandblasting grit. The company immersed parts in one of five chrome plating baths ranging in volume from 600 gallons to 4,000 gallons. Plated parts were rinsed off immediately following immersion and excess plating bath solution drains back into the baths. Four of the plating baths were positioned over a sunken concrete sump. The fifth bath was located near the sandblasting area and had a spill containment berm. Advance Hard Chrome also maintained a small parts drag-out tank to rinse off small metal parts. The rinse water from the drag-out tank was continually pumped back into the chrome plating bath solutions. Plated parts were air dried prior to being buffed and finished (E&E 1986b).

The majority of waste produced by Advance Hard Chrome consisted of chrome plating waste sludge, waste TCE solvent, and dust particles from the sandblasting operations. Sludges contained heavy metals, solvents, oils, and greases. The sludges were sent to Advance Electroplating. The company recycled wastewater in the plating operation. Advance Hard Chrome disposed sandblasting grit that contained aluminum oxide and waste packing materials as solid waste (E&E 1986b).

In September 1985, Advance Hard Chrome changed ownership and changed the company’s name to Repair Technology Inc. (E&E 1986b).

Centimark Corp Seattle Office

According to Ecology’s Facility/Site database, Centimark Corp Seattle Office was located at the business park. The facility generated hazardous waste between March 20, 1995, and December 31, 1995. Additional information regarding historical operations was not available for review.

5.21.3 Regulatory History

King County inspected the South 96th Street Business Park in 2011. No corrective actions were identified (Ecology 2012h). Facility specific regulatory history is described below.

Advance Hard Chrome

Ecology conducted a Potential Hazardous Waste Site Preliminary Assessment in November 1984. Waste streams included metals, acids, and solvents. Groundwater and surface water contamination at the property was not reported or suspected. The preliminary assessment concluded the site should be inspected to determine the fate of wastewaters and drag-out sludges, as well as drum storage practices (Ecology 1984c).

Repair Technology Inc.

On February 27, 1986, EPA and Ecology conducted a site inspection to profile the nature and extent of past wastewater and drag-out sludge disposals activities at the site. Inspectors observed minor spills of chrome plating solution around the plating tanks. The facility used several 55-gallon drums of waste hydraulic fluid and biodegradable coolant liquid in the machine shop. Inspectors observed two catch basins along the southwest corner of the building. One catch basin contained standing water and the other catch basin contained coolant water from the electroplating process. An alley behind the facility had stained soil and stored pieces of electroplating/machine shop equipment. EPA requested the facility to inspect the plating batch sump for cracks to prevent chrome plating baths solution from infiltrating groundwater at the site (E & E 1986b).

Ecology inspected RTI on February 29, 1988. Inspectors requested the facility to create a dead sump to collect and evaporate boiler blowdown. Ecology provided the company with information to obtain an EPA/State Hazardous Waste number (Ecology 1988c).

Ecology conducted a source control inspection at RTI on January 22, 1993. RTI told inspectors all work is conducted inside the office and large warehouse. Some airplane parts received by the facility contained hydraulic oil that the facility reused. RTI stored unused hydraulic oil, recycled bronze, brass, copper, and aluminum in 55-gallon drums. Waste oil was stored in two 250-gallon ASTs. The inspection report did not identify any corrective actions (Ecology 1993d).

In April 1997, EPA and Ecology conducted a dangerous waste compliance inspection at RTI. During the inspection, 56 containers of waste were stored in a blockhouse that was constructed outdoors along the west wall of the facility. Approximately 52 of the waste containers were 15-gallon drums labeled “Chromic Acid.” The drums were securely closed. A metal bin contained scrap lead anodes from the chrome plating process. The concrete floor under the storage building was heavily stained with chromic acid. A portable 500-gallon tank of wastewater was located across the alley from the blockhouse. The tank was loosely covered with a tarp and did not have secondary containment. Four portable tanks containing liquid chrome plating waste were located inside the facility near the plating line. Three 30-gallon drums containing liquid chromic acid waste were located in the boiler room. Yellow chromic staining in the boiler room indicated improper evaporation of waste solutions at the property. The solid waste dumpster contained rags, concrete, and other debris that appeared to be contaminated with chromic acid. In general, waste containers were not properly labeled with contents or accumulation start date (Ecology 1997c). Ecology identified the following corrective actions (Ecology 1997b):

- Remove all dangerous waste from the trash dumpster and manage appropriately.
- Submit a completed Form 2, “Notification of Dangerous Waste Activities.”
- Properly dispose of or treat all dangerous wastes at the facility within 90 days.
- Ensure that the accumulation start date is clearly written on all containers holding dangerous wastes.
- Move all drums and containers of liquid dangerous waste within secondary containment.
- Comply with all requirements for generators who treat dangerous waste on site.

On June 23, 1997, RTI notified Ecology of changes made to the facility’s hazardous waste handling and management practices. RTI consolidated the 56 containers of in shipping drums and marked the drums with an accumulation date. The containers were labeled with “Dangerous Waste,” “Corrosive,” and “Chrome” labels. RTI indicated that the four 500-gallon storage tanks did not contain designated hazardous waste and were within adequate containment areas. RTI was in the process of designating waste at the property and obtaining an approval for acceptance at a treatment, storage, and disposal facility. The facility evaporated the portable 500-gallon tank of wastewater and added the residual sludge to other liquid waste containers (Advanced Chemical 1997a).

Ecology conducted a dangerous waste compliance inspection at the facility on October 16, 1997. Ecology identified the following corrective actions (Ecology 1997d):

- Designate all undesignated solid waste generated at the facility.
- Properly dispose of or treat all dangerous wastes at the facility within 90 days.
- Adequately label all drums containing dangerous waste and ensure that the accumulation start date is clearly written.
- Submit all forms for shipment of dangerous waste from 1997.

In November 1997, RTI notified Ecology that all waste subject to the 90-day holding time had been shipped off site. RTI planned to implement proper labeling of any new satellite accumulation barrels. The company provided a summary table of known solid waste at the facility. Solid waste included sludge, chrome liquid, methyl ethyl ketone rags, saw dust, honing sludge, grinding sludge, anode solids, plastic blast media, and sandblast media. RTI was in the process of designating the grindings, sludge, and blasting media (Advanced Chemical 1997b).

Ecology conducted an HWTR inspection at the facility on February 8, 2000. Inspectors identified the following corrective actions (Ecology 2000b):

- Comply with all requirements for generators who treat dangerous waste on site.
- Designate all dangerous waste generated at the facility.
- Comply with all provisions for satellite accumulation areas and container labeling.

RTI returned a completed compliance certificate to Ecology on April 10, 2000. The facility was in the process of shipping drums of waste chrome solutions to a waste management facility (Repair Technology 2000).

On March 1, 2002, the King County Health Department completed an SHA for RTI. King County did not rank the facility but recommended NFA under MTCA, based on “the facility’s documented insignificant threat to human health and the environment” (SKPDH 2002).

Ecology and King County conducted a source control inspection at RTI on May 28, 2008. Ecology identified the following corrective actions (Ecology 2008m):

- Adequately label all drums and containers accumulating dangerous waste.
- Close all containers holding dangerous waste.
- Provide secondary containment for the container accumulation area.
- Arrange with a hazardous waste service provider to ship waste within the 90-day accumulation period.

- Obtain copies of destination facility signed manifests for shipments of wastes sent on April 1, 2008.
- Document all types and quantities of waste on site.
- Comply with “satellite accumulation area” requirements.
- Create and maintain a log with the date and amount of waste treated on site.

Ecology conducted a follow-up compliance inspection at RTI on July 2, 2008. Ecology determined the facility was in compliance with most corrective actions identified above. RTI needed to evaluate coverage under an ISGP or CNE. Ecology requested the facility to update dangerous waste reporting to include the treatment-by-generator process (Ecology 2008u).

RTI sent Ecology waste clearance authorizations on August 21, 2008 (Repair Technology 2008). The facility updated dangerous waste activities on Ecology forms on August 25, 2008 (Ecology 2008u).

King County authorized RTI to operate as a Zero Discharge Facility from November 24, 2008 through November 23, 2013. King County required RTI to submit an annual statement certifying no discharges to the sanitary sewer and submit an Ecology Hazardous Annual Report (King County 2008d). RTI submitted the required information on January 14, 2009 (Repair Technology 2008).

Ecology conducted an HWTR inspection at RTI on February 11, 2010. The inspector recommended labeling used coolant totes with removable signage and posting signs for the satellite and hazardous waste accumulation areas. Ecology identified the following corrective actions (Ecology 2010a):

- Label all containers of dangerous waste.
- Label or mark universal waste lamps.
- Post emergency communication devices near any waste handling areas.

RTI returned a completed compliance certificate and photographic documentation to Ecology on March 29, 2010 (Repair Technology 2010). On April 2, 2010, Ecology determined the facility was in compliance with corrective actions (Ecology 2010d).

Aero-Lac Inc.

Ecology conducted a source control inspection at Aero-Lac on March 26, 1992. The facility had several flammable storage cabinets and one storage room. The still for reclaiming solvents is located in the storage room. Inspectors observed solvent containers stored without lids. Aero-Lac indicated that the company had lids on order. The storage room had bermed entry for spill containment. The facility stored empty drums outside prior to pick-up by a recycler. The company washed vehicles in the parking lot. According to inspectors, the drain in the parking lot discharged to the LDW. Aero-Lac told Ecology that the facility would discontinue vehicle-washing practices at the property (Ecology 1992e).

Ecology conducted an Urban Water Environmental Compliance inspection at Aero-Lac on February 17, 2011. Inspectors advised the facility to store large product containers in secondary containment. Ecology identified the following corrective actions (Ecology 2011e):

- Properly store liquid wastes.
- Properly recycle and dispose of waste.
- Improve spill response procedures.
- Assess floor drain plumbing in the paint booth.
- Implement proper housekeeping.

Aero-Lac submitted a completed compliance certificate on April 22, 2011 (Aero Lac 2011). During a follow-up inspection in May 2011, Ecology determined the facility was in compliance with corrective actions (Ecology 2011j).

5.21.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Surface Runoff

Limited information was available for review regarding stormwater drainage features at South 96th Business Park. King County drainage maps indicate stormwater from this property is discharged to the LDW via Outfall 2100(A). The South 96th Business Park and its current tenants have complied with corrective actions identified by Ecology. The potential for sediment recontamination associated with this facility is low provided that the property management company and tenants maintain appropriate source control BMPs.

Groundwater Discharge

There is no information available to determine if soil or groundwater contamination is present at this property; however, given the historical industrial operations, there is a potential for soil and groundwater contamination.

5.21.5 Data Gaps

South 96th Business Park and its tenants, RTI and Aero-Lac, appear to maintain appropriate source control BMPs and have complied with corrective actions identified by Ecology. Therefore, no data gaps were identified for this property.

5.22 ICON Materials Asphalt Plant

Facility Summary: ICON Materials Asphalt Plant	
Tax Parcel No.	5624200330, 5624200335, 5624200310
Address	0330: 1221 S 96th Street 98108 0335: 1115 S 96th Street 98108 0310: 1031 S 96th Street 98108
Property Owner	Segale Properties LLC
Parcel Size	0330: 2.41 acres (105,028 sq ft) 0335: 2.41 acres (105,038 sq ft) 0310: 2.41 acres (105,047 sq ft)

Facility Summary: ICON Materials Asphalt Plant	
Facility/Site ID	93252843: Icon Materials Asphalt Plant 48248356: Sunnydale Construction Company Inc.
Alternate Name(s)	Icon Materials Inc. Seattle Asphalt, M.A. Segale Inc. Seattle Plant, M.A. Segale Inc., Seattle Asphalt Plant
SIC Code(s)	1442: Construction Sand and Gravel 1629: Heavy Construction 2951: Asphalt Paving Mixtures and Blocks
EPA ID No.	WAD980382840 (inactive)
NPDES Permit No.	WAG503282
UST/LUST ID No.	UST/LUST 4980 (ICON Materials Asphalt Plant UST/LUST 9109 (Sunnydale Construction Co Inc.)

ICON Materials Asphalt Plant (ICON Materials) operates at parcels 0330, 0335, and 0310 (Figure 12). The facility is bordered by a City of Seattle right-of-way to the south, Western Ports Transportation to the west, S 96th Street to the north, and Wooldridge Boats to the east.

According to King County tax assessor records, a 6,820 sq ft truck service garage, built in 1978, is present on parcel 0310. Building information was not available for parcels 0335 and 0330. The lots may be vacant or used for storage of sand and gravel.

5.22.1 Current Operations

ICON Materials currently conducts asphalt production, materials stockpiling, and associated activities at the 1115 S 96th Street location. The facility stores fine- to coarse-grained aggregate piles on the southern portion of the property. There is a recycled asphalt pile located southwest of the production plant. Asphalt cement tanks and asphalt tanks are located inside containment on the east side of the production plant. ICON Materials stores asphalt release agent in a tank at the spray rack on the west side of the production plant. The facility stores heat transfer oil, lubricating oil and grease, and waste oil drums in the metal building. Activities exposed to stormwater include asphalt production and equipment maintenance and repairs (ICON Materials 2010).

According to the facility’s SWPPP, the site receives a significant amount of stormwater from adjacent parcels to the west and south. Existing drainage structures include oil/water separators, a detention tank, and retention pond. The oil/water separator discharges to the S 96th Street SD. The areas around the plant drain to the stormwater vault. The upper stockpile areas mostly flow to a stormwater pond. The facility has four separate discharge points to surface waters (Ecology 2007m). A facility drainage map is provided in Figure 31a.

5.22.2 Historical Operations

Hi-Line Asphalt Paving

Hi-Line Asphalt Paving (Hi-Line Asphalt) operated at the property in 1985 (Ecology 1985c). Additional information regarding when Hi-Line Asphalt began operating at the facility was not available for review. It is assumed Hi-Line Asphalt stopped operating at the facility when M.A. Segale Asphalt (M.A. Segale) began operations at the property.

The facility had a steam cleaning area, truck spraying area, and fueling area located on the central portion of the property. The steam cleaning area was a covered concrete pad used to steam clean equipment and vehicles. In the truck spray area, truck beds were sprayed with a biodegradable liquid to prevent asphalt paving materials from sticking. During freezing temperatures, truck beds were sprayed with diesel oil. All three areas drained to an oil-water separator that conveyed stormwater to the drainage ditch along S 96th Street. Another oil water separator located near the parking lot at the facility conveyed water to the drainage ditch along S 96th Street (Bolster 1985).

M.A. Segale Asphalt

Segale Asphalt was a historical asphalt processor at the property. The asphalt manufacturing plant was located in center of the property on a paved lot. Piles of crushed rock and sand located at the south end of the facility were fed into the asphalt plant. Processed asphalt was then dumped into trucks for delivery to construction sites. The company transported waste asphalt to a Segale Asphalt plant in Auburn and recycled the waste into asphalt (Ecology 1992s).

The facility used a large silo on the northwest corner of the property to store large batches of asphalt. Segale Asphalt operated a large baghouse and diesel AST. Adjacent to the diesel tank were asphalt tanks without secondary containment. The facility had a 2,000-gallon asphalt emulsion AST in secondary containment. Storm drains at the facility conveyed stormwater and washwater to three oil/water separators. The oil/water separators discharged to the drainage ditch on south side of S 96th Street (Ecology 1992s).

Oldcastle Northwest Inc. purchased Segale Asphalt in April 1998 (Seattle Times 1998). The company changed its name to ICON Materials Inc. in June 2000 (ICON Materials 2001).

Sunnydale Construction Co Inc.

According to Ecology’s Facility/Site database, Sunnydale Construction Co Inc. (Sunnydale) was a historical operator on parcel 0330. Additional information regarding historical operations at Sunnydale was not available for review.

5.22.3 Regulatory History

Hi-Line Asphalt Paving

On September 4, 1985, Ecology observed an oil spill at Hi-Line Asphalt that was conveyed to the drainage ditch along S 96th Street. The oil spill was attributed to overfilling of an aboveground storage tank. Hi-Line Asphalt cleaned up the oil spill with a vacuum truck. The facility installed a 450-gallon oil-water separator on September 5, 1985. Ecology issued Order No. DE 85-698 requiring the facility to conduct the following corrective actions (Ecology 1985b):

- Apply for an NPDES Permit within 30 days from receipt of Order No. DE 85-698.
- Apply for a permit to discharge the effluent from the oil-water separators to the Rainier Vista Sewer District Sanitary System.
- Maintain existing oil-water separators as needed to prevent oil from entering state waters or the sanitary sewer.
- Submit a site plan and engineering report to Ecology and the Rainier Sewer District.

Hi-Line asphalt submitted an engineering report to Ecology on January 13, 1986 (Bolster 1985). Additional information regarding drainage system modifications or discharge permitting was not available for review.

M.A. Segale Asphalt

Ecology inspected the Segale Asphalt facility on December 3, 1992, and January 7, 1993. The Ecology inspector observed dark stains on the pavement underneath a decommissioned air compressor and under a working air compressor. Ecology also observed small-blackened areas in the gravel area around two aboveground asphalt holding tanks. The inspector determined the asphalt storage tanks needed secondary containment. Ecology observed oily material in the containment area for the asphalt emulsion tank that discharged to the storm drain (Ecology 1992s, 1993c).

King County also inspected the retention/detention tank at the facility during the week of December 28, 1992. King County observed approximately 2 feet of oil in the detention tank. On March 4, 1993, Ecology issued a warning letter to Segale Asphalt describing potential water quality violations. The letter included the following corrective actions (Ecology 1993j):

- Terminate the discharge from the secondary containment of the emulsion tank and diesel tank to the storm drain.
- Prepare a spill prevention, control, and countermeasure (SPCC) plan for petroleum storage operations at the facility.
- Prevent large quantities of oil from being collected in the stormwater detention tank.
- Implement BMPs to prevent stormwater contamination.

Segale Asphalt determined there was approximately 2 inches of oil in the detention tank; not 2 feet as indicated by King County. Segale Asphalt removed and disposed of the oil on January 7, 1993 (M.A. Segale 1993a). On April 18, 1993, Segale Asphalt notified Ecology the facility planned to install roof coverage over the asphalt emulsion tank and diesel tank to eliminate exposure to stormwater (M.A. Segale 1993b). Additional information regarding the completion of roofing structures was not available for review.

In August 1994, Ecology issued Segale Asphalt coverage under NPDES Sand and Gravel General Permit WAG503282. Ecology renewed the permit in 1999, 2005, and 2010. Ecology modified the permit on March 2, 2001, to reflect the company name change to ICON Materials (Ecology 2001d).

Sunnydale Construction Co Inc.

On May 21, 1997, Sunnydale notified Ecology that a UST at the facility was leaking petroleum products to soil and groundwater. The facility completed an independent cleanup action. Ecology reviewed cleanup information for the site in April 2012 and issued an NFA determination for the facility (Ecology 2012e). Additional information about the UST release and/or subsequent investigation and cleanup was not available for review.

ICON Materials

King County conducted a storm drain inspection at ICON Materials in October 2006. The inspector identified excessive sediment build up in several catch basins, a storage vault, and conveyance pipe at the facility. ICON Materials returned a completed maintenance correction list on December 6, 2006 (ICON Materials 2006). King County determined the storm drain structures at the facility were in compliance during follow-up inspections at ICON Materials in April 2008 and June 2010 (King County 2010).

Ecology conducted a stormwater compliance inspection at ICON Materials on November 6, 2007. Inspectors determined the facility's paved areas were relatively clean but could be improved. Ecology could not determine if stormwater conveyed to the storm drains at the east entrance gate flowed to the stormwater detention vault or directly to the S 96th Street SD system. Ecology made the following recommendations (Ecology 2007m):

- Review and update the SWPPP to delineate drainage features.
- Provide adequate cover and containment for drummed vegetable-based release agent.

The Ecology Water Quality Program inspected ICON Materials on May 25, 2010. The inspectors determined the SWPPP, monitoring plan, and spill control plan needed to be revised (Ecology 2010h). ICON Materials revised the facility's SWPPP, SPCC, and Spill Response Plan on June 25, 2010 (ICON Materials 2010).

Ecology performed NPDES compliance inspections at ICON Materials on September 26 and November 7, 2012 (Ecology 2013).

5.22.4 Environmental Investigations and Cleanups

One environmental investigation has been performed at this property. Sample locations are shown on Figure 31b. Summaries of all chemicals detected in soil and groundwater detected at the property are included in Appendix C. LDW sediment COCs were not analyzed for in the soil and groundwater samples collected at this property.

USTs Removal (1991)

Between January 24 and 29, 1991, M.A. Segale removed two 3,500-gallon steel diesel USTs, a 1,000-gallon waste oil UST, a 7,500-gallon diesel UST, a 10,000-gallon diesel UST, and a 5,000-gallon gasoline UST. The service islands and fuel lines were removed at the same time as the tanks. Petroleum-contaminated soil was transported off site. No new USTs or fueling facilities were installed (GeoEngineers 1991).

Soil excavations were completed to depths between 9.5 feet bgs and 12.5 feet bgs. Approximately 24 soil samples were collected from the sidewalls and bases of the excavations. Soil samples collected from the diesel and gasoline USTs excavations were analyzed for petroleum hydrocarbons and BTEX. Soil samples collected from the waste oil UST excavation were analyzed for petroleum hydrocarbons only. Detected petroleum hydrocarbons and BTEX concentrations in soil were below MTCA Method A cleanup levels, with the exception of waste oil UST excavation. TPH concentrations in soil collected from the south wall exceeded the MTCA Method A cleanup level. Additional soil was removed from the excavation and the sidewalls and base were resampled. Confirmation samples indicated that all soil contaminated by petroleum hydrocarbons had been removed (GeoEngineers 1991).

On February 13, 2012, Ecology determined that no further remedial action was necessary to cleanup contamination associated with the release of BTEX, gas, diesel, and waste oil to soil at the facility (Ecology 2012c).

5.22.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Ecology conducted a stormwater compliance inspection at the facility in November 2007 and a Water Quality Program inspection in May 2010. Corrective actions included revising the facility's SWPPP, SPCC, and Spill Response Plan. ICON Materials completed an updated and revised SWPPP, SPCC, and Spill Response Plan on June 25, 2010. The potential for sediment recontamination associated with the facility is low provided ICON Materials maintains appropriate source control BMPs.

Groundwater Discharge

Segale Asphalt excavated six USTs from the property in 1991. Soil samples from the extent of the excavation were analyzed for TPH and BTEX constituents. All petroleum-contaminated soil exceeding MTCA Method A cleanup levels was excavated and removed from the property. The potential for sediment recontamination via groundwater discharge is low.

5.22.6 Data Gaps

ICON Materials appears to maintain appropriate source control BMPs and has complied with corrective actions identified by Ecology inspectors. Therefore, no data gaps were identified for this property.

5.23 Western Ports Transportation Inc.

Facility Summary: Western Ports Transportation Inc.	
Tax Parcel No.	5624200290, 5624200291, 5624200270, 2433200165
Address	0290: 9600 8th Avenue S 98108 0291: 851 S 96th Street 98108 0270: 9618 8th Avenue S 98108 0165: 9369 8th Avenue S 98108
Property Owner	9369 8th Ave South LLC
Parcel Size	0290: 2.42 acres (105,415 sq ft) 0291: 2.42 acres (105,415 sq ft) 0270: 4.36 acres (189,925 sq ft) 0165: 2.18 acres (95,058 sq ft)
Facility/Site ID	67814731

Facility Summary: Western Ports Transportation Inc.	
Alternate Name(s)	Container Care Puget Sound, Western Ports Containers
SIC Code(s)	4231: Local Trucking without Storage 4491: Marine Cargo Handling 7692: Welding Repair
EPA ID No.	WAD988469144: Container Care Puget Sound (inactive)
NPDES Permit No.	WAR011548
UST/LUST ID No.	None

Western Ports Transportation (Western Ports) operates at parcels 0290, 0291, 0270, and 0165 (Figure 12). The facility is bordered by the Seattle City Light right-of-way to the south, 8th Avenue S to the west, S 96th Street to the north, and ICON Materials to the east.

According to King County tax assessor records, a 16,140 sq ft office building and storage warehouse, built in 1987, is located on parcel 0165. Tax parcels 0290, 0291, and 0270 are composed of storage lots with no building structures.

5.23.1 Current Operations

Western Ports leases, repairs, and maintains intermodal shipping containers and equipment. The majority of industrial activity takes place at parcels 0290, 0291, and 0270. The site is used for stacking and storage of shipping containers and chassis. Western Ports inspects all shipping containers delivered to the site and rejects containers that show signs of potentially hazardous materials. The facility includes a steam cleaning area, maintenance area, office trailer, and parking areas for equipment and employee vehicles. The steam cleaning area is located on impervious pavement. Washwater is conveyed to a sump, pumped through a settling tank, and discharged to the sanitary sewer. Maintenance activities at the facility include patching and repairing steel containers, replacing wood paneled floors inside containers, and changing tires on truck chassis. The facility stores tools, equipment, and materials related to maintenance activities inside three shipping containers that were converted into permanent shop areas. The majority of the facility is fenced, with normal access limited to the site entrance and exit (Blue Environmental 2012).

The site is relatively flat and the majority of the site drains to an infiltration pond at the northeast corner of the property. Overflow from the onsite infiltration pond passes through an additional settling vault prior to discharge to the S 96th Street SD system. A facility drainage map is provided in Figure 32 (Blue Environmental 2012).

According to the facility’s 2011 ISGP Annual Report Form, Western Ports is shutting down operations at the property before the end of 2012. The form indicates the property owner is searching for another tenant (Western Ports 2012).

5.23.2 Historical Operations

Container Care Puget Sound (Container Care) conducted container storage and repair operations at the property. Container Care operated at parcels 0290, 0291, and 0270. Repair operations included welding, painting, and caulking cargo containers. The facility steam cleaned containers that had residual foods, dirt, and/or oil spots. Washwater was conveyed to the detention pond at the northeast corner of the property. The detention pond discharged to a ditch on S 96th Street. The facility's surface was composed gravel and dirt (Ecology 1991d).

Additional information to determine when Container Care discontinued operations at the property was not available for review; however, in December 1993 the company notified Ecology that it planned to discontinue operations at this property (Ecology 1994a).

5.23.3 Regulatory History

Container Care

On June 19, 1991, Ecology conducted an unannounced source control inspection at the Container Care facility. The facility operated an aboveground diesel tank without cover or secondary containment. Two drums of waste paint thinner were stored at the facility. The facility allowed washwater drain to the S 96th Street SD system or seep into the ground. Container Care planned to construct a containment system for the steam cleaning operation. The facility stored drums of hydraulic fluid, oil, and waste oil in containers at the property (Ecology 1991d). Ecology identified the following corrective actions (Ecology 1991j):

- Construct appropriate secondary containment for the AST.
- Implement a washwater recycling system.
- Properly dispose of accumulated hazardous waste.

On October 8, 1991, Container Care notified Ecology that the facility purchased and modified a cargo container to provide secondary containment for the AST. The facility stated that high pressure washing (not steam cleaning) is used to clean containers. Container Care was in the process of designing and implementing improved washwater collection and management practices. The facility indicated that the barrels of hazardous waste had been mislabeled. The facility relabeled the drums and planned to dispose of the drums once full (Container Care 1991).

Ecology conducted a follow-up inspection at the facility on January 15, 1992. The facility failed to implement corrective actions regarding container-washing operations since the previous inspection (Ecology 1992a). In May 1992, Container Care indicated that the company was researching a viable washing system for all of the company's plants. The facility planned to install a washwater collection and treatment system during summer 1992 (Container Care 1992).

In December 1993, Ecology received a complaint regarding sediment discharge into the S 96th Street drainage ditch adjacent to the Container Care facility. During a phone conversation with Ecology, Container Care indicated the company installed hay bales as a temporary measure to control erosion. The company planned to discontinue operations at the 9600 8th Avenue S location and move to a Terminal 106 on the east side of the LDW (Ecology 1994a).

Western Ports Transportation

On January 1, 2009, Ecology conducted a stormwater compliance inspection at Western Ports to determine if the facility required coverage under a NPDES permit. Inspectors observed muddy stormwater flowing out of the entrance gates at the facility. Maintenance activities at the facility were exposed to stormwater. Ecology determined the facility was obligated to obtain coverage under a NPDES permit (Ecology 2009a). According to Ecology's PARIS website, the facility received NPDES Permit No.WAR011548 on October 21, 2009.

During a Water Quality Program inspection on May 25, 2010, Ecology observed sediment track out from the facility onto S 96th Street. Ecology requested Western Ports to provide an interim plan to control track out from the facility (Ecology 2010i). Ecology re-inspected the facility on July 27, 2010. Ecology determined the facility was missing a SWPPP, did not implement mandatory BMPs, did not implement corrective actions, and failed to perform inspections (Ecology 2010o).

In November 2010, Ecology and King County inspected the Western Ports facility. Inspectors observed problems with the stormwater drainage system and dirt trackout at the facility. Western Ports and King County worked to bring the drainage system into compliance through repair and maintenance. Western Ports made improvements to the exit to limit vehicle trackout issues (Ecology 2012h).

Western Ports exceeded benchmarks for copper, zinc, and turbidity during the first quarter and copper and turbidity during the fourth quarter of 2010. The facility reconstructed the retention pond to allow more time for turbid water to settle prior to discharge (Western Ports 2011).

Western Ports exceeded benchmarks for copper during the third quarter and turbidity during the first, third, and fourth quarters 2011. The facility revised the SWPPP and installed fabric catch basins inserts to reduce turbidity (Western Ports 2012).

According to the facility's 2011 ISGP Annual Report Form, Western Ports is shutting down operations at the property and ending permitted activities before the end of 2012. The form indicates the property owner is searching for another tenant (Western Ports 2012).

Ecology performed an NPDES compliance inspection at the facility on June 6, 2012 (Ecology 2013b).

5.23.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Western Ports exceeded benchmarks for copper, zinc, and turbidity during 2010 and 2011. According to the facility's 2011 ISGP Report, Western Ports was shutting down operations and vacating the facility at the end of 2012. Information was not available to determine if Western Ports vacated the property and/or a new company began operating at the facility. The potential for sediment recontamination via the stormwater and spills pathway is unknown.

Groundwater Discharge

The facility is primarily unpaved. Historical container cleaning operations may have had the potential to impact soil and groundwater at the facility. The infiltration pond at the northeast corner of the property appears to be unlined. Contaminants (if any) in stormwater draining to the pond have the potential to infiltrate groundwater at the property. The potential for sediment recontamination via groundwater discharge is unknown.

5.23.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- An initial inspection of the facility is needed to verify that current activities performed at the property are in compliance with applicable source control regulations and BMPs.

5.24 Former Penberthy Electromelt/ToxGon Corp Seattle

Facility Summary: Former Penberthy Electromelt/ToxGon Corp Seattle	
Tax Parcel No.	5624200250, 5624200253
Address	0250: 9619 8th Avenue S 98108 0253: 631 S 96th Street 98108
Property Owner	0250: H&H Real Properties LLC 0253: Bell Todd A+Maureen M Ream Family Limited Partner
Parcel Size	0250: 2.80 acres (122,018 sq ft) 0253: 1.44 acres (62,615 sq ft)
Facility/Site ID	2329: ToxGon Corp Seattle, Penberthy Electromelt 24029: Warp Corp 16779: Security Contractor Services Inc.
Alternate Name(s)	Penberthy Electromelt, Remedco, Security Contractor Services, Warp Corp
SIC Code(s)	3469: Misc. Fabricated Wire Products (Security Contractor Services Inc.) 3567: Industrial Process Furnaces (ToxGon Corp Seattle; inactive) 3993: Signs and Advertising Specialties (Warp Corp) 5039: Construction Materials, NEC (Security Contractor Services Inc.)
EPA ID No.	WAD061669644: ToxGon Corp Seattle (inactive)
NPDES Permit No.	WAR126464: Warp Corp (inactive) WAR125565: Security Contractor Services Inc.
UST/LUST ID No.	None

Penberthy Electromelt International (PEI) and ToxGon Corporation (ToxGon) operated at parcels at parcels 0250 and 0253 (Figure 12). The parcels are bordered by Sound Delivery Service to the south, Allied Body Works to the west, S 96th Street to the north, and 8th Avenue S to the east.

According to King County tax assessor records, a 21,060 sq ft light manufacturing building, built in 1982, is present on parcel 0250. A 14,770 sq ft light manufacturing building, built in 1967, is present on parcel 0253.

5.24.1 Current Operations

Warp Corp currently operates at parcel 0253. The company manufactures aluminum and tension fabric display structures. The company welds and rolls the aluminum inside the facility (Warp Corp 2013).

Security Contractor Services Inc. (SCS) operates at parcel 0250. The company manufactures chain link fences, fabricates custom gates, and rents temporary fencing and video surveillance systems (Security Contractor Services 2013).

5.24.2 Historical Operations

Penberthy Electromelt

PEI purchased parcel 0253 in 1960. The land was previously used for agriculture. In the 1970s, PEI constructed glass-making furnaces at the facility for use on other sites. In 1979, PEI adapted a glass-making furnace into a Pyro-Converter furnace, also known as a thermal treatment unit (PGG 2002). The process included mixing hazardous and non-hazardous wastes with molten glass. Off-gasses were vented through a scrubber system to the atmosphere. The molten glass was maintained at a specific volume and temperature, excess glass was poured out of the chamber and quenched in a water bath. The cooled glass was then broken into pebble-sized particles (Ecology 1988b).

PSCAA permitted the use of the thermal treatment unit and associated experimental air pollution control technologies. The control technologies included scrubbers, limestone absorbers, and cyclones to remove carbon dioxide, water vapor, and hydrogen chloride from emissions. Water used in the scrubbers was pumped to cooling ponds and then settling tanks where particulates settled and pH was adjusted. PEI discharged the treated water to the sanitary sewer (WDOH 2000).

In 1985, PEI completed two test burns to provide data for a Resource Conservation and Recovery Act (RCRA) Part A application. PEI was granted a RCRA interim operating status for the use of the thermal treatment unit and storage of hazardous waste. PEI began processing hazardous and dangerous wastes in the thermal treatment unit in 1986. PEI also operated a smaller furnace for testing and demonstration purposes. By 1991, PEI claimed to have processed approximately 1,250 tons of RCRA regulated waste. Processed wastes included creosote and pentachlorophenol sludges, aromatic oils, paint solvents and thinners, paint booth filters, contaminated gravel and soils, oils, waste ink, adhesives, phenol-formaldehyde, and other resins and vehicles. Other materials possibly treated at the site during trial burns included: PCE, TCE, trichlorobenzene, PCBs, dioxin containing waste, spent aluminum potliners, solvents, pesticides, and chromite ores (WDOH 2000).

In March 1991, EPA denied PEI's final hazardous waste treatment operating permit and terminated the facility's interim status. PEI failed to provide EPA with a complete RCRA Part B permit. The facility retained interim status for the storage of hazardous waste. Additional information regarding the permitting process is described in the regulatory history section below.

PEI did not conduct any operations at the facility between June 1991 and November 1995 (PGG 2002). ToxGon acquired PEI on November 17, 1995 (ToxGon 1996).

ToxGon Corporation

ToxGon took over day-to-day operations of the facility in November 1995 (ToxGon 1996). The facility maintained RCRA interim status for the storage of hazardous waste. In 1998, ToxGon declared Chapter 11 bankruptcy. ToxGon began working with Ecology to investigate surface and subsurface soil and groundwater contamination associated with the thermal treatment unit and other working areas at the facility (WDOH 2000).

5.24.3 Regulatory History

Penberthy Electromelt

Ecology inspected PEI on July 31, 1986. PEI used hazardous materials for research in using glass furnaces for disposing of hazardous waste. The facility had a large open room with a number of small furnaces. All of the furnaces drained to a central drain in the floor. The facility discharged cooling water to a drainage trench that conveyed water to the S 96th SD system. Ecology planned to conduct a follow-up inspection and sample effluent discharge from PEI (Ecology 1986h).

Ecology conducted a hazardous waste inspection at PEI on February 23, 1988. Inspectors reviewed the furnace operation and did not observe any non-compliance issues (Ecology 1988b).

EPA and Ecology conducted a RCRA compliance inspection at PEI on November 16, 1989. Inspectors observed that the facility failed to label and date containers of hazardous waste. PEI did not provide adequate aisle space for the container storage area. The facility did not have a closure plan. PEI exceeded container storage capacity and stored containers holding hazardous waste outside of the storage area. PEI violated requirements for burning hazardous waste fuel for energy recovery (USEPA 1989; Ecology 1989f).

Ecology conducted follow-up hazardous waste compliance inspections at PEI in February and March 1990. Inspectors observed approximately 180 55-gallon drums containers of residual glass were not labeled, dated, or removed from the parking lot in front of the facility. PEI presented a waste analysis plan and contingency plan to Ecology. Ecology determined the plans were inadequate. The facility did not complete a closure plan or closure cost estimate. Ecology sent a warning letter to PEI following the inspection (Ecology 1990c). In April 1990, the containers of hazardous waste glass were transported to Fog Tite Meter and Seal[9] for use in concrete products (Ecology 1990c). On May 4, 1990, Ecology notified PEI to stop further recycling immediately (Ecology 1990b).

On June 19, 1990, Ecology issued PEI Penalty No. DE 90-N160. PEI violated the following dangerous waste regulations (Ecology 1990e):

- Failure to label and date glass containers.
- Operating without a closure plan, closure cost estimate, and financial assurance mechanism.
- Operating without an adequate waste analysis plan for thermal treatment facilities.
- Use of hazardous waste glass in concrete products.

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[9] Fog Tite Meter and Seal is located within the Spokane to Kellogg Island source control area.

- Use of an uncompleted manifest in the transportation of hazardous waste glass.

Ecology also issued Order No. DE 90-N154, requiring PEI to take the following corrective actions (Ecology 1990d):

- Submit a certified statement that all containers containing hazardous waste glass are labeled and dated.
- Submit a revised Closure Plan and Closure Cost Estimate, and financial assurance documentation.
- Submit a revised Waste Analysis Plan.
- Move hazardous waste glass from the front parking area to a generator storage area.
- Submit a plan for ensuring compliance with thermal treatment waste analysis requirements.
- Limit the facility's storage capacity of no more than 200 55-gallon containers or 11,000 gallons of hazardous waste.
- Handle waste glass as dangerous waste until it has been delisted by EPA and Ecology.
- Complete a manifest for any dangerous wastes transported from the facility.

On July 20, 1990, PEI submitted the requested information to comply with Order No. DE 90-N154 (Penberthy 1990a).

PEI applied to discharge scrubber wastewater to the sanitary sewer in February 1990 (Penberthy 1990b). In July 1990, METRO issued a discharge authorization for PEI to discharge the scrubber system water to the sanitary sewer (METRO 1990).

On December 10, 1990, Ecology reviewed PEI's dangerous waste permit application and determined the permit application was inadequate. Deficient sections of the application included the general facility description, waste characteristics, container storage and management practices, a closure plan, cost estimate plan, and financial assurances for closure (Ecology 1990h).

On March 28, 1991, EPA denied PEI a permit the facility needed to continue operation. PEI failed to provide the EPA with information demonstrating airborne releases from the thermal treatment unit did not pose a health risk to the surrounding community (USEPA 1991). Ecology added the facility to the CSCSL (Ecology 1991a).

EPA and Ecology inspected the PEI facility on November 18 and 22, 1991, to determine compliance with RCRA dangerous waste regulations. The dangerous waste treatment furnace was not operating at the time of the inspection. Approximately 73 55-gallon drums of glass waste were stored in the annex building. Ecology also performed a document review. Inspectors identified the following violations (Ecology 1991m):

- Retain signed manifests for 5 years.
- Maintain a facility inspection log.
- The facility closure plan and cost estimate were inadequate.

On December 3, 1992, Ecology visited PEI to discuss the facility's closure plan and view the thermal treatment unit, off-gas system, and cooling ponds. PEI indicated the unit was started up in March 1992 for demonstration to a prospective client. No corrective actions were identified (Ecology 1992t).

Ecology inspected PEI's hazardous waste container storage area on March 11, 1994. The outdoor area was not used to store or accumulate dangerous waste. The 73 55-gallon drums of listed dangerous waste glass were stored indoors. Several drums of household hazardous waste were stored indoors at the facility. PEI was not a permitted storage facility. Ecology determined the agency would not pursue compliance action against PEI because the indoor storage operation presented little risk to human health or the environment. Ecology approved the facility's closure plan for the thermal treatment unit and required the facility to proceed with closure through 1995 (Ecology 1994b).

Stormwater Compliance

PEI submitted an NOI for a Baseline General Permit to Discharge Stormwater Associated with Industrial Activity on September 28, 1992 (Penberthy 1992). Ecology granted the facility coverage under stormwater baseline general permit SO3-000280 on December 28, 1992 (Ecology 1992v). On November 17, 1995, ToxGon acquired PEI and submitted an NOI to change ownership on the facility's permit (ToxGon 1996).

ToxGon Corporation

ToxGon acquired PEI in November 1995. Ecology inspected ToxGon on December 29, 1995. Ecology and ToxGon reviewed current conditions at the facility and discussed several alternatives that ToxGon could explore for disposal or recycling of the glass waste that remained at the facility. The glass waste had been stored inside at the property for approximately three years and was properly containerized. The outdoor storage area was also not used since 1992 and remained in good condition. Ecology requested the facility provide notification forms to update the change in management (Ecology 1996h).

On April 16, 1998, Ecology attempted to visit the facility to discuss the facility's RCRA regulatory responsibilities to provide closure plans and documents for the thermal treatment unit. In May 1998, ToxGon notified Ecology that the company was no longer an operating business and was going to list the property for commercial sale. In June 1998, Ecology notified ToxGon that the company was still responsible for closure of the thermal treatment unit (Ecology 1998d).

On November 15, 1999, Ecology conducted a site visit at the ToxGon facility. Ecology and ToxGon discussed sample locations and chemical analysis for an upcoming site investigation. Ecology instructed the facility to label all roll-off boxes containing dangerous waste glass and transport off site to a RCRA permitted Treatment, Storage, and Disposal (TSD) facility (Ecology 1999h).

Ecology conducted an HWTR compliance inspection on January 26, 2000. The roll-off boxes containing the thermal treatment unit and glass waste drums were removed from the property and transported to a TSD facility. Ecology observed approximately 40 to 50 drums of hazardous waste stored in the accumulation area. Inspectors observed miscellaneous containers of paints and solvents in the flammable storage area. Ecology instructed the facility to remove hazardous waste containers within two weeks of the inspection, submit an interim status closure plan, and a revised soil-sampling plan (Ecology 2000a).

On July 24, 2000, ToxGon requested authorization to discharge contaminated wastewaters to the King County sanitary sewer. The wastewater was collected in six 55-gallon drums and a 4,500-gallon baker tank during PEI cleanup operations. King County denied the request because the wastewater contained concentrations of cadmium above regulatory criteria for discharge. Additionally, the wastewater contained detectable amounts of dioxins (King County 2000a).

On January 5, 2001, ToxGon submitted a RCRA Interim Status Closure Sampling and Analysis plan to Ecology. The plan covered ToxGon building, the air scrubber area, and the sump ponds and lead oxide area (PGG 2001a). Ecology approved the closure plan on March 29, 2001 (Ecology 2001e).

Ecology conducted a dangerous waste compliance and management inspection at the facility on January 22, 2001. Ecology observed 73 unlabeled 55-gallon drums of cadmium-contaminated wastewater stored at the indoor dangerous waste container storage area. The wastewater also contained concentrations of dioxins/furans. The wastewater was from an outdoor baker tank used to store water drained from roll-off containers. The facility planned to reduce the volume of wastewater through an evaporation process (Ecology 2001a). Ecology issued the following corrective actions (Ecology 2001b):

- Label each 55-gallon drum as dangerous waste and add an accumulation date.
- Treat wastewater and arrange for treatment residuals to be transported off site to a permitted TSD facility.

ToxGon returned a compliance certificate on March 13, 2001. The facility labeled drums of hazardous waste and expected to complete treatment of cadmium wastewater by March 18, 2001 (ToxGon 2001).

Ecology conducted an HWTR compliance inspection on December 4, 2001. Ecology reviewed the clean-up work in process and viewed the excavation in the south outdoor sump area. ToxGon’s consultant planned to excavate more soil to determine the vertical extent of arsenic contamination in soil. Ecology requested the facility to properly label two 55-gallon drums used to collect dangerous waste (Ecology 2002a). ToxGon labeled the 55-gallon drums during the December 2001 inspection (Galloway 2002).

Between 2001 and 2003, ToxGon completed several environmental investigations and excavations as part of RCRA Clean Closure efforts. Ecology determined that no further remedial action was necessary for the main site in August 2002 and for the west drainage ditch in June 2003 (Ecology 2002c, 2003d). In August 2003, Ecology terminated the ToxGon RCRA interim status permit for storage of dangerous waste (Ecology 2003e).

Warp Corp

Ecology and King County inspected Warp Corp in August 2010. The inspector identified minor housekeeping issues. The facility stored solvent-based inks in small buckets. Ecology determined the facility needed cover under a CNE (Gray 2010; Ecology 2011u). According to Ecology’s PARIS database, Warp Corp received a CNE on October 17, 2011.

Security Contractor Services Inc.

Ecology inspected the facility on November 10, 2010. Ecology identified the following corrective actions (Ecology 2012h):

- Properly dispose of waste.
- Implement proper washing practices.
- Improve housekeeping.

SCS achieved compliance with corrective actions on March 24, 2011. King County also inspected SCS in 2011 and did not identify any corrective actions (Ecology 2012h).

On October 26, 2011, Ecology and EPA conducted a stormwater compliance inspection at SCS. Inspectors observed industrial activities were exposed to stormwater and runoff from the facility was conveyed to the S 96th Street SD system. Ecology determined the facility was required to obtain coverage under an NPDES permit. Ecology granted SCS NPDES Permit No. WAR125565 on January 13, 2012 (Ecology 2012h).

5.24.4 Environmental Investigations and Cleanups

Several environmental investigations have been performed at this property. Sample locations are shown on Figures 33a and 33b and a summary of chemicals that exceeded soil screening levels is provided in Table 24. A summary of all chemicals detected in soil at the facility are included in Appendix C, Table C-19.

RCRA Facility Assessment Report (1990)

Between April and October 1990, a RCRA Facility Assessment reviewed operations at PEI. The RCRA Facility Assessment identified eight solid waste management units (SWMU) at the facility. The assessment determined the annex, furnace loading station, and sumps and floor drains SWMUs did not appear to pose a threat to human health and the environment. The settling tanks and cooling ponds SWMU and outside storage yard SWMU had the potential for release of contaminants to the environment via spills. The demonstration molten glass furnace SWMU and thermal treatment unit SWMU had the potential for contaminant release via air emissions. The backyard SWMU had the potential for release of metals to soil, groundwater, and/or surface water from foundry sands used as fill material (PRC Environmental 1990).

The RCRA Facility Assessment recommended comprehensive air monitoring to characterize emissions from the molten glass furnace and thermal treatment unit. The assessment recommended soil sampling in the backyard SWMU to determine the nature and extent of potential metals contamination (PRC Environmental 1990).

Sampling of Freshwater Sediments (1991)

On July 2, 1991, Ecology collected three freshwater sediment samples from the creek on the Seattle City Light right-of-way. The creek was located directly south of PEI. Ecology collected one sample (PENB-1) upstream of two tributaries entering the creek from the PEI property. The other two samples (PENB-2 and PENB-3) were collected near the confluence of the two tributaries and the creek. The sediment samples were analyzed for petroleum hydrocarbons, total metals, VOCs, PAHs, pesticides, and PCBs (Ecology 1991e).

In general, metals concentrations were not significantly higher in downstream locations than upstream locations. TPH and VOCs concentrations were greater at the downstream location than the upstream location. Pesticides and SVOCs were detected at similar concentrations at upstream and downstream locations. PCB concentrations were not detected in any sediment samples (Ecology 1991e). Arsenic concentrations in all three samples exceeded the MTCA Method B cleanup level for soil (Table 24).

RCRA Interim Status Closure Investigation Report – ToxGon/Penberthy Site (2001)

Between October 2000 and April 2001, a RCRA Interim Status Closure Investigation Report was completed to investigate the potential of soil contamination. On October 23, 2000, one composite water sample was collected from the sump and two cooling ponds at the facility. The sample was analyzed for SVOCs, dioxins/furans, and metals. Concentrations of arsenic (250 μg/L), barium (91 μg/L), cadmium (21 μg/L), and mercury (1 μg/L) were detected in the composite water sample. The 2,3,7,8-TCDD TEQ was 0.00025 ng/L (PGG 2001b). On January 22 and 23, 2001, surface soil, concrete, sub-concrete, sub-surface soil, and a water sample were collected as part of the investigation. The samples were analyzed for VOCs, SVOCs, dioxins/furans, pesticides, PCBs, and total metals (PGG 2001b). Detected concentrations of VOCs, pesticides, and PCBs were below MTCA cleanup levels. Thallium concentrations were detected above natural background levels in samples collected throughout the site (PGG 2001b).

Eight soil borings were completed to a depth of 5 feet bgs. Sample locations included the RCRA outdoor storage area, leased area behind the warehouse, and the property sold to Security Contractor Services. Discrete soil samples were collected between depths of 0.5 and 1 foot bgs and 4 to 4.5 feet bgs (PGG 2001b). Dioxins/furans concentrations in one sub-surface soil sample, B3-48-54, at a depth of 4 to 4.5 feet bgs exceeded the MTCA Method B cleanup level. Arsenic concentrations in three sub-surface soil samples exceeded the MTCA Method B cleanup level (Table 24).

Fifteen surface soil samples were collected from zero to 6 inches bgs in the area surrounding the warehouse and a drainage ditch east of the property (PGG 2001b). Concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, in one sample, S-12-0-6, exceeded MTCA cleanup levels. The surface sample was collected from a drainage ditch east of the property. Dioxins/furans concentrations in nine surface soil samples exceeded the MTCA Method B cleanup level. Concentrations of arsenic (nine samples), cadmium (six samples), and lead (one sample) exceeded MTCA cleanup levels (Table 24). The greatest concentrations of metals were detected in the samples collected near the former outdoor scrubber area.

Six concrete core samples ranging in thickness from 2 to 3 inches were collected from the PEI thermal treatment unit building and area of the air scrubber. Six sub-concrete surface soil samples were collected below the concrete floors of the main warehouse and air scrubber location (PGG 2001b). Arsenic concentrations in three sub-concrete soil samples exceeded the MTCA Method B cleanup level (Table 24).

A 100-square foot area of soil behind the main warehouse was reportedly used to dispose of lead oxide. The disposal area was excavated to a depth of 1 foot bgs and eight confirmation samples were collected from each sidewall and the bottom of the excavation. The soil samples were analyzed for metals (PGG 2001b). Arsenic and lead concentrations exceeded MTCA cleanup levels (Table 24).

RCRA Interim Status Clean Closure Report – ToxGon/Penberthy Site (2002)

In August 2002, A RCRA Interim Status Clean Closure Report was completed for the former Penberthy/ToxGon facility. During the January 2001 investigation described above, concentrations of SVOCs, VOCs, pesticides, and PCBs were not detected above MTCA cleanup levels. Therefore, the analytes were not performed on samples collected for the Clean Closure work. The contaminants of concern identified for the site were metals and dioxins/furans. Soil and concrete samples were collected between September 2001 and March 2002 and analyzed for metals and dioxins/furans (PGG 2002).

During the January 2001 investigation, thallium concentrations were detected above natural background levels in soil collected across the site. Five soil samples from the investigation were re-submitted for analysis by an ICP-Mass Spectrometer. Thallium concentrations were detected in two samples at significantly lower concentrations and were not detected in the three other samples. The initial high concentrations of thallium were attributed to equipment interferences from high iron concentrations in the soil (PGG 2001c). Following review of the data in July 2001, Ecology determined thallium was not considered a contaminant of concern at the facility (PGG 2002).

Indoor Concrete Area

Following review of the initial analytical results from January 2001, the concrete floor and walls of the ToxGon building were decontaminated with a pressure washer. Washwater was diverted to a 50-gallon drum. The washwater was evaporated in the evaporation unit inside the building. Following decontamination in December 2001, five concrete core samples were collected from the entire thickness of the floor and near the concrete trench inside the main operation building. Sub-concrete soil samples CS-7 and CS-8 were also collected from beneath the concrete floor at the coring locations (PGG 2002). Arsenic concentrations in both sub-concrete soil samples and cadmium concentrations in CS-8 sub-concrete soil sample exceeded the MTCA Method B cleanup level (Table 24).

The entire thickness of the concrete was removed from the bottom of the concrete trench and within a foot on either side of the trench. Ten-foot squares were excavated around three sampling locations where dioxins/furans concentrations in concrete exceeded the MTCA Method B cleanup level for soil. At one concrete core location, C-6, the upper 2 feet of soil were removed where dioxins/furans concentrations in soil exceeded the MTCA Method B cleanup level (Table 24). Areas with arsenic concentrations that exceeded the MTCA Method B cleanup level were left in place, per Ecology instruction. All excavated areas were filled with new concrete (PGG 2002).

Outdoor Scrubber Area, Sump, And Cooling Ponds

Between September 2001 and January 2002, soil was excavated from the former outdoor scrubber area, outdoor sump, and cooling ponds to depths ranging from 0.5 to 9 feet bgs. Groundwater was detected at a depth of 7 feet bgs in the former outdoor scrubber area excavation. Confirmation soil samples (S-5-Conf, S-7-Conf, S-9-Conf, S-13-Conf, and S-14-

Conf) were collected and analyzed for dioxins/furans and metals. The excavations near location S-9-Conf, S-13-Conf, and S-14-Conf were extended to 2.5 feet bgs, 9 feet bgs, and 4 feet bgs, respectively, to remove soil contaminated by arsenic and dioxins/furans (PGG 2002). Arsenic concentrations exceeding the MTCA Method B cleanup level remain in areas near S-5, S-7, and S-14. Arsenic concentrations were below the draft soil-to-sediment screening level (Table 24).

Lead Oxide Disposal Area

On September 24, 2001, the lead oxide disposal area excavation was expanded in each direction and deepened an additional foot. Confirmation soil samples (PbO-SE, PbO-SN, PbO-SS, and PbO-SW) were collected and analyzed for metals and dioxins/furans. One composite sample was analyzed for TCLP chromium and lead. TCLP chromium was not detected in the composite sample and TCLP lead was below the cleanup level (PGG 2002). Dioxins/furans concentrations in the confirmation sample collected from the base of the excavation were below the MTCA Method B cleanup level. Arsenic concentrations in all confirmation samples exceeded the MTCA Method B cleanup level, but were below the draft soil-to-sediment screening level (Table 24).

Backyard Area

On September 24, 2001, a 5-foot wide trench was excavated to a depth of 6 feet bgs in the backyard area of the property. The backyard area refers to the unpaved area between the main building, west fence, south fence, and the driveway. Some debris including bricks, chunks of glass, wood, and a flattened, corroded metal container were removed from the upper 2 to 3 feet of the excavation. A confirmation soil sample, B2/3 Trench-6, was collected from the base of the excavation and analyzed for metals and dioxins/furans (PGG 2002). Arsenic was detected at a concentration above the MTCA Method B cleanup level, but below the draft soil-to-sediment screening level (Table 24). No other analytes were detected above screening levels.

In November 2001, the top foot of soil was excavated from the entire backyard area. During the excavation, some pieces of refractory brick were uncovered. The bricks and some pieces of glass were analyzed for 28 metals. The analytical results indicated the bricks and glass were not of environmental concern. Confirmation soil samples were collected from north (Bkyd-SNE), east (Bkyd-SE), and west (Bkyd-SW) sidewall and analyzed for metals and dioxins/furans. The east sidewall was excavated an additional foot east and the west sidewall was excavated to a depth of 4 feet bgs. Dioxins/furans concentrations were below the MTCA Method B cleanup level at all locations. Arsenic concentrations were above the MTCA Method B cleanup level at all locations but below the draft soil-to-sediment screening level (Table 24). Ecology determined the arsenic concentrations in remaining soil met the natural background limits. (PGG 2002).

Leased Area

On September 21, 2001, soil was excavated to a depth of 6 feet bgs in the leased area south of the property. A confirmation soil sample, B6-48-54, collected from the base of the excavation was analyzed for chromium, copper, and nickel. Metals concentrations were below MTCA cleanup levels. Refractory bricks, glass, asphalt, and an unidentified green brick were also removed during the excavation. Following sample collection, the excavated soil was placed back in the excavation pit. Analytical results for the refractory bricks were acceptable for disposal at a landfill (PGG 2002).

Buried Drum Removal

Three 55-gallon steel drums were found buried at the ToxGon facility. The drums were used to collect rinsate from the concrete wash pad and condensate from an onsite cooling tower. Following removal of the drums, 6 inches of soil from all sides of the excavation were removed and confirmation soil samples, Drum West and Drum Sump, were collected from the base. The samples were analyzed for metals (PGG 2002). Arsenic concentrations were above the MTCA Method B cleanup level, but below the draft soil-to-sediment screening level.

Backyard Asphalt Pad

An asphalt pad overlies the soil immediately south of the main ToxGon building. Because of the traffic and potentially toxic materials that may have passed over the pad, one soil sample, "Asphalt", was collected from underneath the asphalt and analyzed for metals and dioxins/furans (PGG 2002). Arsenic was detected at a concentration that exceeded the MTCA Method B cleanup level, but was below the draft soil-to-sediment screening levels. No other analytes were detected above screening levels.

Geophysical Investigation

On January 17 and 18, 2002, a ground penetrating radar survey was conducted in the backyard and leased area. The survey identified anomalies in the southwest corner of the backyard and on the western edge of the leased area. Four test pits were excavated to 1 foot deeper than the anomalies. Large pieces of concrete, angle iron, re-bar, part of a dolly, and large branches were removed from the Test Pits 1, 2, and 3. A lawn mower, large cobbles, beverage containers, and refractory bricks were removed from Test Pit 4. Analytical results for the refractory bricks were acceptable for disposal at a landfill (PGG 2002).

On August 20, 2002, Ecology accepted the certification of clean closure (Ecology 2002c).

RCRA Interim Status Clean Closure Report – West Drainage Ditch/Hamm Creek (2003)

Middle Fork Hamm Creek is located approximately 320 feet south of the ToxGon main building. The middle fork flows from west to east and is eventually piped under 8th Avenue S. A drainage ditch that is approximately 100 feet in length converges with the creek and is located south of the ToxGon property. The ditch received stormwater runoff from the backyard area as well as other sources. Concentrations of arsenic and dioxins/furans in a sample collected from the ditch during January 2001 were above LDW background concentrations for sediments (PGG 2003; AECOM 2012).

Between September 2001 and February 2003, six stages of sediment removal were performed to remove drainage ditch sediments contaminated with dioxins/furans and metals. The depth of excavations ranged between 0.5 and 4 feet bgs and covered approximately 80 linear feet of the drainage ditch (Figure 33b). Deeper excavations occurred at within 40 feet of the confluence of the drainage ditch and Middle Fork Hamm Creek. Metals concentrations exceeding screening levels were not present following the first two stages of sediment removal. Thus, metals were not analyzed for in subsequent confirmation samples. Following the removal activities, total tetrachlorodibenzo-p-dioxin (TCDD) concentrations were below the MTCA Method B cleanup level and LDW background concentrations (PGG 2003; AECOM 2012).

In June 2003, Ecology reviewed the West Drainage Ditch/Hamm Creek Clean Closure Report (PGG 2003) and determined no further remedial action was necessary (Ecology 2003d).

5.24.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Historical operations at the former PEI/ToxGon facility included burning hazardous waste between the 1970s and 1991. The unregulated burning of hazardous waste may have produced dioxins/furans that were deposited in the surrounding area through air deposition. A sediment investigation between 2001 and 2003 determined dioxins/furans concentrations exceeded MTCA Method B cleanup levels and LDW background concentrations in the drainage ditch west of the facility. Multiple iterations of sediment excavations and confirmation sampling were conducted for the drainage ditch. In February 2003, dioxins/furans concentrations in one confirmation sediment sample were below screening levels. No additional investigations and/or excavations were conducted for the drainage ditch. Stormwater from the former PEI/ToxGon facility discharged to the LDW via Outfall 2100(A). Dioxins/furans concentrations were detected above the LDW background dioxin/furan TEQ in two sediment samples collected adjacent to Outfall 2100(A). Residual dioxins/furans in surrounding soil and drainage system sediments have the potential to be discharged to the LDW via the stormwater pathway.

Warp Corp, the current operator at the property, received a CNE in October 2011. Potential for sediment recontamination due to current facility operations is low.

SCS was in compliance during inspections by Ecology and King County in 2011. Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.

Groundwater Discharge

Soil investigations at the property found arsenic and dioxins/furans concentrations exceeded MTCA Method B cleanup levels and LDW background concentrations. Soil excavations were completed between 2001 and 2002 to remove contaminated soil. During the excavations, groundwater was encountered at 7 feet bgs. Groundwater samples were not collected during excavation activities. The potential for sediment recontamination via groundwater discharge is unknown.

5.24.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with this property is listed below:

- Additional information regarding dioxins/furans in surrounding soil and drainage ditch soils from historical releases is needed to determine the potential for sediment recontamination associated with the stormwater pathway.

5.25 Allied Body Works

Facility Summary: Allied Body Works	
Tax Parcel No.	5624200232
Address	625 S 96th Street 98108
Property Owner	Minice Richard L+Beverly K
Parcel Size	1.67 acres (72,781 sq ft)
Facility/Site ID	5469634
SIC Code(s)	3713: Trucks and Bus Bodies
EPA ID No.	WAD988496196
NPDES Permit No.	WAR126343
UST/LUST ID No.	None

Allied Body Works operates at parcel 0232 (Figure 12). The facility is bordered by a Seattle City Light right-of-way to the south, Warp Corp to the east, S 96th Street to the north, and Selland Auto Transport to the west.

According to King County tax assessor records, the Allied Body Works facility consists of two buildings:

- a 13,388 sq ft office and warehouse built in 1973, and
- a 9,600 sq ft service repair garage built in 1990.

5.25.1 Current Operations

Allied Body Works began operating at the current location in 1991 (Ecology 2008y). Allied Body Works fabricates, installs, and repairs truck bodies and equipment (Allied Body 2013). Additional information regarding current operations at this facility was not available for review.

5.25.2 Historical Operations

Information regarding historical operations at the property was not available for review.

5.25.3 Regulatory History

On January 12, 1993, Ecology inspected Allied Body Works. Inspectors observed a brownish tinge in the water discharging from the Selland Auto Transport site. The facility had a 200-gallon waste oil AST. The tank was located under an overhang but did not have secondary containment. Ecology also inspected the inside of the production building. The building had a paint booth, paint preparation and sanding bay, and a manufacturing area. Employees indicated drains in the floor conveyed wastewater to an oil/water separator and discharged to the Valley View sanitary system. The company sent spent solvent to a waste management company. Allied Body Works staff did not know where drains in the storage area connected. The facility had a biofiltration system that collected water from the Allied Body Works parking lot and Selland Auto Transport parking lot (Ecology 1993e). No formal corrective actions were identified in the inspection report.

In January 1994, King County responded to a diesel spill from an unknown source along S 96th Street. While investigating the spill, King County determined the drainage system at Allied Body Works contained pollutants that could be toxic to fish and wildlife in Middle Fork Hamm Creek and the LDW. King County notified Allied Body Works that such unmaintained drainage systems could result in a violation of the updated King County Water Pollution Code (King County 1994a).

King County conducted a site visit at Allied Body Works on October 10, 1997. The inspector determined Allied Body Works implemented all required BMPs (King County 1997b).

Ecology conducted an Urban Waters Environmental Compliance inspection at Allied Body Works on August 26, 2008. The inspector observed five catch basins at the facility. The catch basins needed to be inspected and cleaned more frequently. Additional waste and spill management procedures needed to be implemented (Ecology 2008v). Ecology issued the following corrective actions (Ecology 2008y):

- Improve or create spill response procedures, purchase spill response equipment, and educate employees.
- Clean storm drain catch basins.
- Implement proper housekeeping.
- Properly document and dispose of waste.
- Obtain waste characterization clearance for paint filter disposal.
- Evaluate the ISGP requirement.

Ecology conducted a follow-up inspection at the facility on October 8, 2008. Inspectors identified similar compliance issues that were not addressed from the August 2008 inspection. The facility did not properly designate paint booth filters as a dangerous or non-dangerous waste. The solvent still log needed to be maintained. Allied Body Works did not prepare a spill response plan for the facility. The facility needed to complete an ISGP application (Ecology 2008ad).

Ecology conducted a follow-up inspection at the facility on March 25, 2009, and April 20, 2010. The facility completed waste designation for the paint booth filters after the March 2009 inspection. During both inspections, Allied Body Works failed to prepare a spill plan or complete an ISGP application. In April 2010, Ecology observed improper washing practices, storage of products and wastes, and stains in the lot (Ecology 2009j, 2010f).

An Ecology Water Quality Program inspector inspected the facility on July 20, 2010. The inspector determined the facility needed to apply for coverage under an ISGP or CNE (Ecology 2010m). According to Ecology’s PARIS Database, Allied Body Works applied for a CNE on October 10, 2010. On November 10, 2010, Ecology determined the facility was in compliance with all corrective measures identified during previous inspections (Ecology 2010t).

5.25.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Allied Body Works completed the corrective actions required by Ecology in 2010 (Ecology 2010t). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.

Groundwater Discharge

There is no information available that indicates that soil or groundwater contamination is present at this property.

5.25.5 Data Gaps

Based on the July and November 2010 Ecology inspections, Allied Body Works appears to maintain appropriate source control BMPs. Therefore, no data gaps were identified for this property.

5.26 Selland Auto Transport

Facility Summary: Selland Auto Transport	
Tax Parcel No.	5624200230
Address	615 S 96th Street 98108
Property Owner	Selland Auto Transport Inc.
Parcel Size	3.84 acres (167,339 sq ft)
Facility/Site ID	37752719
SIC Code(s)	4213: Trucking Except Local 7359 Equipment Rental & Leasing, NEC
EPA ID No.	WAD988482427
NPDES Permit No.	WAR000650
UST/LUST ID No.	UST/LUST 12618

Selland Auto Transport (Selland) currently operates on parcel 0230 (Figure 12). Selland is bordered by a Seattle City Light right-of-way to the south, Allied Body Works to the east, S 96th Street to the north, and a truck repair company to the west.

According to King County tax assessor records, a 9,380 sq ft service garage, built 1980, is on parcel 0230.

5.26.1 Current Operations

Selland maintains, refuels, and washes automobile-carrier trucks at the facility. Selland began operation in 1967. The facility has an indoor repair shop for servicing trucks and trailers. Selland stores a diesel AST for refueling in secondary containment. The facility washes trucks and trailers in a covered wash bay. The trucks and trailers are parked on the eastern or western facility boundaries. Selland conducts welding and repairs of transporters indoors in the welding shop (Figure 34). The welding shop has a galvanized roof (Selland Auto 2012a). Industrial activities with the potential to contaminate stormwater include vehicle washing, fueling, vehicle maintenance, and outdoor materials storage. Three onsite catch basins discharge to the S 96th Street SD system. Five onsite catch basins convey washwater to an oil/water separator prior to discharge to the sanitary sewer. The facility stores chemical drums prior to pick up by a waste management company (Ecology 2007d).

5.26.2 Historical Operations

No information regarding historical operations at the property was available for review.

5.26.3 Regulatory History

On November 12, 1991, Ecology inspected Selland in response to a complaint that the facility discharges truck washwater to the storm drain system. The complainant stated that the facility used hydrofluoric acid to wash down trucks and discharged antifreeze and paint stripper to drains inside the shop. The shop drains were also connected to the storm system. During the inspection, Selland indicated the shop drains were connected to an oil/water separator. Contaminated water was conveyed to a 20,000-gallon UST, prior to pump out by a waste management company. The sand blaster operated by Selland used beads instead of grit and did not generate any waste. Ecology observed wastewater from the truck wash rack spilled into the yard. Selland indicated that the facility had three USTS for storing oil, gasoline, and diesel. Ecology observed oil droplets on the ground around the cap of the diesel UST (Ecology 1991l).

Ecology contacted the company Selland used for waste management to obtain records for wastewater removed from the 20,000-gallon UST. The waste management company did not have records of any disposals from Selland. METRO did not permit discharge from Selland to the sanitary sewer. In January 1992, Ecology determined the illicit discharge was a water quality violation and issued the following corrective actions (Ecology 1992b):

- Provide proof of waste disposal or submit plans to eliminate wastewater discharge to waters of the state.
- Develop a plan and schedule for addressing all dangerous wastes.
- Develop a plan and schedule for correcting the present condition at the truck wash rack.

Selland notified Ecology the facility would implement the corrective actions (Selland Auto 1992a). Ecology conducted a follow-up inspection at Selland on February 11, 1992. A Selland employee showed Ecology the UST that received wastewater from the truck wash and shop. The UST had a capacity of 8,000 gallons. Prior to the November 1991 Ecology inspection, Selland discharged wastewater from the UST to the METRO sanitary sewer. Selland was unaware the facility needed a discharge authorization. The facility installed a new berm around the truck wash rack to prevent washwater discharge to the storm drain system. The facility also installed a metal cover on the oil/water separator to prevent stormwater infiltration. Selland stored approximately two dozen drums and paint cans at the back of the facility. Selland had arranged for the waste to be removed by the end of the month. Ecology observed a retaining wall on the west side of the facility that separated Selland and Ace Galvanizing. Selland indicated Ace

Galvanizing discharged washwater from the facility’s metal containers through a hole in the retaining wall to the Selland facility. The washwater was conveyed to a storm drain catch basin on the Selland property (Ecology 1992d).

Following the inspection, Selland notified Ecology the facility completed the wash rack berm, switched to biodegradable wash liquids, and pumped out the oil/water separator tanks. Selland also removed salvaged automobiles and disposed of hazardous waste “paint” (Selland Auto 1992b). Ecology determined the wash rack berm, oil/water separator cover, and disposal of waste drums and containers would reduce the possibility of accidental discharge to the storm drain system (Ecology 1992c).

According to Ecology’s PARIS database, Ecology issued Selland an ISGP in 1992. Ecology renewed the permit in 1995, 2000, 2002, and 2009.

In January 1994, King County investigated a complaint regarding oils and other pollutants that Selland discharged to the storm drain system. Investigators observed Selland replaced the solid concrete cover of the oil/water separator with a piece of sheet metal. The sheet metal allowed oils to spill from the concrete vault to the onsite storm drain system. King County observed an unusually large amount of diesel fuel in the oil/water separator at the outlet of the storm drain system. Investigators observed degreaser/solvent and soap from the truck wash area discharged to the storm drain system. King County issued the following corrective actions (King County 1994b):

- Replace the concrete cover to the oil/water separator.
- Remove diesel oil collected in the storm drainage system’s oil/water separator.
- Replace the concrete berm around the refueling area and truck wash pad.

King County re-inspected the facility on September 27, 1994. Selland cleaned the diesel oil from the storm drain system, installed an asphalt curb around the wash pad area, and installed a concrete cover on the oil/water separator. King County determined the facility complied with corrective actions issued in January 1994 (King County 1994e).

King County conducted a site visit at Selland on March 22, 1996. The inspectors observed scrap metal, trailer parts, an engine block and other miscellaneous debris stored in the southeast corner of the property. Stormwater had accumulated in an uncovered scrap metal bin. Cylinders were lying on the ground near the perimeter fence. King County issued the following corrective actions (King County 1996c):

- Cover debris and place on pallets; or move to an interior storage area.
- Eliminate discharge from the storage bin to the storm drain system.
- Secure cylinders and store upright if the cylinders contain product.

King County also suggested the facility store lead acid batteries inside, move 55-gallon drums of antifreeze inside, write a spill response plan, and purchase spill kits (King County 1996d).

King County conducted drainage inspections at the facility in 2000, 2003, and 2005. Inspectors identified storm drain maintenance issues including catch basin and pipe cleanouts and asphalt repair (King County 2005). Corrective actions performed by Selland were not available for review.

Ecology conducted a stormwater compliance inspection at Selland on April 23, 2007. The facility failed to submit DMRs between the third quarter 2004 and first quarter 2007. Selland did not have a SWPPP. Ecology observed vehicle washwater drained to a catch basin that discharged to surface water. Chemical drums, metal materials, and paint buckets were located outside without cover or secondary containment. Ecology issued the corrective actions (Ecology 2007d):

- Develop a SWPPP.
- Conduct quarterly stormwater monitoring.
- Conduct all onsite vehicle washing in areas that do not have potential to discharge to storm drains.
- Ensure that the oil/water separator does not discharge to the storm drain system.
- Store chemicals under cover and with secondary containment.
- Increase sweeping frequency at the facility.

Ecology conducted a joint stormwater and HWTR inspection at Selland on January 26, 2010. The facility had not submitted DMRs to Ecology since the fourth quarter of 2007 and did not develop a SWPPP. Inspectors cited Selland for not providing proper cover and containment of waste oil drums stored outside at the facility and continuing to discharge truck washwater to the storm drain system. Ecology requested a SWPPP from Selland in March 2010. On May 14, 2010, Ecology issued the facility Notice of Penalty Incurred and Due No. 7700 for permit violations described above (Ecology 2010e, 2010g).

Selland submitted a SWPPP to Ecology on June 10, 2010, and applied for relief from Penalty No. 7700 (Selland Auto 2010). Ecology reviewed the facility’s SWPPP and relief application. Ecology reduced the civil penalty (Ecology 2010n).

Selland submitted a 2010 ISGP annual report on May 9, 2011. Stormwater problems identified by the facility included wood pallets and old tires stacked near catch basins, an uncovered scrap metal bin, and a leaking roof of a hydraulic cylinder storage container. The facility implemented monthly sweeping and catch basin cleaning and covered exposed materials with a tarp. Selland exceeded benchmarks for zinc during the first, third, and fourth quarter 2010. The facility hired an environmental consultant to develop strategies to reduce zinc levels in stormwater (Selland Auto 2011).

King County inspected the facility in 2011. Inspectors did not identify any corrective actions (Ecology 2012h).

Selland submitted a 2011 ISGP annual report on May 9, 2012. The facility trained employees to eliminate truck washwater from entering the storm drain. Selland removed 40 full drums and two 250-gallon tanks of used oil from the property. The facility built covers over scrap metal shelving and a hydraulic cylinder storage container. Copper and zinc concentrations exceeded permit benchmarks during all four quarters in 2011. During the third and fourth quarter 2011, the facility improved housekeeping practices and provided additional cover for materials stored outside. On February 14, 2012, Selland installed medial filters in the catch basins at the facility (Selland Auto 2012b). Selland updated the facility’s SWPPP in February 2012 to reflect changes in housekeeping practices and media filter maintenance (Selland Auto 2012a).

According to Ecology's PARIS database, Selland exceeded benchmarks for copper and zinc during the first, second, and third quarter 2012.

5.26.4 Environmental Investigations and Cleanups

An environmental investigation has been performed at this property. Summaries of all chemicals detected in soil and groundwater at the facility are included in Appendix C. LDW sediment COCs were not analyzed for in the soil and groundwater samples collected at this property. Due to the low quality of the sample location maps available for review, figures showing the sample locations were not prepared for the Data Gaps Report.

Site Investigation Report (1998)

Between September and November 1998, a site investigation characterized the conditions of a 20,000-gallon diesel UST, a 2,000-gallon gasoline UST, and two 2,000-gallon waste oil USTs. The USTs were installed in the 1970s. The facility also had an active 6,000-gallon diesel UST that was not a part of the investigation. In September 1998, the two waste oil USTs were decommissioned and excavated along with surrounding soils. Groundwater was encountered at 21 feet bgs. Diesel-range hydrocarbon concentrations in confirmation soil samples collected from the sidewalls, base, and stockpiled soil of the excavation were below the MTCA Method A cleanup level. Following UST removal, the stockpiled soil was used as backfill (PSCI 1998).

Selland conducted soil and groundwater sampling near the two USTs that remained in place. Sixteen soil samples were collected from 12 sampling locations ranging in depths of 0 to 22 feet bgs. The soil samples were analyzed for TPHs and BTEX. Concentrations of BTEX, diesel- and gasoline-range hydrocarbons in samples collected from 15 to 20 feet bgs exceeded MTCA Method A cleanup levels. Three groundwater samples were analyzed for TPHs. Concentrations of diesel-range hydrocarbons in all three samples exceeded the MTCA Method A cleanup level. Concentrations of gasoline-range hydrocarbons were not detected (PSCI 1998). Selland applied to Ecology's VCP in January 1999 (PSCI 1999).

Soil and Groundwater Bioremediation (1999)

Soil and groundwater treatment system was installed at the property in July 1999. Diesel-range hydrocarbon concentrations in groundwater samples collected in October 1999 were not detected or detected below the MTCA Method A cleanup level. Ten soil samples were collected from the previously impacted area. Field screening results for diesel-range hydrocarbons in one sample exceeded the MTCA Method A cleanup level (Fischer 1999).

Soil and groundwater sampling data and a final closure report were not available for review. The facility is listed as "Cleanup Started" in Ecology's ISIS database.

5.26.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

In May 2010, Ecology issued Selland a Notice of Penalty for failure to submit a SWPPP and DMRs. The facility exceeded benchmarks for copper and zinc in all four quarters 2011 and the first three quarters 2012. Zinc is a sediment COC for the Sea King Industrial Park source control area. Ecology has not inspected the facility since January 2010. There is potential for sediment recontamination associated with stormwater discharge from this property.

Groundwater Discharge

Concentrations of TPH and BTEX detected in soil and groundwater at the facility exceeded MTCA Method A cleanup levels during UST removals and closures in 1999. Additional information regarding soil and groundwater information was limited; however, TPHs and BTEX are not considered COCs in sediment adjacent to the Sea King Industrial Park source control area. The potential for sediment recontamination associated with groundwater discharge is low.

5.26.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- A follow-up business inspection at Selland is needed to verify compliance with Ecology's recommendations, applicable regulations, and BMPs to prevent the release of contaminants to the LDW.

5.27 Wooldridge Boats Inc.

Facility Summary: Wooldridge Boats Inc.	
Tax Parcel No.	5624200360
Address	1303 S 96th Street 98108
Property Owner	Wooldridge Properties LLC
Parcel Size	2.45 acres (106,722 sq ft)
Facility/Site ID	86136757
Alternate Name(s)	Pacific Utility Equipment Co
SIC Code(s)	3713: Truck and Bus Bodies 5012: Automobiles and Other Motor Vehicles
EPA ID No.	WAD009481078: Pacific Utility Equipment (inactive)
NPDES Permit No.	WAR001901: Pacific Utility Equipment (inactive)
UST/LUST ID No.	UST/LUST: 7932

Wooldridge Boats Inc. (Wooldridge) operates at parcel 0360 (Figure 12). The facility is bordered by a Seattle City Light right-of-way to the south, a shopping center to the east, Pacific Material Handling Solutions to the north, and ICON Materials to the west.

According to King County tax assessor records, a 38,708 sq ft office and warehouse, built 1975, is on parcel 0360.

5.27.1 Current Operations

According to King County tax records, Wooldridge purchased parcel 0360 in January 2004. Wooldridge manufactures welded-aluminum boats at the 1303 S 96th Street location. The majority of manufacturing is conducted indoors. The company also has a showroom at the facility (Wooldridge 2013). Additional information regarding current operations at the facility was not available for review.

5.27.2 Historical Operations

Pacific Utility Equipment Company (Pacific Utility) was a historical operator at the property (Ecology 2007h). The company submitted an NOI for a Baseline General Permit to Discharge Stormwater Associated with Industrial Activity in August 1994 (Pacific Utility 1994). The company supplied equipment to the electric utility, telephone, cable television, municipal and utility contractor industries. It is not known when Pacific Utility began operations at the facility. Terex Utilities acquired the Pacific Utility Equipment Company in 2002 (DJC Oregon 2002). Pacific Utilities vacated the property in April 2004 (Ecology 2008j).

In January 1992, approximately 3,160 gallons of oil and water contaminated with PCBs and methylene chloride was discharged to an underground sump in the maintenance yard. Pacific Utility indicated the facility removed and transported the waste to a treatment facility. The company filled the sump and capped the lines to the sump and shop drains with cement (Pacific Utility 2001). Oil and water contaminated with PCBs and methylene chloride had the potential to infiltrate soil and groundwater through cracks in the sump. Additional information regarding the oil and water contaminated with PCBs and methylene chloride was not available for review.

5.27.3 Regulatory History

Pacific Utility Equipment Company

Ecology inspected Pacific Utility on January 7, 1993. The facility operated a wastewater recycling system for the wash rack. Inspectors advised the facility to seal the floor drain lines in the main shop to prevent accidental spills to soil and groundwater at the property (Ecology 1993k). Pacific Utility sealed the drains with cement on February 17, 1993 (Pacific Utility 1993).

Pacific Utility applied for coverage under an ISGP on August 5, 1994 (Pacific Utility 1994). Ecology granted the facility coverage under ISGP SO3-001901 on August 15, 1994 (Ecology 1994d). Ecology renewed the facility’s coverage in January 1996 and November 2000 (Ecology 1996f, 2000f).

King County inspected the facility in May 1998. The inspector determined Pacific Utility implemented all required BMPs (Pacific Utility 2001).

Pacific Utility submitted a SWPPP to Ecology on October 3, 2001 (Pacific Utility 2001).

Wooldridge Boats

Ecology conducted an Urban Waters Compliance inspection at Wooldridge boats on December 4, 2008. The inspector identified the following corrective actions (Ecology 2008al):

- Stop disposing of dangerous waste to a non-permitted facility.
- Evaluate the need for an ISGP or CNE.

According to Ecology’s PARIS website, Wooldridge submitted a CNE application on December 10, 2008. The facility began disposing paint wastes through the King County Pilot Program for disposal of small quantity generator wastes. Ecology determined the facility complied with corrective actions during a follow-up inspection on February 5, 2009 (Ecology 2009e).

5.27.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Wooldridge completed the corrective actions required by Ecology in 2008 (Ecology 2008al). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.

Groundwater Discharge

Pacific Utility indicated oil and water contaminated with PCBs and methylene chloride was discharged to the underground sump in the maintenance yard. The contaminated material was transported and disposed of at a waste treatment facility. PCBs and methylene chloride had the potential to infiltrate soil and groundwater through cracks in the sump or in the drainage lines between the shop floor drains and the sump. The potential for sediment recontamination associated with groundwater discharge is unknown.

5.27.5 Data Gaps

Based on the February 2009 Ecology inspection, Wooldridge appears to maintain appropriate source control BMPs. Therefore, no data gaps were identified for current operations at this property. Information needed to assess the potential for sediment recontamination associated with historical operations at this location is listed below:

- Additional information regarding oil and water contaminated with PCBs and methylene chloride in an underground sump is needed to determine the potential for sediment recontamination via groundwater discharge.

5.28 Ace Galvanizing

Facility Summary: Ace Galvanizing	
Tax Parcel No.	0523049008
Address	429 S 96th Street 98108
Property Owner	Saturn LLC
Parcel Size	3.3 acres (143,590 sq ft)
Facility/Site ID	2077: Ace Galvanizing 21995: Architectural Stone Werkes

Facility Summary: Ace Galvanizing	
SIC Code(s)	Ace Galvanizing 3471: Electroplating, plating, polishing, anodizing, and coloring 3479: Coating, engraving, and allied service 3479: Metal coating and allies services Architectural Stone Werkes 3281: Cut Stone and Stone Products
EPA ID No.	Ace Galvanizing: WAD009286881 (active)
NPDES Permit No.	Ace Galvanizing: WAR000154 (active) Architectural Stone Werkes: WAR004556 (inactive)
UST/LUST ID No.	Ace Galvanizing: 3458

Ace Galvanizing operates at parcel 9008 (Figure 12), which is bordered by S 96th Street to the north, Pacific Northwest Motor Lines to the east, a Seattle City Light power-line right-of-way to the south, and a SR 509 right-of-way to the west. A stream on the SR 509 right-of-way flows parallel to the western boundary of the Ace Galvanizing property.

According to King County tax assessor records, three buildings are present on the property:

- a 14,200 sq ft industrial light manufacturing warehouse, built in 1962;
- a 7,376 sq ft office and industrial light manufacturing building, built in 1967; and
- a 6,000 sq ft office warehouse, built in 1980.

Contaminated waste products may have been used as fill material on the property (Parametrix and SAIC 1991a).

5.28.1 Current Operations

Ace Galvanizing operates a hot-dip galvanizing shop. The company galvanizes products fabricated by other companies; no fabrication of products is performed at the facility. The galvanizing process includes the following steps (Ace Galvanizing 2012a, 2012c).

- Unloading raw materials (zinc);
- Surface preparation (pickling and degreasing) of parts to be galvanized, which includes:
- Removing oil, grease, and paint from parts using a 10% caustic soda bath followed by rinsing the parts with water
- Pickling parts in a 10% sulfuric acid bath, followed by rinsing the parts in water
- Immersing parts into an aqueous solution of zinc ammonium chloride (pre-flux);
- Immersing parts in molten zinc bath (hot dip galvanizing);
- Cooling and finishing of galvanized parts, including filing or sanding parts to remove excess zinc; and
- Loading finished parts.

Surface preparation, pre-flux, and hot dip galvanizing operations are performed under cover. The remaining steps, including cooling and finishing, are generally performed outdoors (Ace Galvanizing 2012a).

Approximately 3 acres of the property are paved or covered by buildings (Ace Galvanizing 2012c). Buildings and other features at the facility are shown on Figure 35a. Facility features include:

- Warehouse #1, which consists of the office, chemical storage area, and the pickle and oil line;
- Warehouse #2, which includes a waste storage area, ferrous sulfate storage area, and a shipping and receiving office;
- The Production Building, which includes the kettle area, hot dip tanks, and a wet processing area;
- Tank Farm;
- Finishing Area;
- Maintenance Shop and forklift wash area;
- Well house, which captures underground spring water;
- Outdoor galvanized steel storage area;
- Outdoor unprocessed steel and spare equipment storage areas; and
- Outdoor receiving area.

The Maintenance Shop and forklift wash area are covered. The Tank Farm has secondary containment (Ace Galvanizing 2012c).

The southern third of Warehouse #2 is leased to Architectural Stone Werkes (Ace Galvanizing 2012c).

Materials Used/Wastes Generated in Operations

Materials	Quantity Used per Year	Quantity Stored at Facility
Incoming steel	9,000 tons	500 tons
Sulfuric acid	200,000 pounds	1,000 gallons
Zinc	400 tons	20 tons
Coating oil	2,000 gallons	200 gallons
Zinc ammonium chloride	4,500 pounds (stored on site)	4,500 pounds
Wastes	**Quantity Generated per Year**	**Quantity Stored at Facility**
Bag house dust (from kettle area)	5,000 pounds (stored on site)	5,000 pounds
Ferrous sulfate	200 tons	48,000 pounds
Ferrous oxide	25 tons	10,000 pounds
Spent hydrochloric acid	110,000 pounds	5,000 gallons

Underground spring water captured in the Well House is used for process water. Excess water occasionally flows to catch basin CB6 (Ace Galvanizing 2012c).

Rinse water from the pickling and degreasing process is reused in heating tanks at the facility. An acid recovery system removes ferrous sulfate is removed from the sulfuric acid used in pickling. This process allows Ace Galvanizing to reuse the sulfuric acid (Ace Galvanizing 2012a). Recovered ferrous sulfate is shipped to Teck Cominco Metals Ltd in Canada for metal reclamation. Bag house dust is removed from the facility by Dominion Zinc in Spokane for metal reclamation (Ecology 2006i).

Stormwater Discharges

Twelve storm drain catch basins are present on the property. The drainage system is divided into four areas. Drainage area 1 (DA1) covers the most of the property and is subdivided into three smaller drainage areas, DA1a through DA1c. Drainage area 2 (DA2) covers the outdoor storage yard. Stormwater in DA1 is treated using an amended sand filter and ion exchange system prior to discharge (Ace Galvanizing 2012c; Ecology 2012f).

DA1a includes the Production Building, Tank Farm, Finishing Area, and the Maintenance Shop and forklift wash area. Stormwater is conveyed to catch basins and trenches, which direct the flow to the stormwater treatment system. After treatment, the stormwater is conveyed to catch basin CB9, which is the discharge monitoring point for DA1. Stormwater from DA1b and DA1c is routed through CB9 before leaving the property (Ace Galvanizing 2012c).

DA1b includes the area leased to Architectural Stone Werkes, an unprocessed steel storage yard and the Well House. Stormwater from this area is conveyed to catch basins CB6 and C7. DA1c includes Warehouse #1 and the employee parking lot (Ace Galvanizing 2012c).

The western portion of DA2 is paved; the eastern portion is covered with packed gravel and dirt. Rainfall generally infiltrates the ground surface; however, during heavy rainfall, stormwater drains to three catch basins, CB-10 through CB-12, via sheet flow. Stormwater is discharged to a trench that runs parallel to the southern end of the property. The discharge monitoring point for DA2 is a manhole in the eastern portion of the yard (Ace Galvanizing 2012c).

Ace Galvanizing identified the following potential stormwater pollutants in its SWPPP (Ace Galvanizing 2012c):

- Oil and grease from incoming steel,
- Suspended solids from unpaved areas and rust and scale from steel stored outdoors,
- Zinc metal filings from sanding and filing finished parts,
- Zinc salts and soluble zinc settling out from smoke and dust, and
- Caustic acid from the Tank Farm.

5.28.2 Historical Operations

North West Galvanizing Company is a historical name for Ace Galvanizing. North West Galvanizing began operating at this property in approximately 1965 (Ecology 1994h). The date of the name change to Ace Galvanizing was not available.

Information regarding historical operations at the property prior to 1965 was not available for review.

5.28.3 Regulatory History

North West Galvanizing

In April 1970, the WPCC collected effluent stormwater samples from a trench on the North West Galvanizing premises and a manhole at the northeast corner of the facility. Zinc concentrations in the effluent samples were described as "extremely high"; the concentration in the catch basin was 880 parts per million (ppm) and the concentration in the manhole was 9.15 ppm (WPCC 1970c; Ecology 1970b). WPCC inspected North West Galvanizing in June 1970 to investigate potential sources of zinc contamination. Wastewater from rinsing galvanized parts was conveyed to a storm drain catch basin that was connected to the manhole. Overflow from a rinse tank was also conveyed to this catch basin. The galvanizing tanks had secondary containment structures, but other tanks at the facility were not protected. Sodium cyanide waste was dumped behind the building. The WPCC inspector directed North West Galvanizing to oxidize the cyanide to cyanate before discharging the waste to the storm sewer (WPCC 1970d). Following the inspection, WPCC directed North West Galvanizing to apply for a permit to discharge wastes to the storm sewer[10] (WPCC 1970e).

North West Galvanizing applied for the waste discharge permit in September 1970. The permit application indicates that discharge water from the rinse tank would be dumped into the Duwamish and that all other fluids would be dumped to a sump tank, which discharged to groundwater (North West Galvanizing 1970).

Ecology collected samples from the North West Galvanizing facility and the nearby manhole on December 8 and 17, 1970. The sampling indicated that unacceptable concentrations of zinc were entering the storm sewer from the facility's cooling tank and continuous overflow from the rinse tank (Ecology 1970b).

On December 29, 1971, Ecology issued Permit No. T-3954 to North West Galvanizing. Under this permit, the company was permitted to discharge 40,000 gallons per day of cooling and rinse waters to the storm sewer, which discharged to the LDW. Under the permit conditions, North West Galvanizing was required to install a waste treatment system. Discharges of waste zinc ammonium chloride and spent acid were required to be removed from the facility, not discharged to the storm sewer, ground surface, or groundwater (Ecology 1971b).

Ace Galvanizing

Ecology performed a Site Hazard Assessment of the facility in 1991. Ecology assigned a WARM score of 4 to Ace Galvanizing, indicating a relatively low priority of concern (Ecology 1992g).

According to Ecology's PARIS database, Ace Galvanizing gained coverage under the Baseline General ISGP in November 1992. The original permit number was SO3000154. The permit was renewed in 195, 2000, 2002, and 2009. In 2009 the permit number was modified to WAR000154.

Ace Galvanizing is a LQG of dangerous waste (Ace Galvanizing 2012b). Hazardous wastes generated at the facility include sludge contaminated with zinc and trace amounts of heavy

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[10] In the 1970s, sanitary sewers were not present in this area of Seattle (Ecology 1971a [10042]).

metals (e.g., lead and cadmium) from processing tanks and tank bottoms, floor sweepings, and filters from the acid recovery system (Ecology 2006i).

Water Quality Inspections

Ecology performed an inspection at Ace Galvanizing on May 1, 1987, in response to a complaint. A small flow draining to the catch basin CB9 had a pH of 2.5. Ecology collected samples of waste iron sulfate that had been disposed of on site. The samples were analyzed for EP Toxicity metals; zinc was detected up to 980 µg/L. Tanks were not under cover and lacked secondary containment. The inspector noted a "serious" oil problem between Ace Galvanizing and AFCO Fence Company/Anchor Post Products Company. An electrical transformer, air compressor tank, and gasoline pump were present in this area (Ecology 1987b). AFCO Fence Company occupied Warehouse #2 and the yard adjacent to the south (Ace Galvanizing 1987b).

Ecology performed a source control inspection at Ace Galvanizing in November 1992 and identified the following corrective actions: provide secondary containment to an AST holding waste oil and drums containing hydraulic oil, motor oil, and solvent; and store batteries and dross[11] inside or under cover (Ecology 1993b). Ace Galvanizing moved the AST to a covered area with a containment wall. The drums were also moved to this area of the facility. Dross was moved indoors and the batteries were properly disposed of (Ace Galvanizing 1993).

Ace Galvanizing prepared three progress reports to document compliance with corrective actions identified by Ecology during the May 1, 1987, inspection. The company characterized waste byproducts stored at the facility as dangerous, including iron sulfate, and began storing waste following the instructions provided by the Seattle/King County Health Department. Cooling water from a boiler was re-routed to a closed bottom sump and recycled, instead of discharging to the storm drain. Improvements were made to direct stormwater runoff away from the Production Building and other process areas and built secondary containment structures around the hot-dip galvanizing process area. Seattle City Light inspected the transformer and certified that the oil contained less than 50 ppm PCBs. Ace Galvanizing cleaned up the areas around the air compressor tank and gasoline pump (Ace Galvanizing 1987a, 1987c). Ecology acknowledged the improvements (Ecology 1987c) and confirmed that the facility was in compliance during an October 1987 inspection (Parametrix and SAIC 1991a).

A fire occurred at the Ace Galvanizing facility on July 21, 1994, when a radiator with oil residue was dipped into a hot acid tank. The tank and Warehouse #1 caught fire. Waste water generated from extinguishing the fire flowed to the public storm drain system in S 96th Street. King County collected water and sediment samples for laboratory analysis, which indicated no toxicity and metals concentrations were below effluent standards for the state. Waste water generated by fire-fighting activities is exempt from the King County water pollution code (King County 1994d).

Ecology performed a technical assistance visit at Ace Galvanizing on December 4, 2000. The following corrective actions were identified (Ecology 2000h):

- Remove oil from the standing water within the containment area of the oil recycling area.
- Remove hoses from the exterior hose bibs and employ alternative methods of cooling and rinsing to prevent discharge of waste water to the storm drain system.

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[11] Dross is the scum that forms on the surface of molten metals.

- Develop containment for the refrigeration and acid recovery system.
- Perform grinding and sanding in a contained area.
- Install filter socks in the catch basins.

Ecology performed an HWTR inspection on December 3, 2003, and water compliance inspection on December 12, 2003.[12] The water quality inspector noted that filter socks had been installed in catch basins, but operations and housekeeping could be improved in order to protect stormwater. In particular, workers were sanding newly galvanized materials near catch basins. Spills were not cleaned up promptly or adequately; several stains were observed throughout the facility. Evaporated materials from dried spills were subject to track-out from forklift movements around the property. The HWTR inspector observed Ace Galvanizing employees transporting uncovered pans of sludge across the facility. The route crossed over storm drain catch basins. In addition to the potential threat to stormwater posed by the sludge, Ecology noted that fine particulates may become airborne and represent a threat to air quality (Ecology 2003f).

Ecology performed a stormwater compliance inspection at Ace Galvanizing on August 11, 2006. Concentrations of zinc, copper, and lead exceeded the ISGP benchmark levels for six quarters consecutive quarters, beginning with the first quarter of 2005. Ace Galvanizing implemented operational source control BMPs to reduce the amount of zinc dust deposited outside. The facility installed catch basin inserts and increased the frequency of cleaning the stormwater conveyance system. Ecology requested that Ace Galvanizing submit Level 2 and 3 source control reports and implement additional source control, operational control, and stormwater treatment BMPs by December 31, 2006 (Ecology 2006j). The Level 3 report was completed in December 2006. Ace Galvanizing had begun collecting stormwater that was likely to come into contact with zinc, collecting rainwater to use in galvanizing processes, and developing an enhanced filter system to treat stormwater discharges (Ace Galvanizing 2006b).

DMRs submitted by Ace Galvanizing in 2010 and 2011 indicate that zinc concentrations in stormwater discharges exceeded the permit limits in all four quarters of 2010 and 2011. Copper concentrations also exceeded permit limits in the first quarters 2010 and 2011. By December 2011, Ace Galvanizing implemented Level 3 corrective actions, which included the addition of a sand prefilter and ion exchange system to the stormwater treatment system (Ace Galvanizing 2011, 2012d).

Ecology performed a stormwater compliance inspection at Ace Galvanizing on May 10, 2012, to follow up on the corrective actions identified in 2010 and 2011. A trailer loaded with galvanized products was parked near catch basin CB9. Stormwater runoff from this area would bypass the stormwater treatment system. Process wastes had collected on the ground under an open window of the Production Building. The Ecology inspector directed Ace Galvanizing to move the trailer and refrain from placing galvanized products near catch basin CB9. Ace Galvanizing was also directed to clean up the process wastes and to take precautions to prevent accumulation of waste products in the area (Ecology 2012f).

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[12] The HWTR inspection report was not available for review. Excerpts from the HWTR inspection report were included in the water compliance inspection report.

According to Ecology's PARIS database, zinc concentrations in stormwater discharge exceeded permit limits during the first and second quarters of 2012. More recent data were not available for review.

Hazardous Waste and Toxics Reduction Inspections

Ecology performed an HWTR inspection at Ace Galvanizing on December 15, 1994. Inspectors observed that solid and acid wastes were not properly designated prior to disposal. Acid waste was not reported on the facility's annual dangerous waste generator reports. Containers of wastes were improperly labeled and accumulation start dates were not recorded. In addition, waste containers were left open and were not covered. The following corrective actions were identified (Ecology 1994h):

- Designate all solid waste and provide copies of analytical results for testing of dangerous wastes.
- Properly label all containers of dangerous wastes and include accumulation start dates.
- Keep dangerous waste containers closed except when adding or removing wastes.
- Develop and dangerous waste training program and ensure employees are trained. Keep employee training records.

Ace Galvanizing submitted a certificate of compliance with the corrective actions to Ecology in March 1995 (Ace Galvanizing 1995).

Ecology performed an HWTR inspection at Ace Galvanizing on October 12, 2006. Corrosion of the cement floor in the Pickle and Oil area was observed. Aerosol cans were not properly de-pressurized prior to disposal. Containers of oil and used antifreeze were not properly labeled and required secondary containment. Corrective actions identified during the inspection included ensuring that all employees were trained with regard to hazardous materials and wastes handling and management, proper labeling of universal wastes, and proper labeling, management, and disposal of hazardous wastes (Ecology 2006i). Ace Galvanizing submitted a completed compliance certificate on December 12, 2006 (Ace Galvanizing 2006a).

Ecology performed a Dangerous Waste inspection at Ace Galvanizing on January 24, 2012. The following violations were observed (Ecology 2012a):

- Spills of dried sludge in the Hazardous Waste Accumulation Shed were not cleaned up.
- Accumulated hazardous wastes including filters, piles of contaminated debris, and sludge had exceeded the 90-day accumulation time limit.
- Hazardous waste and risk labels were missing on a container of skimmings in the Pickle and Oil department; drums of aerosol cans and a drum under the puncturing unit in the Kettle Area; and all wastes accumulated in the Hazardous Waste Storage Shed.
- Accumulation start dates were also missing for the wastes in the Kettle Area and the Hazardous Waste Storage Shed.
- Universal wastes were improperly stored and labeled.
- Treatment logs were not maintained for wastes that were treated at the facility.
- Weekly inspections had not been conducted or documented for 4 months.

- Training records for employees were not current.

The following corrective actions were issued in response to the violations:

- Begin taking all appropriate mitigation and control actions after any spill or discharge of dangerous waste or hazardous chemicals.
- Provide documentation that spills observed during the inspection were properly cleaned up.
- Provide copies of manifests to document the disposal of all wastes held past the 90-day accumulation time limit.
- Properly manage, contain, and label all dangerous and universal wastes, including accumulation start dates.
- Properly dispose of universal wastes and provide disposal documentation to Ecology.
- Create and maintain a log with the date and amount of waste treated at the facility.
- Create and implement an inspection schedule and inspect areas where dangerous wastes are stored.
- Establish and institute use of proper training.

Ace Galvanizing submitted a Compliance Certificate and supporting documentation to Ecology on March 6, 2012 (Ace Galvanizing 2012b). On March 26, 2012, Ecology determined that the facility was in compliance with dangerous waste regulations (Ecology 2012d).

Architectural Stone Werkes

According to Ecology’s Facility/Site database, Architectural Stone Werkes’ ISGP became effective on March 29, 2002, and was cancelled on June 7, 2012.

Ecology performed a stormwater compliance inspection at Architectural Stone Werkes on July 20, 2010. The pollutant sources were identified as dirt and stone dust. Discharge monitoring was being performed at a catch basin with spring-fed base flow (catch basin CB-6). Ecology directed Architectural Stone Werkes to ensure that monitoring samples were collected from surface flow as it entered the catch basin, not from the bottom of the catch basin, in order to properly characterize the industrial stormwater runoff (Ecology 2010l).

Architectural Stone Werkes’ 2010 ISGP Annual Report indicates that no permit benchmarks were exceeded during 2010 (Architectural Stone Werkes 2011).

5.28.4 Environmental Investigations and Cleanups

One environmental investigation has been performed at the property. Sample locations are shown on Figure 35b and a summary of chemicals that exceeded soil, groundwater, and catch basin solids screening levels is provided in Tables 25 through 27 Summaries of all chemicals detected in soil and groundwater at the facility are included in Appendix C, Tables C-20 through C-22.

Four soil borings were advanced, one groundwater monitoring well was installed, and nine surface soil samples were collected at the property in May 1991 as part of a Site Hazard Assessment. Groundwater was encountered at approximately 22 feet bgs. Soil and groundwater samples were analyzed for total metals, VOCs, fuel hydrocarbons, and TPH. The groundwater sample was analyzed for dissolved metals as well. Three catch basin solids samples collected analyzed for total metals and TPH (Parametrix and SAIC 1991a).

Cadmium, lead, and TPH concentrations in surface soil exceeded the current MTCA Method A cleanup levels. Zinc concentrations in surface soil and one deep soil sample (22 feet bgs) exceeded the draft soil-to-sediment screening level (Table 25). In groundwater, cadmium, chromium, copper, and zinc concentrations exceeded MTCA cleanup levels and the draft groundwater-to-sediment screening levels (Table 26). Total and dissolved zinc concentrations were more than 1,000,000 μg/L.

Zinc concentrations were greater than 10,000 mg/kg in all three catch basin samples (Parametrix and SAIC 1991a). Cadmium, lead, zinc, and TPH concentrations in catch basin solids exceeded the storm drain screening levels (Table 27).

The galvanizing process used at the facility was modified in 1991 or 1992, which eliminated the need for a waste pit on the property. The waste pit was abandoned and filled with concrete. Groundwater monitoring activities were apparently performed at least two more times during 1991 and 1992, and at least once after the waste pit was abandoned. Zinc concentrations in groundwater reportedly decreased from 3,000 ppm to 9 ppm following abandonment of the waste pit (Ecology 1992f). Reports documenting these activities were not available for review.

5.28.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

No information was available to determine if Ace Galvanizing has complied with the corrective actions identified by Ecology during the May 2012 stormwater compliance inspection. Ace Galvanizing has made improvements to the facility’s stormwater treatment system in an effort to reduce zinc concentrations in stormwater discharge. Zinc concentrations in discharge exceeded permit limits in the first and second quarters of 2012. More recent data were not available for review. The potential for sediment recontamination via this pathway is moderate.

Groundwater Discharge

One environmental investigation was performed at the property in 1991. Results indicated that soil is contaminated by cadmium, lead, zinc, and petroleum hydrocarbons and groundwater is contaminated by cadmium, chromium, copper, and zinc. Zinc concentrations in groundwater reportedly decreased following the abandonment of a waste pit on the property. Although Ace Galvanizing has made many efforts to improve housekeeping and reduce pollutants, the most recent inspections in 2012 indicate that housekeeping is a continual problem for the facility. Pollutants spilled to the ground have the potential to infiltrate to soil and groundwater beneath the property through cracks in the pavement. However, since the property is approximately 1 mile west of the LDW, the potential for sediment recontamination via the groundwater discharge pathway is likely to be low.

5.28.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- A follow-up inspection is needed to determine if Ace Galvanizing is in compliance with corrective actions identified during the May 2012 inspection.
- A review of DMRs from third and fourth quarters of 2012 and the beginning of 2013 is needed to assess the water quality of stormwater being conveyed to the S 96th Street SD system from Ace Galvanizing.

5.29 RMC Inc.

Facility Summary: RMC Inc.	
Tax Parcel No.	0795001560
Address	10766 Myers Way S 98108
Property Owner	Rainier Prop Holdings LLC
Parcel Size	0.43 acre (18,755 sq ft)
Facility/Site ID	18925
Alternate Name(s)	RMC Powder Coatings
SIC Code(s)	3471: Electroplating, Plating, Polishing, Anodizing, and Coloring
EPA ID No.	None
NPDES Permit No.	WAR011783
UST/LUST ID No.	None

RMC Inc. (RMC) operates at parcel 1560 (Figure 12). The facility is bordered by residential properties to the south, United Gym to the west, Myers Way S to the north, and Torrid Marine Water Heaters to the east.

According to King County tax assessor records, a 6,890 sq ft manufacturing warehouse, built in 1989, is located on parcel 01560.

5.29.1 Current Operations

RMC began operating at the current location in October 2009. The facility sandblasts metal parts, cleans and descales metal products, and colors and finishes aluminum or other formed products. Approximately 80 percent of the facility is paved with asphalt or covered with buildings. The asphalt exterior area is used primarily for parking and inventory storage. No equipment is washed outside. The facility stores steel materials outdoors. All galvanized materials are covered with a tarp or wrapped in plastic. RMC covers the outdoor abrasive blast waste dumpster. There is one catch basin located at the facility (Figure 36). The catch basin is connected to the S 96th Street storm drain system (SoundEarth 2012).

5.29.2 Historical Operations

No information regarding historical operations at the property was available for review.

5.29.3 Regulatory History

On March 10, 2009, Ecology conducted an Urban Waters Environmental Compliance inspection at RMC. Ecology identified the following corrective actions (Ecology 2009h):

- Improve or create spill response procedures.
- Properly designate spent paint, coatings, and paint removing solutions.
- Properly dispose of dangerous waste.
- Do not discharge process wastewaters to the storm drain system.
- Implement BMPs for outside storage of liquid containers.

The inspector advised the facility to implement proper housekeeping practices and evaluate the need for an ISGP (Ecology 2009h). Ecology conducted a follow-up inspection at the facility on May 13 and July 7, 2009 (Jeffers 2009c; Ecology 2009p). Ecology determined the facility was in compliance with corrective actions during the July 2009 inspection (Ecology 2009p).

RMC exceeded NPDES benchmarks for copper and zinc during the first, second, and fourth quarter 2011. The facility covered materials stored on pallets and the dumpster. RMC purchased a container for additional storage and installed a catch basin insert (RMC Inc. 2012).

On January 8, 2013, Ecology conducted a stormwater compliance inspection at RMC. Inspectors determined the stormwater catch basin treatment filter was not adequate for preventing exceedances of copper and zinc. Ecology recommended alternative filter options and additional source control BMPs (Ecology 2013a).

5.29.4 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

Copper and zinc concentrations in stormwater at the facility exceeded benchmarks in three quarters during 2011. Zinc is a sediment COC for the Sea King Industrial Park source control area. The facility is located over a mile west of the LDW. The potential for sediment recontamination via the stormwater and spills pathway is low.

Groundwater Discharge

There is no information available that indicates that soil or groundwater contamination is present at this property.

5.29.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current operations at this location is listed below:

- Additional information is needed to determine if RMC has completed corrective actions to reduce copper and zinc concentrations in stormwater discharge.

5.30 Norman Property

Facility Summary: Norman Property	
Tax Parcel No.	3361402095
Address	11603 10th Avenue S 98108
Property Owner	Tran Development Corporation
Parcel Size	0.80 acre (34,800 sq ft)
Facility/Site ID	2347
Alternate Name(s)	BMW of Seattle, Highland Park, Norman Enterprises Inc., Norman Property
SIC Code(s)	5093: Scrap & Waste Materials 5172: Petrol Prod Wholesalers
EPA ID No.	None
NPDES Permit No.	WAR010766 (Construction SW GP)
UST/LUST ID No.	None

The Norman Property is parcel 2095 (Figure 12). The property is bordered by residential properties to the south and west, 10th Avenue S to the east, and S 116th Street to the north.

According to King County tax assessor records, an 850 sq ft residential home, built 1924, is on parcel 2095.

5.30.1 Current Operations

The site appears to be a residential property. Additional information regarding current operations at the site was not available for review.

5.30.2 Historical Operations

An auto repair shop operated at Norman Property until a fire occurred at the facility in 1991 (SKCDPH 2005). The facility had three ASTs and two USTs (King County 1991). Information regarding when the auto repair shop began operation was not available for review.

5.30.3 Regulatory History

An area of the Norman Property contained three 200-gallon ASTs. The ASTs contained diesel, kerosene, and gasoline. On February 2, 1991, the gasoline tank caught fire during filling. The fill tank ruptured during the fire, spilling an undetermined amount of gasoline to the ground. Firefighters were able to erect a berm at the end of the driveway to prevent any liquids from flowing out to the street and into storm drains. Ecology conducted an initial investigation at the facility following the fire. Ecology added the Norman Property to Ecology's CSCSL on June 7, 1991 (SKCDPH 2005).

Ecology reviewed an SHA conducted by SKCDPH in 2005 and made an NFA determination (SKCDPH 2006).

5.30.4 Environmental Investigations and Cleanups

An environmental investigation has been performed at this property. Chemicals did not exceed screening levels for soil. A summary of chemicals detected in soil at the property is presented in Appendix C, Table C-23.

Site Hazard Assessment (2005)

SKCDPH conducted an inspection at the facility on October 12, 2005. Inspectors observed large amounts of heavy equipment, construction materials, and other equipment scattered around the site. SKCDPH observed small spots of heavy oil in the area around the heavy equipment. The inspectors recommended soil sampling at the facility to characterize contamination at the property, if any (SKCDPH 2005).

On November 2, 2005, SKCDPH collected four soil samples at the Norman Property site. SKCDPH collected samples from the former AST location, the extent of the spill area during the fire, and the heavy equipment storage area. All samples were analyzed for petroleum hydrocarbons, BTEX, and metals. Gasoline and BTEX constituents were not detected in any of the soil samples. Concentrations of diesel range-hydrocarbons and lead were detected below MTCA Method A cleanup levels. The SHA recommended an NFA determination (SKCDPH 2005).

5.30.5 Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below by transport pathway.

Stormwater and Spills

The site is currently a residential property. The potential for sediment recontamination via stormwater discharge is low.

Groundwater Discharge

During a fire in 1991, an AST ruptured and leaked petroleum products to the ground. An SHA conducted in 2005 determined petroleum concentrations in soil at the property were below MTCA cleanup levels. The potential for sediment recontamination via groundwater discharge is low.

5.30.6 Data Gaps

The site is currently a residential property. Therefore, no data gaps were identified for current operations at this property.

5.31 Other Properties Within the S 96th Street SD Basin

Information regarding the operations at these facilities was not available for review, except for AAAA Mini Storage. Operations and activities performed at these properties/facilities may be potential sources of contaminants to sediments near the Sea King Industrial Park source control area.

Facility/ Site ID	Facility or Property Name	Current Operator	Address and Parcel	Ecology Interaction (Program ID)
21077	SKBA Buddhist Temple	SKBA Buddhist Temple	824 S 100th Street 5624200573	Construction SW GP (WAR010699)
36919863	McKinstry Co S Barton	Unknown	855 S Barton Street, 2433700070	HWG (WAD055496004) UST (8958)
3546421	Mason Dixon Intermodal Inc.	Same	9515 10th Avenue S, 5624200170	HWG, HWMA (WAH000034528)
1852542	Clyde West Inc.	Unknown	9615 West Marginal Way S, Unknown	HWG (WAD082502865)
41533396	AAAA Mini Storage	AAAA Mini Storage	1421 S 96th Street 5624200390	HWG (WAD988511689)
26432659	Sound Delivery Service	Unknown	9999 8th Avenue S	HWG (WAD988515821)
11797661	Karawis Inc.	Top Hat Mini Mart	10723 1st Avenue S 1721801935	UST (100555) Tier 2 (CRK000039160) EF
15029	Emerald City Machine	Emerald City Machine	160 S 108th Street 0795001795	RSVP
96526349	R&J Autobody Inc.	T&H Autobody Shop	0795000035	HWG (WAD052565025) LSC
18369741	Glen Acres Home Association	Glen Acres Home Association	1000 S 112th 0797000126, 0797000026	UST/LUST (100897)
3479178	Cliff Housers Automotive	Unknown	806 S 112th 0797000181	HWG (WAD988496733) UST/LUST (9334) SCS
73914265	ARCO Serv ST 4375	Unknown	11215 8th Avenue S 3361400006	VCS
9393228	King County Housing Authority	King County Housing Authority	9606 4th Avenue SW 0623049387, 0623049351, 0623049352	HWG (WAH000024830)
75249294	7 Eleven 232214460	Unknown	9618 4th Avenue SW 0623049351	UST (8610)

Construction SW GP – Stormwater General Permit issued for construction projects that discharge stormwater to state waters.
Hazardous Waste Generator (HWG) – Facilities that generate any quantity of dangerous waste.
Hazardous Waste Transfer Facility (HWTF) – Facilities that transport regulated hazardous waste shipments.
Hazardous Waste Management Activity (HWMA) – Facilities that are required to have RCRA ID but do not generate or manage hazardous waste.
UST/LUST – Facilities that have underground tanks used to contain regulated substances/leaking underground cleanup site.
Tier 2 – Business that stores 10,000 pounds or more of a hazardous chemical or 500 pounds or less of an extremely hazardous chemical.
EF – Enforcement Final – An Enforcement action was issued to the respective party.
RSVP – Revised Site Visit Program

LSC – Local Source Control – The site has received a technical assistance visit from a local source control specialist.
SCS – State Cleanup Site – A site is being cleaned up under state regulations.
VCS – Voluntary Cleanup Site – Ecology reviewed independent cleanup reports and determine adequacy.

King County performed an inspection at AAAA Mini Storage in 2011. No corrective actions were identified (Ecology 2012h). No additional information regarding AAAA Mini Storage was available for review.

6.0 Summary

The Sea King Industrial Park source control area is one of 24 source control areas identified as part of the overall cleanup process for the LDW Superfund Site. Ecology is the lead agency for source control for the LDW site. Source control is the process of finding and eliminating or reducing releases of contaminants to LDW sediments, to the extent practicable. The goal of source control is to prevent sediments from being recontaminated after cleanup has been undertaken. The plan is to identify and manage potential sources of sediment recontamination in coordination with sediment cleanups. Source control will be achieved by using existing administrative and legal authorities to perform inspections and require necessary source control actions.

6.1 COCs in Sediments Near the Sea King Industrial Park Source Control Area

The following chemicals are considered to be COCs for the Sea King Industrial Park source control area with regard to potential sediment recontamination (Section 2.2.2):

- Metals: arsenic, mercury, and zinc;
- Butyl benzyl phthalate;
- PAHs: benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and cPAHs;
- benzyl alcohol;
- PCBs;
- Pesticides; and
- Dioxins/furans

6.2 Potential Adjacent or Upland Sources of Contaminants

One public storm drain outfall discharges to the LDW within the Sea King Industrial Park source control area (Section 3.1):

Outfall No.	Outfall Name	Location	Pipe Diameter/Material	Outfall Type
2100(A)	S 96th Street SD	4.2 W	72-in. corrugated metal pipe	King County SD

Source: LDW Phase 2 RI Final (Windward 2010b, Appendix H)

6.2.1 S 96th Street SD Basin

The S 96th Street SD basin is composed of two major drainage and conveyance systems known as the S 95th Street and S 96th Street systems. The conveyance and drainage system is composed of open ditches, culverts, wetlands, and piped storm drains. The drainage and conveyance systems merge at S 95th Street, east of SR 99. Flow is conveyed 500 feet eastward and discharges to the LDW via Outfall 2100(A) (Herrera 1994). The drainage and conveyance systems are divided into the following sub basins:

Sub Basin	Drainage and Conveyance System	Area	Land Use
1	S 95th Street	584 acres	60% residential, 25% commercial/industrial, 15% open space
2	S 96th Street	114 acres	60% residential, 25% commercial/industrial, 15% open space
3	S 95th Street	230 acres	60% residential, 20% commercial/industrial, 20% open space
4	S 95th Street	119 acres	93% residential, 5% commercial/industrial, 2% open space
5	S 95th Street	60 acres	30% residential, 25% commercial/industrial, 45% open space

6.2.2 Private Outfalls

Outfalls SP1 through SP5 are owned and operated by Boeing South Park and covered under an NPDES Permit. The outfalls are located between RM 3.8 and 3.9 West (Figures 4 through 6). Four outfalls of unresolved origin (S Director Street Outfall, Outfall 2101, 2100B, and Delta Marine Outfall) are also present in the Sea King Industrial Park source control area (Figures 4 through 6).

Outfall No.	Secondary ID	Location	Pipe Diameter/Material	Type/Owner
SP5	NA	3.7 W	Unknown	Boeing South Park
SP4	2103	3.7 W	Unknown	Boeing South park
SP3	NA	3.8 W	Unknown	Boeing South Park
SP2	NA	3.9 W	Unknown	Boeing South Park
SP1	2102	3.9 W	12-in. concrete	Boeing South Park
S Director Street	None	3.9 W	Unknown	Unresolved channel/ditch
2101	374W	4.0 W	18-in. concrete	Unresolved SD
2100(B)	376W	4.2 W	6-in. PVC	Unresolved SD
Delta Marine	None	4.2 W	Unknown	Delta Marine

Source: LDW RI Report (Windward 2010b, Appendix H)

The S Director Street Outfall and Outfall 2101 are located adjacent to the Sea King Industrial Park facility and may be inactive. Outfall 2100(B) is located adjacent to the Duwamish Yacht Club and may be inactive. The Delta Marine Outfall is visible on the Delta Marine Industries' SWPPP, but has not been identified during LDW outfall surveys.

6.2.3 Adjacent and Upland Properties

Properties located directly adjacent to the LDW that could affect sediments from RM 3.8 to 4.2 West include (Figures 5 and 6):

- Boeing South Park
- Sea King Industrial Park
- KRS Marine
- Duwamish Yacht Club
- Delta Marine

There are 93 upland facilities that could potentially affect RM 3.8 to 4.2 West sediments (Figures 5 through 11). These properties are listed on Table 1. The parcels associated with these adjacent and upland facilities are identified on Figure 12; parcels identified with like colors are operated by the same facility.

Readily available information regarding the outfalls and properties in the Sea King Industrial Park source control area has been summarized in Sections 3.0 through 5.0 of this Data Gaps Report.

6.3 Potential Contaminant Migration Pathways

Potential sources of sediment recontamination associated with the Sea King Industrial Park source control area include storm drains and discharges from adjacent and upland properties. Transport pathways that could contribute to the recontamination of sediments within the source control area following remedial activities include direct discharges via outfalls, surface runoff (sheet flow) from adjacent properties, bank erosion, groundwater discharges, air deposition, and spills directly to the LDW.

6.3.1 Direct Discharges via Outfalls

Direct discharges may occur from public or private storm drain systems, CSOs, and EOFs. There is one public outfall, five private outfalls, and four unresolved outfalls within the Sea King Industrial Park source control area. EOFs and CSO are not present within the Sea King Industrial Park source control area. Additionally, a creek outfall discharges adjacent to the southern source control area boundary.

Large spills of hazardous substances and waste materials containing COCs may be transported to a storm drain and therefore have the potential to impact sediment in the LDW. There is a potential for spills of COCs from many of the industrial and commercial businesses from upland properties as well as from trucks and trains transporting hazardous substances and waste materials. Spills that occur in upland properties could enter the onsite or public SD system and be discharged to the LDW.

6.3.2 Surface Runoff (Sheet Flow)

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

6.3.3 Spills to the LDW

Near-water and overwater activities have the potential to impact adjacent sediment from spills directly to the LDW of material containing COCs. Parcels adjacent to the LDW within the Sea King Industrial Park source control area are a combination of commercial and industrial properties. Facilities that conduct overwater activities include the KRS Marine, Duwamish Yacht Club, and Delta Marine.

6.3.4 Groundwater Discharges

Contaminants in soil resulting from spills and releases to adjacent and upland properties may be transported to groundwater and subsequently released to the LDW. Soil and groundwater contamination was documented in the S 96th Street SD basin (Section 3.1.2) and at the following properties:

- KRS Marine
- Carey Limousine Service
- Former Precision Engineering
- Gary Merlino Construction
- Puget Sound Coatings
- Absolute German
- Simplex Grinnell/Sherwin Williams/NRC Environmental Services
- Terex Utilities
- Former Advance Electroplating
- Old Dominion Freight Line
- ICON Materials Asphalt Plant
- Former Penberthy Electromelt/ToxGon Corp Seattle
- Selland Auto Transport
- Ace Galvanizing
- Norman Property

Contamination in soil and groundwater could be released directly to sediments via groundwater discharge.

6.3.5 Bank Erosion

The banks of the LDW shoreline are susceptible to erosion by wind and surface water, particularly in areas where banks are steep. Shoreline armoring and the presence of vegetation reduce the potential for bank erosion. Banks within the Sea King Industrial Park source control area are composed of riprap, vegetation, wharfs, and exposed soil. Facilities with exposed soil along the shoreline include Boeing South Park, Sea King Industrial Park, KRS Marine, Duwamish Yacht Club, and Delta Marine. Contaminants in exposed soils along the banks could be released directly to sediments via erosion.

6.3.6 Atmospheric Deposition

Atmospheric deposition occurs when air pollutants enter the LDW directly or through stormwater. Air pollutants may be generated from point or non-point sources. Point sources include industrial facilities; air pollutants may be generated from painting, sandblasting, loading/unloading of raw materials, and other activities, or through industrial smokestacks. Non-point sources include dispersed sources such as vehicle emissions, aircraft exhaust, and off-gassing from common materials such as plastics. Air pollutants may be transported over long distances by wind and can be deposited to land and water surfaces by precipitation or particle deposition. Several properties within the Sea King Industrial Park source control area are currently regulated as a point source of air emissions. These properties are listed below:

Facility	PSCAA Facility Registration No.
Ace Galvanizing Inc.	11695
Aero-Lac Inc.	10436
Allied Body Works Inc.	10071
Container Care International	10438
Delta Marine Industries Inc.	28365
Gary Merlino Construction Co.	13270G
Icon Materials	21300
Industrial Automation Inc.	18101
Puget Sound Coatings Machinists DSR	11860
Repair Technology Inc	10029
RMC, Inc.	29297
T & H Autobody	17303
Top Hat Mini Mart	10555G

6.4 Data Gaps

Data gaps have been identified for outfalls and adjacent and upland properties in Sections 3.0 through 5.0. Data gaps related to the outfalls within the source control area and the S 96th Street SD basin are listed in Section 6.4.1. Data gaps for several facilities include inspections and review of responses to the EPA CERCLA Section 104(e) Request for Information letters. These data gaps are listed in Sections 6.4.2 to 6.4.3. Data gaps that are unique to individual facilities are identified in Section 6.4.4.

6.4.1 Source Tracing

Information is needed regarding the outfalls within the source control area and the S 96th Street SD basin to determine if additional potential sources of contaminants are present. Specific data gaps are listed below.

Data Gaps	Facility/ Site ID	Data Gaps Report Section
S 96th Street SD Basin		
A current map of the S 96th Street SD basin is needed to verify conveyance and drainage features.	None	3.1
Additional information is needed to determine if drainage basin upgrades were made to divert the north and middle forks of Hamm Creek around the S 96th Street industrial area and discharge directly to the LDW via the Hamm Creek Outfall.		

Data Gaps	Facility/ Site ID	Data Gaps Report Section
Additional information is needed to determine if undocumented industrial operations are occurring within the S 96th Street SD basin that may be an ongoing source of sediment recontamination.		
Outfall 2100(B), S Director Street Outfall and Delta Marine Outfall		
Information regarding the status of the three unresolved outfalls is needed to determine if they are operational or have been abandoned.	None	3.2
Additional information is needed to determine if storm drain lines are connected to the unresolved outfalls and the associated drainage areas of these outfalls, if any, to determine the potential for sediment recontamination via the stormwater pathway.		

6.4.2 Business Inspections

Initial Inspections

Facility inspections have not been performed by Ecology, SPU, or King County at the following properties, or new activities have been introduced since the facility was last inspected. Based on the information reviewed for the Data Gaps Report, operations at these facilities may represent potential sediment recontamination sources.

Facility or Property Name	Current Operator	Address	Facility/ Site ID	Data Gaps Report Section
Adjacent Properties				
KRS Marine	Same	1621 S 92nd Place	90355185	4.3
Duwamish Yacht Club	Same	1801 S 93rd Street	None	4.4
Facilities in the S 96th Street SD Basin				
Former Advance Electroplating, Inc.	Show Quality Metal Finishing	9585 8th Avenue S	2079 4914796	5.19
Western Ports Transportation, Inc.	Unknown	851 S 96th Street 9600 8th Avenue S 9618 8th Avenue S 9369 8th Avenue S	67814731	5.23
McKinstry Co S Barton	Unknown	855 S Barton Street	36919863	5.31
Mason Dixon Intermodal Inc.	Same	9515 10th Avenue S	3546421	5.31
Clyde West Inc.	Unknown	9615 West Marginal Way S	1852542	5.31
Sound Delivery Service	Unknown	9999 8th Avenue S	26432659	5.31
Karawis Inc	Top Hat Mini Mart	10723 1st Avenue S	11797661	5.31
Emerald City Machine	Emerald City Machine	160 S 108th Street	15029	5.31
R & J Autobody Inc.	T & H Autobody Shop	0795000035 (Parcel number)	96526349	5.31

All Facility/Site ID numbers associated with a facility/property are listed in the table.

Follow-Up Inspections

Corrective actions were identified at the following facilities during recent inspections performed from 2008 to 2011. To date, the corrective actions have not been achieved or the facility has not been re-inspected to confirm compliance with the corrective actions. Follow-up inspections are needed at the following facilities:

Facility or Property Name	Address	Facility/ Site ID	Data Gaps Report Section
Facilities in the S 96th Street SD Basin			
Carey Limousine Service	1237 S Director Street	2489	5.1
Pacific Industrial Supply	1231 S Director Street	1143511 2056	5.2
Gary Merlino Construction Company	9125 10th Avenue S	7727938 69951382	5.7
Puget Sound Coatings	9220 and 9400 8th Avenue S	97263627 13397378	5.14
Western United Fish Company	9411 8th Avenue S	2463219 95735434	5.15
Selland Auto Transport	615 S 96th Street	37752719	5.26
Ace Galvanizing	429 S 96th Street	2077 21995	5.28

All Facility/Site ID numbers associated with a facility/property are listed in the table.

6.4.3 Review Responses to EPA CERCLA Section 104(e) Request for Information Letters

The companies and property owners listed below are within the Sea King Industrial Park source control area and have received EPA CERCLA Section 104(e) Request for Information letters. A review of the responses to these letters is needed to determine if historical or current operations at the properties are potential sources of contaminants to the sediments associated with the Sea King Industrial Park source control area.

Facility Name	Property Owner	Party Responsible for 104(e) response	Facility/ Site ID	Data Gaps Report Section
Adjacent Properties				
Sea King Industrial Park	Sea King Industrial Park LLC	Sea King Industrial Park LLC	9037205 4401006 67478551 42882451 21209 2544945 4154808 5776 4210684	4.2

Facility Name	Property Owner	Party Responsible for 104(e) response	Facility/ Site ID	Data Gaps Report Section
Duwamish Yacht Club	Mellon Trust of WA Desimone	Duwamish Yacht Club	None	4.4
Delta Marine Industries	Mellon Trust of WA Desimone Delta Marine Delta Marine Industries Inc. Latitude Forty Seven LLC	Global Intermodal Systems Delta Marine Latitude Forty-Seven LLC	86343865 6915930 22978975	4.5
Facilities in the S 96th Street SD Basin				
Gary Merlino Construction Company	Anmarco	Gary Merlino Construction Company	7727938 69951382	5.7
King Electrical Manufacturing	Robert and Shirley Wilson	King Electrical Manufacturing	2404488	5.9
Puget Sound Coatings	HTL Properties LLC	Puget Sound Coatings	97263627 13397378	5.14

All Facility/Site ID numbers associated with a facility/property are listed in the table.

6.4.4 Additional Facility-Specific Data Gaps

Data gaps that are unique to individual facilities are identified below.

Data Gaps	Facility/ Site ID	Data Gaps Report Section
Adjacent Properties		
Sea King Industrial Park (1600 and 1620 92nd Place S)		
Additional information regarding stormwater drainage features at the property is needed to evaluate the potential for contaminant transport to the LDW via stormwater discharge.	9037205 4401006 67478551 42882451 21209 2544945 4154808 5776 4210684	4.2
Further investigation is needed to determine if the S Director Street Outfall and Outfall 2101 are operational and the drainage areas associated with the outfalls.		
Additional information regarding operations at the property prior to 1982 is needed to determine the potential for soil and/or groundwater contamination at the property.		
Duwamish Yacht Club (1801 S 93rd Street)		
Additional information is needed to determine if fueling operations and/or boat maintenance and repair operations are conducted at the facility.	None	4.4
Delta Marine Industries (1608 S 96th Street)		
An updated facility map that includes details of the stormwater drainage systems associated with the treatment system, was pad near the large boat lift, Outfall 2100(B), Delta Marine Outfall, and parcels 0029 and 0062 is needed to assess the stormwater pathway at the facility.	86343865 6915930 22978975	4.5

Data Gaps	Facility/ Site ID	Data Gaps Report Section
Additional information regarding the historical operations performed prior to Global Intermodal Systems and Delta Marine is needed to determine if operations may have resulted in releases of contaminants to soil and/or groundwater.		
Facilities in the S 96th Street SD Basin		
Former Precision Engineering/Pacific Industrial Supply (1231 S Director Street)		
Additional environmental investigations are needed to define the contaminant plume associated with the property and to verify that contaminants associated with the former Precision Engineering property were not reaching the LDW.	1143511 2056	5.2
PSF Mechanical (9322 14th Avenue S)		
Additional information regarding PSF Mechanical's compliance with Ecology's Administrative Order is needed to determine the potential for sediment recontamination associated with stormwater at the property.	18451551 76299717	5.6
Additional information is needed to determine if the facility completed installation of a stormwater treatment system at the property.		
King Electrical Manufacturing Company (9131 10th Avenue S and 821 S Barton Street)		
Additional information is needed to determine if King Electrical received a discharge authorization from KCIW to discharge hot rinse tank wastewater to the sanitary sewer.	2404488	5.9
Absolute German (9510 and 9525 14th Avenue S)		
Additional information regarding Absolute German's compliance with corrective actions identified during Ecology's February 2012 stormwater inspection is needed to assess the potential for sediment recontamination associated with the stormwater pathway.	10207 231954 22342251 27778576	5.16
A review of information regarding the operations at the South Park Chevron is needed to determine the potential for sediment recontamination (if any) associated with the facility.		
Former Advance Electroplating, Inc. (9585 8th Avenue S)		
Due to the potential for metals contamination in soil and groundwater beneath this property and potential for offsite migration, additional information is needed to determine if metals are present in groundwater at concentrations exceeding current MTCA cleanup levels. A review of the remedial actions performed by the EPA is needed.	2079 4914796	5.19
Old Dominion Freight Line (600 and 700 S 96th Street)		
Additional groundwater sampling data are needed to determine the potential for sediment recontamination via the groundwater discharge pathway.	1878836	5.20
Former Penberthy Electromelt/ToxGon Corp Seattle (631 S 96th Street and 9619 8th Avenue S)		
Additional information regarding dioxins/furans in surrounding soil and drainage ditch soils from historical releases is needed to determine the potential for sediment recontamination associated with the stormwater pathway.	2329 24029 16779	5.24
Wooldridge Boats Inc. (1303 S 96th Street)		
Additional information regarding oil and water contaminated with PCBs and methylene chloride in an underground sump is needed to determine the potential for sediment recontamination via groundwater discharge.	86136757	5.27

Data Gaps	Facility/ Site ID	Data Gaps Report Section
Ace Galvanizing (429 S 96th Street)		
A review of DMRs from third and fourth quarters of 2012 and the beginning of 2013 is needed to assess the water quality of stormwater being conveyed to the S 96th Street SD system from Ace Galvanizing.	2077 21995	5.28
RMC Inc. (10766 Myers Way S)		
Additional information is needed to determine if RMC has completed corrective actions to reduce copper and zinc concentrations in stormwater discharge.	18925	5.29

All Facility/Site ID numbers associated with a facility/property are listed in the table.

6.5 Facilities in Compliance

No data gaps were identified for the facilities listed below. These facilities have been inspected by Ecology or SPU within the past four years (2008 or later). Ecology and SPU inspectors identified corrective actions for the facilities and verified that the facilities complied with the corrective actions during a re-inspection. For some of these facilities, no corrective actions related to source control were identified during the inspection.

Facility or Property Name	Address	Facility/ Site ID	Data Gaps Report Section
Facilities in the S 96th Street SD Basin			
South 93rd Business Park	9320 15th Avenue S; 1505 S 93rd Street	12901 12462 12865 14839 16677 7327447 29834194 41379359 47625361 75318226 89923232	5.3
Frog Hollow Corporation	1425 S 93rd Street	24384 25327412	5.4
Industrial Automation Inc.	1425 S 93rd Street 9300 14th Avenue S	74236527	5.5
Progressive Fastening Inc.	837 S Director Street	9246491	5.8
Halfon Candy Company	9229 10th Avenue S	1557860	5.10
Filterfresh Coffee Service Inc.	9243 10th Avenue S	23352	5.11
Former Morgan Trucking Inc./ MacMillan Piper	9302 10th Avenue S 9228 10th Avenue S	42665774	5.12
PNP Properties LLC	850 S Cambridge Street 860 S Cambridge Street	21231 17553	5.13

Facility or Property Name	Address	Facility/ Site ID	Data Gaps Report Section
Simplex Grinnell/Sherwin Williams/ NRC Environmental Services	9520 10th Avenue S, Suite 100 9520 10th Avenue S, Suite 150 9530 10th Avenue S	2263 19871 2236438 19959367 79578412 39258864	5.17
Terex Utilities	9426 8th Avenue S	3291 27446996	5.18
South 96th Business Park	400 to 430 S 96th Street	2080 11972772 82395194 92548826	5.21
ICON Materials Asphalt Plant	1031 S 96th Street 1115 S 96th Street 1221 S 96th Street	93252843 48248356	5.22
Allied Body Works	625 S 96th Street	5469634	5.25
Norman Property	11603 10th Avenue S	2347	5.30
AAAA Mini Storage	1421 S 96th Street 5624200390	41533396	5.31

All Facility/Site ID numbers associated with a facility/property are listed in the table.

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7.0 Documents Reviewed

Absolute German. 2010. Stormwater Pollution Prevention Plan (SWPPP) for Absolute German. January 1, 2010.

Absolute German. 2012. Absolute German Autowrecking Company Website. http://www.absolutegerman.com/ Retrieved on December 6, 2012.

Ace Galvanizing. 1987a. Letter from Mike Buckland, Ace Galvanizing, to the Elliott Bay/Duwamish Action Team, Ecology. Subject: First progress report in correcting deficiencies noted by Ecology. May 18, 1987.

Ace Galvanizing. 1987b. Letter from Mike Buckland, Ace Galvanizing, to Lee Dorigan, Ecology. Subject: Progress Report #2, addressing Action #7: Define Ace Galvanizing Industrial Process – Basic Site Drawing and Overlays. June 22, 1987.

Ace Galvanizing. 1987c. Letter from Mike Buckland, Ace Galvanizing, to Lee Dorigan, Ecology. Re(s): Progress Report #1, submitted May 18, 1987, Progress Report #2, submitted June 22, 1987, Final corrective actions taken to the deficiencies and improvements suggested for completion by Ecology. August 20, 1987.

Ace Galvanizing. 1993. Letter from Mike Buckland, Ace Galvanizing, to Martha Turvey, Ecology. Re: Response to Warning Letter. February 25, 1993.

Ace Galvanizing. 1995. Certificate of Compliance, Ace Galvanizing 429 S. 96th Street, Seattle, WA 98108. Prepared by Mike Buckland. March 7, 1995.

Ace Galvanizing. 2006a. Letter from Erik Jacobs, Ace Galvanizing, to Elliott Zimmerman, Ecology. Letter transmitting completed compliance certificate as a follow-up to Ecology’s Hazardous Waste Inspection on October 12, 2006. December 12, 2006.

Ace Galvanizing. 2006b. South Plant Stormwater Monitoring – Level 3 Response Report. December 28, 2006.

Ace Galvanizing. 2011. Industrial Stormwater General Permit, Annual Report Form, Permit No. WAR-000154, Site Name: Ace Galvanizing. Prepared by Loren McConnell. May 13, 2011.

Ace Galvanizing. 2012a. Pollution Prevention Plan, Facility Name: Ace Galvanizing, Industry Type: Hot Dip Galvanizing, NAIC Code: 332812, EPA ID# or CRK#: WAD009286881, Base Year: 2006. 2012.

Ace Galvanizing. 2012b. Compliance Certificate, Ace Galvanizing, 429 S. 96th St. Seattle, RCRA Site ID: WAD009286881. Prepared by Erik Jacobs, Ace Galvanizing. March 2, 2012.

Ace Galvanizing. 2012c. Stormwater Pollution Prevention Plan, As required by Industrial Stormwater General Permit, Number: WAR000154, For Ace Galvanizing, Inc. (South Plant) 429 S. 96th Street, Seattle, WA, 98108. Plan Consultant: Stormwater Rx. May 2012.

Ace Galvanizing. 2012d. Industrial Stormwater General Permit, Annual Report Form, Permit No. WAR-000154, Site Name: Ace Galvanizing. Prepared by Loren McConnell. May 15, 2012.

Advance Electroplating. 1982. Letter from T. Boyd Coleman, Advance Electroplating, to Mike Dawda, Ecology. RE: NPDES Permit No. WA-000172-4 (I). March 12, 1982.

Advance Electroplating. 1988. Letter from T. Boyd Coleman, Electroplating, to Lee Dorigan, Ecology. Re: Analysis results from the two containers of floor sweepings. April 7, 1988.

Advanced Chemical (Advanced Chemical Technologies, Inc.). 1997a. Letter from Gregory Allan, Advanced Chemical, to Robert Stone, Ecology. Re: Repair Technology, Inc., Conformance to Dangerous Waste Regulations, Chapter 173-303 WAC, Washington State Department of Ecology Letter Dated May 20, 1997.

Advanced Chemical. 1997b. Letter from Gregory Allan, Advanced Chemical, to Robert Stone, Ecology. Re: Repair Technology, Inc., Conformance to Dangerous Waste Regulations, Chapter 173-303 WAC, Washington State Department of Ecology Letter Dated October 27, 1997. November 20, 1997.

AECOM. 2012. Final Feasibility Study, Lower Duwamish Waterway, Seattle, Washington. Prepared by AECOM for the Lower Duwamish Waterway Group. October 31, 2012.

Aero-Lac. 2011. Completed compliance certificate for Aero-Lac, Inc. April 12, 2011.

Aero-Lac. 2013. Company Website. http://www.aerolac.com/about.html. Retrieved on January 22, 2013.

Allied Body (Allied Body Works). 2013. Company Website: http://www.alliedbody.com. Retrieved on January 16, 2013.

AMEC. 2008. Level II Source Control Report Merlino Construction Storage Yard and Maintenance Facility, Seattle, Washington, on Behalf of Gary Merlino Construction Co., Seattle, Washington. December 2008.

Applied Consultants (Applied Consultants, Inc.). 1990a. Letter from Gordon Alwar, Bernard Luther, and Walter Stern, Applied Consultants, to Don Driscoll, Chiyoda International. Subject: Phase II Environmental Assessment, 1237 South Director Street, Seattle, Washington. February 21, 1990.

Applied Consultants. 1990b. Letter from Bernard Luther, Applied Consultants, to Don Driscoll, Chiyoda International Corporation. Subject: Report of Contamination Study, 1237 South Director Street, Seattle, Washington. November 22, 1990.

Applied Consultants. 1991. Report of Contamination Study, 1237 South Director Street, Seattle, Washington. Prepared for Chiyoda International Corporation. June 10, 1991.

Applied Consultants. 1992. Letter from Bernard Luther, Applied Consultants, to Don Driscoll, Chiyoda International. Subject: Closure of Site, 1237 South Director Street, Seattle, Washington. May 17, 1992.

Architectural Stone Werkes. 2011. Industrial Stormwater General Permit Annual Report Form. Permit No. WAR-SO3004556B, Site Name: Ace Galvanizing. Prepared by Jim Maxwell. May 13, 2011.

ATACS Products. 2011. Compliance Certificate for Atacs Products, Inc., Date of Visit: May 18, 2011. August 25, 2011.

ATACS Products. 2012. ATACS Products Company Website. http://www.atacs.comservices. Retrieved on November 20, 2012.

ATC. 1999. Underground Storage Tank Site Assessment Report for Wabash National Corporation of Fruehauf Trailer Services. March 17, 1999.

Attorney General (Attorney General of Washington State). 1988. Precision Engineering, Inc., appellant, v. State of Washington, Department of Ecology, Respondent. PCHB No. 7-13, Stipulated Agreement. December 27, 1988.

Blue Environmental. 2012. Stormwater Pollution Prevention Plan, Western Ports Transportation. May 2012.

Blue Sage Environmental. 1999. Site Characterization Report, Release from Underground Storage Tank System (Chapter 173-340 WAC). August 31, 1999.

Boeing (The Boeing Company). 1992. Letter from James Medzegian, Boeing, to Ed O'Brien, Ecology. Subject: NOI for South Park Plant. September 28, 1992.

Boeing. 2011a. Southpark Stormwater Pollution Prevention Plan: The Boeing Company Southpark Facility, Existing Permit WAR001009. May 5, 2011.

Boeing. 2011b. Industrial Stormwater General Permit Annual Report Form, Boeing South Park, Permit No. WAR-001009. May 7, 2011.

Boeing. 2011c. Industrial Stormwater General Permit Annual Report Form, Boeing South Park, Permit No. WAR-001009. May 18, 2011.

Boeing. 2013. Environmental (SEPA) Checklist for Boeing South Park Facility. January 11, 2013.

Bolster (Bolster Engineers). 1985. Engineering Report, Hi-Line Asphalt Paving Co., Inc., 1115 S. 96th Ave., Seattle, Wash. December 16, 1985.

Booth and Herman. 1998. Duwamish Coalition: Duwamish basin groundwater pathways conceptual model report. City of Seattle Office of Economic Development and King County Office of Budget and Strategic Planning, Seattle, WA. As cited in Windward 2003.

Caliber Inspection. 2000. Tank Inspection and Evaluation Report for Precision Engineering, Seattle, WA, Tank No. Chrome Waste Water, Report Number 50338-1, Rev. 1, Inspection Date: September 17, 1999. Revised February 16, 2000.

CB Finishing (CB Finishing Inc.). 1995. Notice of Intent for Baseline General Permit to Discharge Stormwater Associated with Industrial Activity. February 24, 1995.

CB Finishing. 2000. Renewal Application for Coverage under Ecology's Baseline General Permit for Discharge of Stormwater Associated with Industrial Activity. April 28, 2000.

CB Finishing. 2001. Stormwater Pollution Prevention: #SO3002274-C. October 10, 2001.

Chiyoda (Chiyoda International Corporation). 1992a. Letter from Donald Driscoll, Chiyoda, to Mike Gallagher, Ecology. Subject: Site Remediation/Closure 90064-LR-DOE1. July 8, 1992.

Chiyoda. 1992b. Letter from Donald Driscoll, Chiyoda, to Louise Bardy, Ecology. Subject: Site Remediation/Closure, 90064-LR-DOE2, Addendum to LR DOE1 (dated July 8, 1992). October 12, 1992.

Concrete Restoration (Concrete Restoration Inc.). 2012. Concrete Restoration Inc. Company Website. Http://concreterestorationinc.com/index.html. Retrieved on December 13, 2012.

Container Care (Container Care Puget Sound). 1991. Letter from Michael Harr, Container Care, to Joanne Polayes-Wien, Ecology. Re: Your letter of August 27, 1991 regarding Container-Care International Inc. located at 9600 8th Avenue South, Seattle; Potential Water Quality Violations. October 8, 1991.

Container Care. 1992. Letter from Michael Harr, Container-Care, to Joanne Polayes-Wien, Ecology. Subject: Water Wash System. May 11, 1992.

Custom Metal Spinning. 2009. Compliance Certificate, Custom Metal Spinning LLC. January 26, 2009. [09194]Delta Marine (Delta Marine Industries). 1985. Letter from Brian Donahue, Delta Marine, to Ecology. Request to withdraw E.P.A. Identification number WAD05293480. April 30, 1985.

Delta Marine. 1991. Letter from Eved Owen, Delta Marine, to Martha Turvey, Ecology. Corrective actions for the identified potential water quality violations. November 27, 1991. [10230]

Delta Marine. 1995. Certificate of Compliance, Delta Marine, 1608 S 96th St., Seattle, WA 98108.

Delta Marine. 2001a. Letter from Eved Owen, Delta Marine, to Bob Stone, Ecology. Subject: Working with Potentially Hazardous Materials Training Program. March 5, 2001.

Delta Marine. 2001b. Discharge Monitoring Report, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. November 19, 2001.

Delta Marine. 2002. Discharge Monitoring Report, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. October 17, 2002.

Delta Marine. 2003. Discharge Monitoring Report, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. November 18, 2003.

Delta Marine. 2004. Discharge Monitoring Report, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. October 8, 2004.

Delta Marine. 2005. Discharge Monitoring Report, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. October 24, 2005.

Delta Marine. 2006. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. November 20, 2006.

Delta Marine. 2007. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. October 2, 2007.

Delta Marine. 2008. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. December 8, 2008.

Delta Marine. 2009. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. October 5, 2009.

Delta Marine. 2010. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. November 1, 2010.

Delta Marine. 2011. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. November 23, 2011.

Delta Marine. 2012a. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. February 22, 2012.

Delta Marine. 2012b. Delta Marine Industries, Inc. Storm Water Pollution Prevention Plan. Permit #: WAG030091, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. May 18, 2012.

Delta Marine. 2012c. Delta Marine Company Website. http://www.deltamarine.com/. Accessed on December 26, 2012.

Diamond Painting (Diamond Painting LLC). 2012. Diamond Painting Company Website. http://diamondpaintingllc.com/. Accessed on October 2, 2012.

DJC Oregon (Daily Journal of Commerce Oregon). 2002. Terex-Telelect Acquires Pacific Utilities Equipment. March 21, 2002. http://djcoregon.com/news/2002/03/21/terextelelext-acquires-pacific-utility-equipment. Retrieved January 2, 2013.

Drabek, John. 1997. E-mail from John Drabek, to Bev Poston and Sally Attwood. FW: Gary Merlino Construction. July 29, 1997.

E&E (Ecology & Environment, Inc.). 1986a. Site Inspection Report of Advance Electroplating, Inc., Seattle, Washington, TDD R10-8510-21. May 1986.

E&E. 1986b. Advance Hard Chrome, Inc./Repair Technology, Inc. Site Inspection Report of Seattle, WA. Prepared by Ecology and Environment, Inc. for USEPA. May 30, 1986.

E&E. 1987a. Investigation of the South 96th Street Drainage Ditch. Prepared by Ecology and Environment, Inc. for King County. March 13, 1987.

E&E. 1987b. Investigation of the South 96th Street Drainage Ditch. Prepared by Ecology and Environment, Inc. for King County. August 24, 1987.

Ecology (Washington State Department of Ecology). 1970a. Department of Ecology - Waste Discharge Permit, Advance Electroplating, Inc. November 18, 1970.

Ecology. 1970b. Memorandum from Ron Devitt, Ecology, to Stewart Messman, Ecology. Subject: North West Galvanizing. December 1970.

Ecology. 1971a. Letter from Stewart A. Messman, Ecology, to Brian W. Williams. Response to letter expressing concern over Northwest Galvanizing Company's waste discharge permit application. December 7, 1971.

Ecology. 1971b. Waste Discharge Permit No. T-3954, Issued to Northwest Galvanizing Company, 429 South 96th Street, Seattle, Washington 98108. December 29, 1971.

Ecology. 1973a. Memo from Ron Devitt to Bill Burwell. Subject: Ace Galvanizing & Advance Electroplating. February 22, 1973.

Ecology. 1973b. National Pollutant Discharge Elimination System Discharge Permit, Permit No. T-5125, Issued to Boeing Aerospace Company, 1600 So. Trenton Street, Seattle, Washington 98108. March 16, 1973.

Ecology. 1974. Memo from Laurence Ashly to Thomas McCann and Files. Subject: Advanced Electroplating Company, King County. July 9, 1974.

Ecology. 1975. National Pollutant Discharge Elimination System Waste Discharge Permit, Permit No. WA-002987-4, Issued to Boeing Scientific Research Center, 1420 South Trenton Street, Seattle, Washington 98108. January 3, 1975.

Ecology. 1976. National Pollutant Discharge Elimination System Waste Discharge Permit, Advance Electroplating, Inc. January 13, 1976.

Ecology. 1977. Memo from Mark Premo to Files. Subject: Advance Electroplating, Inc. July 28, 1977.

Ecology. 1979a. Letter from Ken Mauermann, Ecology, to Ron Bitondo, Fruehauf Trailer Division. State Waste Discharge Permit No. 3229, Cancellation Notice. April 13, 1979.

Ecology. 1979b. National Pollutant Discharge Elimination System - Waste Discharge Permit, Advance Electroplating, Inc. October 10, 1979.

Ecology. 1981a. Memorandum from M.M. Dawda, Ecology, to R. McCormick, Ecology. Subject: Recommendation for Enforcement Action, Advance Electroplating Company, Seattle, NPDES Permit WA-000172-4. August 12, 1981.

Ecology. 1981b. Letter from M.M. Dawda, Ecology, to Boyd Coleman, Advance Electroplating. RE: NPDES Permit No. WA-000172-4 (I). November 9, 1981.

Ecology. 1982a. Letter from M.F. Palko, Ecology, to USACE. Public Notice No. 071-OYB-1-007930, Duwamish Yacht Club. March 23, 1982.

Ecology. 1982b. National Pollutant Discharge Elimination System Waste Discharge Permit, Permit No. WA-002987-4, Issued to Boeing Scientific Research Center, 1420 South Trenton Street, Seattle, Washington 98108. May 12, 1982.

Ecology. 1982c. Letter from M.M. Dawda, Ecology, to Dave Vistaunet, Duwamish Yacht Club. Corps Permit No. 071-OYB-2-008104. November 5, 1982.

Ecology. 1983. Letter from Dan Kruger, Ecology, to Michael Kartes, Advanced Electroplating. RE: EPA/State Identification number assigned to operation: WAD 009278847. March 23, 1983.

Ecology. 1984a. Department of Ecology - Inspection Report, Advance Electroplating. April 6, 1984.

Ecology. 1984b. Department of Ecology – Inspection Report, Boeing – SRC. October 4, 1984.

Ecology. 1984c. Potential Hazardous Waste Site Preliminary Assessment, Summary Memorandum for Advance Hard Chrome, 400 S 96th Street, Seattle, WA. November 1, 1984.

Ecology. 1985a. Potential Hazardous Waste Site Preliminary Assessment, Advance Electroplating Inc, ID# WA-D009278847. March 16, 1985.

Ecology. 1985b. Memorandum from Ron Devitt, Ecology, to Phil Miller, Ecology. Subject: Request for Penalty and Order HiLine Asphalt Paving. September 11, 1985.

Ecology. 1985c. Letter from Philip Miller, Ecology, to Hi-Line Asphalt Paving Company. Order No. DE 85-698. September 23, 1985.

Ecology. 1985d. Letter from Dan Cargill, Ecology, to Werner Otto, Duwamish Yacht Club. Classification of Dredge Spoils. October 18, 1985.

Ecology. 1986a. Inspection Report, Precision Engineering, 1231 S Director St. Prepared by Lee Dorigan. March 6, 1986.

Ecology. 1986b. Letter from Dan Cargill, Ecology, to King County. Re: South 96th Street Ditch, Soils as Dangerous Waste. April 16, 1986.

Ecology. 1986c. Memorandum from Ron Devitt, Ecology, to Dan Cargill, Ecology. Re: Oil Spill- Delta Marine – May 5, 1986. May 6, 1986.

Ecology. 1986d. Memorandum from Julie Sellick, Ecology, to John Conroy, Ecology. Subject: Narrative Report for the Inspection at the Precision Engineering, Inc. Facility in Seattle, Washington on March 6, 1986. May 16, 1986.

Ecology. 1986e. Letter from Julie Sellick, Ecology, to Jim Donaldson, Precision Engineering. Dangerous Waste Inspection at Precision Engineering, Inc. in Seattle, Washington, on March 6, 1986. May 19, 1986.

Ecology. 1986f. In the Matter of the Compliance By Precision Engineering, Inc. with Chapter 70,105 and 90.48 RCW and the Rules and Regulations of the Department of Ecology, Order No. DE 86-307. May 23, 1986.

Ecology. 1986g. Inspection Report, Precision Engineering, 1231 S. Director St. Seattle. June 26, 1986.

Ecology. 1986h. Inspection Report for Penberthy Electromelt Int'l, Inc., 631 S 96th Street, Seattle, WA. July 31, 1986.

Ecology. 1986i. Notice of Violation No. DE 86-N200, Delta Marine Industries, Inc., 1608 South 96th, Seattle, Washington 98108. November 24, 1986.

Ecology. 1986j. In the Matter of the Compliance By Precision Engineering, Inc. with Chapter 70,105 and 90.48 RCW and the Rules and Regulations of the Department of Ecology, Order No. DE 86-307. First Amendment. December 19, 1986.

Ecology. 1987a. Letter from Julie Sellick, Ecology, to Gary E. Bottoms, Precision Engineering. Re: Dangerous Waste Site Visit at Precision Engineering Inc. (WAD 041338252) in Seattle, Washington, on February 23, 1987.

Ecology. 1987b. Inspection Report for Inspection Performed at Ace Galvanizing on May 1, 1987. May 1, 1987.

Ecology. 1987c. Letter from Lee Dorigan, Ecology, to Mike Buckland, Ace Galvanizing. Re: Progress Report No. 3, August 30, 1987.

Ecology. 1987d. Letter from Ronald Devitt, Ecology, to D.R. Johnson, Boeing. Re: Permit WA-002987-4. October 5, 1987.

Ecology. 1987e. Department of Ecology - Inspection Report, Advanced Electroplating Inc. October 28, 1987.

Ecology. 1988a. Memorandum from Julie Sellick, Ecology, to John Conroy, Ecology. Subject: Narrative Report for a Dangerous Waste Inspection at Precision Engineering Inc (WAD 041338252) in Seattle, Washington, on November 17, 1987. January 28, 1988.

Ecology. 1988b. Compliance Inspection for Penberthy Electromelt International, Inc, 631 South 96th Street, Seattle, WA. February 23, 1988.

Ecology. 1988c. Letter from Lee Dorigan, Ecology, to William Mitchell, Repair Technology, Inc. Re: Inspection follow-up. March 4, 1988.

Ecology. 1988d. Letter from Lee Dorigan, Ecology, to Boyd Coleman, Advance Electroplating. Re: February 28, 1988 Inspection. March 7, 1988.

Ecology. 1988e. Memorandum from Julie Sellick, Ecology, to Nancy Ellison, Ecology. Subject: Recommendation for Issuance of an Administrative Penalty Against Precision Engineering Inc. (WAD 041338252) in Seattle, Washington, Docket No. DE 88-N138. March 25, 1988.

Ecology. 1988f. Letter from Lee Dorigan, Ecology, to T. Boyd Coleman, Advance Electroplating. Re: Receipt of Letter of April 7, 1988. April 22, 1988.

Ecology. 1988g. Letter from Nancy Ellison, Ecology, to Clyde Cherberg, Boeing. Re: NPDES Permit Issuance, Permit No. WA-002987-4(I), Expiration Date: November 18, 1993. November 18, 1988.

Ecology. 1989a. Inspection Report: Kaspac Corporation, 1237 S Director Street, Seattle, 98108. March 22, 1989.

Ecology. 1989b. Letter from Barbara Trejo, Ecology, to David Stetson, Kaspac Corporation. April 3, 1989.

Ecology. 1989c. Conversation Records with David Stetson, for April 11, 1989, May 10, 1989, and May 12, 1989. Recorded by Barbara Trejo. April 11, 1989.

Ecology. 1989d. Washington State Department of Ecology, Sample/Project Analysis Results, Project: DOE-285B, Precision Engineering. May 22, 1989.

Ecology. 1989e. Letter from James R. Musgrove (Bud), Ecology, to Al Albert, Precision Engineering. Re: Schedule Update, Groundwater and soil sampling. July 14, 1989.

Ecology. 1989f. Letter from Laurence Ashley, Ecology, to Peter McLean, Penberthy Electromelt. Re: Dangerous Waste Compliance Inspections, August 8, 1989 and November 16, 1989. December 28, 1989.

Ecology. 1990a. Draft Scope of Work, Advance Electroplating, Inc. January 1, 1990.

Ecology. 1990b. Letter from Laurence Ashley, Ecology, to Larry Penberthy, Penberthy Electromelt. Re: Penberthy Electromelt's letter dated March 23, 1990 to the Department. Recycling Procedures. May 4, 1990.

Ecology. 1990c. Letter from Laurence Ashley, Ecology, to Julie Sellick, Ecology. Re: Request for Administrative Order No. DE 90-N154 and Notice of Penalty No. DE 90-N160. May 8, 1990.

Ecology. 1990d. Letter from Mary Kautz, Ecology, to Penberthy Electromelt International, Inc. Order No. DE 90-N154. June 19, 1990.

Ecology. 1990e. Letter from Mary Kautz, Ecology, to Penberthy Electromelt. Re: Notice of Penalty Incurred and Due. No DE 90-N160. June 19, 1990.

Ecology. 1990f. Letter from Louise Bardy, Ecology, to Michael Markey, Markey Properties. Re: Markey Property, Parcel 4 #N-17-5045-000. July 18, 1990.

Ecology. 1990g. Letter from Michael J. Gallagher, Ecology, to Precision Engineering, regarding the results of the site hazard assessment performed by Ecology. August 29, 1990.

Ecology. 1990h. Letter from Cindy Gilder, Ecology, to Larry Penberthy, Penberthy Electromelt. Re: EPA ID # WAD 061669644, Part B Permit Application, Warning Letter and Notice of Deficiency. December 10, 1990.

Ecology. 1991a. Letter from Louise Bardy, Ecology, to Larry Penberthy, Penberthy Electromelt. Re: Early Notice Letter, Penberthy Electromelt Int'l. #N-17-5108-000. March 18, 1991.

Ecology. 1991b. Department of Ecology - Inspection Report, Advanced Electroplating Metal Finishing. May 30, 1991.

Ecology. 1991c. Memo from Elaine Atkinson, Ecology, to Michael Spencer. Subject: Advance Electroplating Site Hazard Assessment (SHA). June 11, 1991.

Ecology. 1991d. Department of Ecology - Inspection Report, Container-Care International, Inc. June 20, 1991.

Ecology. 1991e. Sampling of Freshwater Sediments from the Creek Directly South of Penberthy Electromelt, Inc. July 2, 1991.

Ecology. 1991f. Department of Ecology - Inspection Report, Fruehauf Trailer Operations Corp. July 11, 1991.

Ecology. 1991g. Inspection Report, International Paint, Inc., 1601 C 92nd Pl. South, Seattle, Washington, 98108. July 18, 1991.

Ecology. 1991h. Source Control Inspection Report for Northwest Connecting Rod, 1705 S 93rd Street, Unit F-7, Seattle, 98108. August 1, 1991.

Ecology. 1991i. Letter from Michael Gallagher, Ecology, to Boyd Coleman, Advance Electroplating. Re: Assessment of hazard ranking for the Advance Electroplating site at 9585 Eighth Avenue South, Seattle, Washington. August 15, 1991.

Ecology. 1991j. Letter from Joanne Polayes-Wien, Ecology, to Jody Horgan, Container Care. RE: Container Care International, Inc., Potential Water Quality Violations. August 27, 1991.

Ecology. 1991k. Inspection Report for Delta Marine Industries, 1608 So. 96th Street, Seattle, WA 98108. September 10, 1991.

Ecology. 1991l. Inspection Report for Selland Auto Transport, Inc., 615 S 96th Street, Seattle, WA. November 12, 1991.

Ecology. 1991m. Inspection Report for Penberthy Electromelt International, 631 South 96th Street, Seattle, WA. December 1, 1991.

Ecology. 1991n. Source Control Inspection Report for Costum Metal Spinning Co., 9330 15th Avenue S., Unit C, Seattle, WA 98108. December 3, 1991.

Ecology. 1991o. Inspection Report for Delta Marine Services, 1608 South 96th St., Seattle, WA 98108. December 19, 1991.

Ecology. 1992a. Department of Ecology Inspection Report, Container-Care International, Inc. January 7, 1992.

Ecology. 1992b. Letter from Martha Turvey, Ecology, to Dick Selland, Selland Auto Transport. Re: Follow-up for inspection from November 12, 1991. January 23, 1992.

Ecology. 1992c. Letter from Martha Turvey, Ecology, to Gary Ball, Selland Auto Transport. Re: Follow-up for inspection from February 11, 1992.

Ecology. 1992d. Source Control Inspection Report for Selland Auto Transport, 615 South 96th Street, Seattle, 98108. Prepared by J. Polayes-Wien and M. Turvey. February 17, 1992. [09703]Ecology. 1992e. Inspection Report for Aero-Lac, Inc., 420 S 96th Street, Space 14, Seattle, WA. March 26, 1992.

Ecology. 1992f. Letter from Brian S. Sato, Ecology, to Mike Buckland, Ace Galvanizing. Re: Contaminant migration from Ace Galvanizing to Desimone Trust property. May 5, 1992.

Ecology. 1992g. Letter from Brian S. Sato, Ecology, to William J. Peplinski, Hart Crowser. Re: Desimone Trust Property, South Park Area, Seattle, Washington. May 5, 1992.

Ecology. 1992h. Solid and Hazardous Waste Program, Inspection Report, Precision Engineering, Inc., 1231 S Director St., Seattle, Wa. 98108. June 1, 1992.

Ecology. 1992i. Letter from Louise Bardy, Ecology, to Donald Driscoll, Chiyoda International. Re: Independent Cleanup Action Reports, 1237 S. Director St., Seattle, Washington. July 15, 1992.

Ecology. 1992j. Letter from Michael Gallagher, Ecology, to Boyd Coleman, Advance Electroplating. August 21, 1992.

Ecology. 1992k. Inspection Report, Industrial Automation, 1421 South 93rd Street, Seattle, Washington, 98108. August 31, 1992.

Ecology. 1992l. Inspection Report, PSF Mechanical, 9322 14th Avenue S, Seattle, Washington, 98108. August 31, 1992.

Ecology. 1992m. Site Hazard Assessment, Markey Property, Parcel 4, South 96th Street/10th Avenue South, Seattle, Washington. September 10, 1992.

Ecology. 1992n. Letter from A. Kirk Smith, Ecology, to Bernie Dempcie, Mayflower Park Hotel. Re: Overpacked Drums. October 6, 1992.

Ecology. 1992o. Memorandum from Martha Turvey, Ecology, to the file. Subject: Duwamish Industrial Park abandoned drums. October 29, 1992.

Ecology. 1992p. Letter from Josh Chaitin, Ecology, to Boyd Coleman. Re: Compliance with the Washington State Dangerous Waste Regulations (Chapter 173-303 WAC) at Advanced Electroplating Inc. (WAD009278847). November 10, 1992.

Ecology. 1992q. Inspection Report, Puget Sound Coatings, 9220 8th Ave. South, Seattle, Washington, 98108. November 25, 1992.

Ecology. 1992r. Letter from Barbara Smith, Ecology, to Bernie Dempcie, Mayflower Park Hotel. December 1, 1992.

Ecology. 1992s. Department of Ecology Inspection Report, Segale Asphalt. December 9, 1992.

Ecology. 1992t. Memorandum from Byung Maeng, Ecology. Re: Site Visit Report. December 21, 1992.

Ecology. 1992u. Letter from James D. Krull, Ecology, to Warren Beardsley, PSF Mechanical, Inc. Re: Coverage Under the Storm Water Baseline General Permit, Permit Number: S03-000264. December 28, 1992.

Ecology. 1992v. Letter from James D. Krull, Ecology, to L. Penberthy, Penberthy Electromelt. Re: Coverage Under the Storm Water Baseline General Permit, Permit Number: S03-000280. December 28, 1992.

Ecology. 1992w. Inspection Report for Morgan Trucking, Inc., 9228 10th Avenue S, Seattle, King, 98198. December 29, 1992.

Ecology. 1993a. Notice of Penalty Incurred and Due in the Matter of the Assessment of Penalty against Duwamish Manor Industrial Park, WAD988510673 (DRAFT).

Ecology. 1993b. Letter from Martha Turvey, Ecology, to Mike Buckland, Ace Galvanizing. Re: Warning Letter. January 5, 1993.

Ecology. 1993c. Department of Ecology Inspection Report, Segale Asphalt. January 8, 1993.

Ecology. 1993d. Inspection Report, Repair Technology, Inc., 400 S 96th Street, Seattle, WA. January 12, 1993.

Ecology. 1993e. Inspection Report for Allied Body, Inc. 625 South 96th Street, Seattle, WA. January 12, 1993.

Ecology. 1993f. Letter from Martha Turvey, Ecology, to Hugh LaBossier, Puget Sound Coatings. November 25, 1992 inspection. January 13, 1992.

Ecology. 1993g. Letter from Lucille Pebles, Ecology, to Curt Madden, Morgan Trucking. Re: Compliance Inspection. January 29, 1993.

Ecology. 1993h. Inspection Report, King Electric Manufacturing Co., 9131 10th Ave South, Seattle, King, 98108. February 3, 1993.

Ecology. 1993i. Memo from Dan Cargill to Mike Barnes. Subject: Markey Short Flat File No. S9OS0184. February 23, 1993.

Ecology. 1993j. Letter from Joanne Polayes-Wien, Ecology, to Mark Segale, Segale Asphalt. Re: Warning Letter, Potential Water Quality Violations. March 4, 1993.

Ecology. 1993k. Letter from Joanne Polayes-Wien, Ecology, to Dennis Landowsky, Pacific Utility Equipment Co. Re: Follow-up for inspection on January 7, 1993. March 8, 1993.

Ecology. 1993l. Letter from James D. Krull, Ecology, to Joyce Nelson, Boeing Commercial Airplane Group. Re: Coverage Under the Storm Water Baseline General Permit, Permit Number: SO3-001009, Facility\Site Name: Boeing Commercial Airplane Training Center (South Park Plant), Address: 1420 South Trenton Street, Kent, WA 98032. March 17, 1993.

Ecology. 1993m. Letter from Martha Turvey, Ecology, to Boyd Coleman, Advanced Companies. Re: Site Cleanup at 9585 Eighth Avenue South, Seattle, WA (EPA/State ID # WAD009278847). April 26, 1993.

Ecology. 1993n. Letter from James Krull, Ecology, to Mark Gonzalez, ITEL Terminals. Re: Coverage Under the Storm Water Baseline General Permit, Permit Number SO3-001330. June 23, 1993.

Ecology. 1993o. Letter from Josh Chaitin, Ecology, to Boyd Coleman, Advanced Companies Inc. Re: Site cleanup at 9585 Eighth Ave. S., Seattle, Washington (EPA/State ID # WAD0092718847). September 23, 1993.

Ecology. 1993p. Department of Ecology Water Quality Inspection Report for Permit Application, Delta Marine Industries, on October 13, 1993. October 20, 1993.

Ecology. 1993q. Letter from John Glynn, Ecology, to Jack Jones, Delta Marine Industries, Inc. Re: General NPDES Permit Coverage Permit No. WAG-03009-1 Expiration Date: November 4, 1997. November 4, 1993.

Ecology. 1994a. Conversation Record with Bob Bunch, Container Care. Subject: Sediment observed washing off the S. 96th Street site on 12/30/93. January 3, 1994.

Ecology. 1994b. Inspection Report for Penberthy Electromelt International, 631 South 96th Street, Seattle, WA. March 11, 1994.

Ecology. 1994c. Industrial Stormwater Inspection - Record of Visit, Industrial Automation Inc. August 3, 1994.

Ecology. 1994d. Letter from James Krull, Ecology, to Pacific Utility Equipment Co. Re: Coverage Under Stormwater Baseline General Permit, Permit Number SO3-001901. August 15, 1994.

Ecology. 1994e. Letter from James D. Krull, Ecology, to Jim Okel, Precision Engineering. RE: Coverage Under the Stormwater Baseline General Permit, Permit Number: SO3-001925, Facility\Site Name: Precision Engineering, Inc., Address: 1231 South Director Street, Seattle, WA 98108. August 19, 1994.

Ecology. 1994f. Letter from James Krull, Ecology, to Byron Woolsey, Industrial Automation Inc. RE: Coverage Under the Stormwater Baseline General Permit, Permit Number: S03-001949. August 26, 1994.

Ecology. 1994g. Letter from James Krull, Ecology, to Claude Benson, CB Finishing. RE: Formal Notice to Apply for Ecology's Baseline Stormwater Permit. November 8, 1994.

Ecology. 1994h. NWRO Hazardous Waste Inspection Report, Ace Galvanizing, Inc., EPA/State ID#: WAD 009286881. Prepared by Robert Stone. December 21, 1994.

Ecology. 1994i. Letter from James Krull, Ecology, to Hugh LaBossier, Puget Sound Coatings. RE: Coverage Under the Stormwater Baseline General Permit, Permit Number: SO3-002142. December 27, 1994.

Ecology. 1995a. Letter from Deborah North, Ecology, to Jack Jones, Delta Marine Industries. Re: Warning Letter. February 10, 1995.

Ecology. 1995b. Letter from James Krull, Ecology, to Claud Benson, CB Finishing. RE: Coverage Under the Stormwater Baseline General Permit, Permit Number: SO3-002274. March 13, 1995.

Ecology. 1995c. NWRO Hazardous Waste Inspection Report, Delta Marine. June 7, 1995.

Ecology. 1996a. Memo from Dan Cargill to Mary O'Herron. Subject: Independent Technical Assistance Meeting for Site. January 4, 1996. [09396]

Ecology. 1996b. Letter from James Krull, Ecology, to Industrial Automation Inc. RE: Stormwater Baseline General Permit for Industrial Activity. January 10, 1996.

Ecology. 1996c. Letter from James Krull, Ecology, to James Beardsley, PSF Mechanical. Re: Stormwater Baseline General Permit for Industrial Activity. January 10, 1996.

Ecology. 1996d. Letter from James Krull, Ecology, to Puget Sound Coatings, Permit No. SO3002142. RE: Stormwater Baseline General Permit for Industrial Activity. January 10, 1996.

Ecology. 1996e. Letter from James Krull, Ecology, to Boeing Commercial Airplane Group. RE: Stormwater Baseline General Permit for Industrial Activity. January 10, 1996.

Ecology. 1996f. Letter from James Krull, Ecology, to Pacific Utility Equipment Co. Re: Stormwater Baseline General Permit for Industrial Activity. January 10, 1996.

Ecology. 1996g. Letter from John Drabek, Ecology, to Doug Greason, Delta Marine Industries, Inc, regarding the proposal for a treatment system for pressure wash wastewater. February 20, 1996.

Ecology. 1996h. Letter from Donald Seeberger, Ecology, to William Whittaker, ToxGon. Re: Treatment, Storage and Disposal (TSD) facility Inspection of Penberthy Electromelt, Inc. (PEI) - (WAD061669644). February 27, 1996.

Ecology. 1997a. Letter from Dave Nazy, Ecology, to Rory Stevens, Chiyoda International. Re: Chiyoda International Corporation Property, 1237 South Director Street, Seattle, WA. February 7, 1997.

Ecology. 1997b. Inspection Report, Hazardous Waste and Toxic Reduction, Repair Technology, Inc., 400 S 96th St., Seattle, WA 98108. April 30, 1997.

Ecology. 1997c. Letter from Robert Stone, Ecology, to William Mitchell, Repair Technology, Inc. Re: Dangerous waste compliance at Repair Technology, Inc. May 20, 1997.

Ecology. 1997d. Letter from Robert Stone, Ecology, to William Mitchell, Repair Technology, Inc. Re: Dangerous waste compliance inspection at Repair Tech (WADH 000001818) on October 16, 1997. October 27, 1997.

Ecology. 1998a. Letter from Elliott Zimmermann, Ecology, to Rich Tieman, Puget Sound Coatings. Re: Notice of Correction. Dangerous waste compliance inspection at Puget Sound Coatings (WAD002838068) on December 18, 1997. January 6, 1998.

Ecology. 1998b. Letter from Dan Wrye, Ecology, to Gary Merlino, Gary Merlino Construction Co. RE: Stormwater Baseline General Permit for Industrial Activity, Permit Number: SO3-003120. January 23, 1998.

Ecology. 1998c. Letter from Ecology to Rory Stevens, Chiyoda International Corporation. Re: Completion of Monitoring, No Further Action Determination, Chiyoda International Corporation Property/KASPAC, 1237 S. Director Street, Seattle, Washington. May 16, 1998.

Ecology. 1998d. Letter from Dean Yasuda, Ecology, to Brent Gathwright, ToxGon. Re: Resource Conservation and Recovery Act (RCRA) Requirements for Closure of the Dangerous Waste Container Storage Unit and Thermal Treatment Unit at the TOXGON Corporation (WAD 061 669 644) located at 631 South 96th Street, Seattle, WA. June 2, 1998.

Ecology. 1998e. Letter from Leslie Morris, Ecology, to Paul Sparks, Professional Coating. Re: Notice of Correction for Professional Coating Inc. (WAD981772247) Dangerous waste compliance inspection on 08/12/98. September 2, 1998.

Ecology. 1999a. Letter from J. David Hohmann, Ecology, to George Cardile, Precision Engineering. Re: Dangerous waste compliance inspection at Precision Engineering, Inc. – 1231 S. Director St, Seattle WA (WAD 041338252) on November 11, 1998. January 28, 1999.

Ecology. 1999b. Letter from Elliott Zimmermann, Ecology, to Jeff Fisher and Tom McKown, Industrial Automation. Re: Notice of Correction. Dangerous waste compliance inspection at Industrial Automation, Inc. (WAR000009068) on February 16, 1999. March 5, 1999.

Ecology. 1999c. Letter from John Lillie, Ecology, to Jay Ayers, Sebco. RE: Independent Remedial Action, Puget Sound Coatings, 9220 8th Avenue South, Seattle, WA. March 30, 1999.

Ecology. 1999d. Letter from John Lillie, Ecology, to George and Jane Human, All-City Auto. Re: Independent Remedial Action, All-City Wrecking - 9438 Des Moines Way South, Seattle, WA. June 24, 1999.

Ecology. 1999e. Hazardous Waste and Toxics Reduction Program Site Visit or Contact Report, Industrial Automation. July 19, 1999.

Ecology. 1999f. Letter from J. David Hohmann, Ecology, to George Cardile, Precision Engineering. Re: 11/12/98 Dangerous waste compliance inspection at Precision Engineering, Inc. – 1231 S. Director St., Seattle WA (WAD 041338252) and 1/28/99 checklist/letter. August 25, 1999.

Ecology. 1999g. Letter from Esperanza Feria, Ecology, to Paul Sparks, Professional Coating. Dangerous Waste Compliance Inspection on August 17, 1999. September 8, 1999.

Ecology. 1999h. Letter from Dean Yasuda, Ecology, to Brent Gathwright, TOXGON Corporation. Re: November 15, 1999 Site Visit. November 29, 1999.

Ecology. 1999i. Hazardous Waste and Toxics Reduction Program Site Visit/Meeting Report, Industrial Automation Inc., 1421 S 93rd Street, Seattle. December 7, 1999.

Ecology. 2000a. Letter from Robert Stone, Ecology, to Brent Gathwright, Toxgon Corp. Re: Dangerous Waste Compliance Inspection at Toxgon RCRA ID# WAD061669644 on 1/26/00. March 1, 2000.

Ecology. 2000b. Letter from Robert Stone, Ecology, to Ken Morehead, Repair Technology, Inc. Re: Dangerous Waste Compliance Inspection at Repair Technology, Inc., RCRA ID# WAH000001818 on February 8, 2000. March 14, 2000.

Ecology. 2000c. Letter from Nnamdi Madakor, Ecology, to Ryan Pleas, KRS Marine. Re: Voluntary Cleanup Program, KRS Maine [sic], 1621 S. 92nd Place, Seattle, WA 98108. TCP I.D. #NW0482. August 17, 2000.

Ecology. 2000d. Global Intermodal Systems - NWRO, S03-001330, Industrial Stormwater General Permit. November 18, 2000. [09154]

Ecology. 2000e. Industrial Stormwater General Permit: Boeing BCAG Training Center - NWRO, #SO3-001009. November 18, 2000.

Ecology. 2000f. Industrial Stormwater General Permit: Pacific Utility Equipment Co – NWRO, #SO3-001901. November 18, 2000.

Ecology. 2000g. Letter from Robert Stone, Ecology, to Eved Owen, Delta Marine Industries. Re: Dangerous Waste Compliance Inspection at Delta Marine Industries, RCRA ID# WAD 052593480 on 11/8/00. December 11, 2000.

Ecology. 2000h. Letter from Ron Devitt, Ecology, to Mike Buckland, Ace Galvanizing. Re: Technical Assistance Visit on December 4, 2000. December 20, 2000.

Ecology. 2001a. Site Visit, TOXGON facility, 631 S. 96th Street, Seattle, WA 98108. January 22, 2001.

Ecology. 2001b. Letter from Robert Stone, Ecology, to James Bellamy, TOXGON Corporation. Re: Dangerous Waste Compliance and Management of D006-Cadmium Wastewater at TOXGON RCRA ID# WAD061669644. February 1, 2001.

Ecology. 2001c. Stormwater Compliance Inspection Report, Delta Marine Industries, NPDES#WAG030091B, 1608 D 96th St, Seattle, WA 98108. March, 2, 2001

Ecology. 2001d. Letter from Tricia Miller, Ecology, to Laurie Pinard, ICON. Modification of the Site Specific Page for Seattle Asphalt Plant #2604. March 2, 2001.

Ecology. 2001e. Letter from Julie Sellick, Ecology, to James Bellamy, TOXGON Corporation. Re: Closure Plan Approval for the Resource Conservation and Recovery Act (RCRA) Interim Status Indoor Dangerous Waste Container Storage Unit (WAD 061 669 644). March 29, 2001.

Ecology. 2001f. Letter from Tricia Miller, Ecology, to Jack Jones, Delta Marine Industries. Re: Notice of Penalty Incurred and Due No. DE 01WQNR-2401 for violation of Condition S2.B.2. April 13, 2001.

Ecology. 2001g. Letter from Tricia Miller, Ecology, to Jack Jones, Delta Marine. Subject: Notice of Disposition of Upon Application for Relief from Penalty, No. DE01WQNR2401. May 24, 2001.

Ecology. 2001h. Stormwater Compliance Inspection Report, Delta Marine Industries, Inc., 1608 S 96th Street, Seattle, WA 98108-5115, NPDES# WAG030091. August 1, 2001.

Ecology. 2001i. Letter from Daniel Cargill, Ecology, to Robert Power, Seattle Commercial Development. Re: Independent Remedial Action, Seattle Commercial Development/10 LLC, former Markey Parcel 4/Holnam Property, 1000 S. 96th Street, Seattle, and Washington. August 10, 2001.

Ecology. 2001j. Letter from Ron Devitt, Ecology, to Warren Beardsley, PSF Mechanical Inc. Re: Request for a Copy of Stormwater Pollution Prevention Plan (SWPPP) by September 7, 2001, as stipulated under the General Stormwater Permit for Industrial Activity. September 7, 2001.

Ecology. 2001k. Letter from Robert Stone, Ecology, to Dean Hutchinson, Puget Sound Coatings. RE: Dangerous Waste Compliance Inspection at Puget Sound Coatings, RCRA ID# WAD002838068 on 9/19/01. September 25, 2001.

Ecology. 2001l. Letter from Melodie Selby, Ecology, to CB Finishing. Re: Request for Stormwater Pollution Prevention Plan - Failure to Respond is a Permit Violation. September 26, 2001.

Ecology. 2002a. Letter from Lisa Perle, Ecology, to James Bellamy, ToxGon Corporation. Re: Dangerous Waste Compliance Inspection at ToxGon Corporation, RCRA ID# WAD061669644 on December 4, 2001. January 11, 2002.

Ecology. 2002b. Letter from Ava Edmonson, Ecology, to Keil Larsen, Teris. RE: Dangerous Waste Compliance Inspection at Teris, RCRA ID# WAH 000 012 351 on March 14, 2002. April 16, 2002.

Ecology. 2002c. Letter from Julie Sellick, Ecology, to James Bellamy, TOXGON Corporation. Re: Ecology Acceptance of Certification of Clean Closure of the RCRA Interim Status Former Thermal Treatment Unit and Indoor/Outdoor Container Storage Units (WAD 061 669 644). August 20, 2002.

Ecology. 2003a. Letter from Melodie Selby, Ecology, to Jean Godwin, Roadway Express. Re: Coverage under the Industrial Stormwater General Permit. January 21, 2003.

Ecology. 2003b. Hazardous Waste & Toxics Reduction Program Compliance Report, Precision Engineering RCRA ID#: WAD041338252, 1231 S. Director. Inspection Date: October 3, 2002. January 25, 2003.

Ecology. 2003c. E-mail from Trevor Deffner, Industrial Automation, to Scott Lamb, Ecology. RE: Pollution Prevention Planning. Transmitted on February 18, 2003.

Ecology. 2003d. Letter from Dean Yasuda, Ecology, to James Bellamy, TOXGON Corporation. Re: ToxGon Corporation (formerly Penberthy Electromelt International) at 631 South 96th Street, Seattle, Washington. June 6, 2003.

Ecology. 2003e. Letter from Julie Sellick, Ecology, to James Bellamy, TOXGON Corporation. Re: Termination of the RCRA Interim Status Permit and Denial of the Final RCRA Permit to Storage Dangerous Wastes for the for the ToxGon Corporation (ToxGon), WAD 061 669 644. August 28, 2003.

Ecology. 2003f. Water Compliance Inspection Report, Ace Galvanizing Inc. 96th St, 429 S. 96th St., Seattle WA 98108-4913. December 12, 2003.

Ecology. 2004a. Lower Duwamish Waterway Source Control Strategy. Publication No. 04-09-043. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. January 2004.

Ecology. 2004b. Letter from Dennis Johnson, Ecology, to Mark Guistino, Delta Marine. Re: Pollution Prevention Planning Documents -- First Notice of Non-Submittal. September 30, 2004.

Ecology. 2005a. Hazardous Waste & Toxics Reduction Program Compliance Report, RCRA ID#: WAD052593480, Delta Marine Industries. January 5, 2005.

Ecology. 2005b. Letter from Warren Walton, Ecology, to Rich Tieman, Puget Sound Coatings. RE: Dangerous Waste Compliance Inspection at Puget Sound Coatings (PSC), RCRA ID# WAD 002 838 068 on December 9, 2004. January 21, 2005.

Ecology. 2005c. Letter from Nancy L. Winters, Ecology, to Raymond Burke, Global Intermodal Systems Inc. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit, Permit Number: SO3-001330, Facility\Site Name: Global Intermodal Systems Inc., Address: 1818 S 93, Seattle, Washington 98108. May 23, 2005.

Ecology. 2005d. Letter from Barbara Smith, Ecology, to Mark Guistino, Delta Marine Industries. Re: Dangerous Waste Compliance Inspection at Delta Marine Industries RCRA ID# WAD052593480 on January 5, 2005. June 9, 2005.

Ecology. 2005e. Letter from Warren Walton, Ecology, to Rich Tieman, Puget Sound Coatings. RE: Dangerous Waste Compliance Inspection at Puget Sound Coatings (PSC), RCRA ID# WAD 002 838 068 on December 9, 2004. June 13, 2005.

Ecology. 2005f. Stormwater Compliance Inspection Report, Delta Marine, 1608 S 96th Street, Seattle, WA 98108, NPDES Permit# WAG030091. September 29, 2005.

Ecology. 2005g. Letter from Dennis Johnson, Ecology, to Mark Guistino, Delta Marine Industries, Inc. Re: Pollution Prevention Planning Document(s) -- First Notice of Non-Submittal. October 4, 2005.

Ecology. 2005h. Letter from Kevin Fitzpatrick, Ecology, to Mark Giustino, Delta Marine Industries. Re: Coverage Under the Boatyard General Permit, Permit Coverage Number: WAG030091; Delta Marine Industries Inc. November 22, 2005.

Ecology. 2005i. Letter from Elliott Zimmermann, Ecology, to Laurie Hill, International Paints. Re: Dangerous waste compliance inspection at International Paints (Seattle) (WAH 000 026 949) on November 29, 2005. December 5, 2005.

Ecology. 2006a. Letter from Nancy L. Winters, Ecology, to George Cardile, Precision Engineering. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit, Permit Number: SO3-001925, Facility\Site Name: Precision Engineering Inc., Address: 1231 S Director St, Seattle, Washington 98108. January 9, 2006.

Ecology. 2006b. Hazardous Waste & Toxics Reduction Program Compliance Report, Precision Engineering RCRA ID#: WAD041338252, 1231 S. Director. Inspection Date: March 1, 2006. March 14, 2006.

Ecology. 2006c. Letter from Elliott Zimmermann, Ecology, to George Cardile, Precision Engineering. RE: Dangerous Waste Compliance Inspection at Precision Engineering (WAD 041 338 252) on March 1, 2006. March 17, 2006.

Ecology. 2006d. Letter from Mark Adams, Ecology, to James Okel, Precision Engineering. Re: Opinion under WAC 173-340-515(5) on Remedial Action for the following Hazardous Waste Site: Name: Precision Engineering, Address: 1231 South Director Street, Seattle, WA 98108, Facility/Site No.: 2056, VCP No.: NW1511. March 27, 2006.

Ecology. 2006e. Letter from Warren Walton, Ecology, to Kevin Lundbery, Teris. RE: Dangerous waste compliance inspection at Teris LLC, RCRA ID # WAH 000 019 661 on May 11, 2006. June 6, 2006.

Ecology. 2006f. Letter from Sally Alexander, Ecology, to Warren Beardsley, PSF Mechanical Inc. RE: Permit Number SO3000264D. June 12, 2006.

Ecology. 2006g. Letter from Bert Ponton, Ecology, to George Cardile, Precision Engineering. Subject: Precision Engineering is no longer required to submit a Pollution Prevention Plan. June 14, 2006.

Ecology. 2006h. Stormwater Compliance Inspection Report, NPDES Permit #: SO3002142D, Puget Sound Coatings. August 11, 2006.

Ecology. 2006i. Hazardous Waste & Toxics Reduction Program Compliance Report, Ace Galvanizing 429 South 96th Street, Seattle, WA 98108. October 12, 2006.

Ecology. 2006j. Letter from Gregory P. Stegman, Ecology, to Mike Buckland, Ace Galvanizing. RE: Non-Compliance with the Industrial Stormwater General Permit No. SO300153 terms and conditions. October 25, 2006.

Ecology. 2007a. Stormwater Compliance Inspection Report, NPDES Permit #: SO30002640, PSF Mechanical Inc. January 5, 2007.

Ecology. 2007b. Boatyard NPDES Inspection Form, Delta Marine, NPDES Permit#WAG-030091C. January 25, 2007.

Ecology. 2007c. Stormwater Compliance Inspection Report, Boeing South Park Facility. April 6, 2007.

Ecology. 2007d. Stormwater Compliance Inspection Report for Selland Auto Transport, Inc., 615 S 96th Street, Seattle, WA. April 23, 2007.

Ecology. 2007e. Stormwater Compliance Inspection Report, Roadway Express, NPDES#SO3004620A, 600 S 96th Street, Seattle, WA 98108. April 26, 2007.

Ecology. 2007f. Stormwater Compliance Inspection Report, Industrial Automation Inc, 1421 S 93rd St, Seattle, WA 98108-5107, NPDES Permit #S03001949D. May 16, 2007.

Ecology. 2007g. Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007. Publication No. 07-09-064. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. July 2007.

Ecology. 2007h. Stormwater Compliance Inspection Report, Pacific Utility Co. (Terex Utilities), NPDES Permit# SO3001901D. July 17, 2007.

Ecology. 2007i. Letter from Kevin Fitzpatrick, Ecology, to Gary Merlino, Gary Merlino Construction Co. RE: Gary Merlino Construction Co., 827 S. Director Street & 920 Barton Street, Seattle, WA 98108. August 16, 2007.

Ecology. 2007j. Letter from Susan Dier, Ecology, to Laurie Hill, International Pain LLC. RE: Dangerous Waste Annual Report visit to International Pain LLC, 1541 S 92nd Place, Suite C, Seattle, on September 18, 2007, RCRA Site ID #: WA000026949. October 10, 2007.

Ecology. 2007k. Letter from Warren Walton, Ecology, to Mark Bowden, Sherwin-Williams. RE: Dangerous Waste Compliance Inspection at Sherwin-Williams #4317 on October 9, 2007 RCRA ID # WAH000013730. October 25, 2007.

Ecology. 2007l. Stormwater Compliance Inspection Report for CB Finishing, Inc. October 26, 2007.

Ecology. 2007m. Stormwater Compliance Inspection Report, ICON Materials Seattle Asphalt. November 6, 2007.

Ecology. 2007n. Letter from Warren Walton, Ecology, to Mark Bowden, Sherwin-Williams. Subject: Dangerous waste compliance inspection at Sherwin-Williams #4317 on October 9, 2007 RCRA ID # WAH000013730. November 9, 2007.

Ecology. 2008a. Letter from Dan Cargill, Ecology, to Nel Halfon, Halfon Candy Co. RE: Early Notice Letter Site # 1557860, Halfon Candy Co, 9229 10th Ave S, Seattle, WA 98108, Tax Parcel #2433700076. January 23, 2008.

Ecology. 2008b. Letter from Michael Jeffers, Ecology, to Glen Wilcox, Industrial Automation Inc. RE: Dangerous Waste Compliance Inspection at Industrial Automation Inc., RCRA ID # WAR00009068 (inactive) on 2/12/2008. February 25, 2008.

Ecology. 2008c. Hazardous Waste & Toxics Reduction Program Compliance Report for Puget Sound Coatings, Inc. March 5, 2008.

Ecology. 2008d. Letter from Michael Jeffers, Ecology, to Drew Rosenfelt, PSF Mechanical Inc. RE: Dangerous Waste Compliance Inspection at PSF Mechanical, Inc., RCRA ID# WAD988497559 (inactive) on March 4, 2008. March 7, 2008.

Ecology. 2008e. Letter from Nancy Winters, Ecology, to Michael Wiater, Terex Utilities. RE: Coverage Under the Industrial Stormwater General Permit, Permit Number: SO3-010446. March 20, 2008.

Ecology. 2008f. Stormwater Compliance Inspection Report, Industrial Automation Inc, 1421 S 93rd St, Seattle, WA 98108-5107, NPDES Permit #S03001949D. March 21, 2008.

Ecology. 2008g. Letter from Michael Jeffers, Ecology, to Glen Wilcox, Industrial Automation Inc. RE: Dangerous Waste Compliance Inspection at Industrial Automation Inc., RCRA ID # WAR00009068 (inactive) on 3/25/2008. March 28, 2008.

Ecology. 2008h. Letter from Robert Wright, Ecology, to Dean Hutchinson, Puget Sound Coatings. RE: Noncompliance with Industrial Stormwater General Permit No. SO3002142 terms and conditions. March 31, 2008.

Ecology. 2008i. Stormwater Compliance Inspection Report for CB Finishing, Inc. April 6, 2008.

Ecology. 2008j. Letter from Nancy Winters, Ecology, to Michael Wiater, Utility Equipment. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit. April 11, 2008.

Ecology. 2008k. Letter from Michael Jeffers, Ecology, to Claud Benson, CB Finishing. RE: Urban Waters Source Control Compliance Inspection at CB Finishing, Inc. on April 8, 2008. April 18, 2008.

Ecology. 2008l. Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008. Publication No. 08-09-063. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. May 2008.

Ecology. 2008m. Letter from Michael Jeffers, Ecology, to Ken Morehead, Repair Technology, Inc. Re: Urban Waters source control compliance inspection at Repair Technology, Inc. on May 28, 2008, EPA ID WAH000001818. June 4, 2008.

Ecology. 2008n. Letter from Warren Walton, Ecology, to Dean Hutchinson, Puget Sound Coatings. RE: Dangerous compliance inspection at Puget Sound Coatings, Inc. on February 13, 2008, RCRA ID # WAD002838068. June 9, 2008.

Ecology. 2008o. Letter from Michael Jeffers, Ecology, to Bruce O'Neal, Pacific Industrial Supply Co, Inc. RE: Urban Waters source control compliance inspection at Pacific Industrial Supply Inc. on June 5, 2008. June 11, 2008.

Ecology. 2008p. Source Control Checklist Version 1, King Electric Mfg. Co. July 8, 2008.

Ecology. 2008q. Letter from Gregory Stegman, Ecology, to Drew Rosenfelt, PSF Mechanical Inc. RE: Non-Compliance with the Industrial Stormwater General Permit No. SO300246 terms and conditions. July 10, 2008.

Ecology. 2008r. Letter from Michael Jeffers, Ecology, to Joe Pena, Diamond Painting LLC. RE: Results from the Urban Waters Environmental Compliance Inspection at Diamond Painting LLC on 7/8/2008: Corrective action required. July 11, 2008.

Ecology. 2008s. Letter from Michael Jeffers, Ecology, RJ Wilson, King Electrical Manufacturing Co. RE: Results from the Urban Waters Environmental Compliance Inspection at King Electrical Mfg. Co. on July 8, 2008: Corrective action required. July 11, 2008.

Ecology. 2008t. Letter from Michael Jeffers, Ecology, to Bruce O'Neal, Pacific Industrial Supply Co, Inc. RE: Results from the Urban Waters Environmental Compliance Inspection at Pacific Industrial Supply Co., Inc, on June 5, 2008. July 22, 2008.

Ecology. 2008u. Re: Urban Waters source control follow-up compliance inspection at Repair Technology, Inc. on July 2, 2008, EPA ID WAH000001818. July 28, 2008.

Ecology. 2008v. Source Control Checklist for Allied Body Works, Inc., 625 S 96th Street, Seattle, WA. August 26, 2008.

Ecology. 2008w. Lower Duwamish Waterway Urban Waters Initiative Source Control Inspection Report, King Electrical Manufacturing Co. August 27, 2008.

Ecology. 2008x. Letter from Michael Jeffers, Ecology, to Joe Pena, Diamond Painting LLC. RE: Results from the Urban Waters Environmental Compliance follow-up Inspection at Diamond Painting LLC on August 13, 2008. August 28, 2008.

Ecology. 2008y. Letter from Michael Jeffers, Ecology, to Rich Minice, Allied Body Works, Inc. Re: Results from the Urban Waters Environmental Compliance Inspection at Allied Body Works, Inc. on August 26, 2008: Corrective action required. September 3, 2008.

Ecology. 2008z. Letter from Michael Jeffers, Ecology, to RJ Wilson, King Electrical Mfg Co. RE: Results from the Urban Waters Environmental Compliance follow-up inspection at King Electrical Mfg. Co. on August 27, 2008: Corrective action required. September 10, 2008.

Ecology. 2008aa. Letter from Susan Dier, Ecology, to Pete Richards, Progressive Fastening Inc. RE: Dangerous Waste Annual Report visit to Progressive Fastening Inc., 837 South Director Street, Seattle, WA on August 27, 2008, RCRA Site ID #: WAH000032052. September 16, 2008.

Ecology. 2008ab. Letter from Michael Jeffers, Ecology, to Steve Klem, Colorgraphics. RE: Results from the Urban Waters Environmental Compliance Inspection at Colorgraphics on September 9, 2008: Corrective Action Required. September 17, 2008.

Ecology. 2008ac. Lower Duwamish Waterway Source Control Status Report, April 2008 to August 2008. Publication No. 08-09-068. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. October 2008.

Ecology. 2008ad. Letter from Michael Jeffers, to Rich Minice, Allied Body Works, Inc. Re: Urban Waters Environmental Compliance Inspection follow-up at Allied Body Works, Inc. on October 8, 2008. October 14, 2008.

Ecology. 2008ae. Stormwater Compliance Inspection Report, King Electrical Manufacturing Co., No Permit. November 4, 2008.

Ecology. 2008af. Stormwater Compliance Inspection Report, Gary Merlino Construction Company, NPDES Permit #SO3-003120C. December 4, 2008.

Ecology. 2008ag. Letter from Michael Jeffers, Ecology, to John Webster, Qual-Fab Inc. RE: Results from the Urban Waters Environmental Compliance source control inspection at Qual-Fab Inc on December 10, 2008. December 12, 2008.

Ecology. 2008ah. Letter from Barbara Smith, Ecology, to RJ Wilson, King Electrical Manufacturing. RE: Dangerous Waste Compliance Inspection at King Electrical Manufacturing RCRA ID # WAH000033636 on October 16, 2008 and October 17, 2008. December 12, 2008.

Ecology. 2008ai. Letter from Kevin Fitzpatrick, Ecology, to RJ Wilson, King Electrical Manufacturing Co. RE: Notice of Penalty Incurred and Due No. 6235. December 12, 2008.

Ecology. 2008aj. Letter from Barbara Smith, Ecology, to RJ Wilson, King Electrical Manufacturing. RE: Dangerous Waste Compliance Inspection at King Electrical Manufacturing RCRA ID # WAH000033636 on October 16, 2008 and October 17, 2008. December 12, 2008.

Ecology. 2008ak. Letter from Michael Jeffers, Ecology, to Jerry Koepping, Koepping & Koepping. RE: Results from the Urban Waters Environmental Compliance source control inspection at Koepping & Koepping on December 10, 2008: Corrective action required. December 17, 2008.

Ecology. 2008al. Letter from Michael Jeffers, Ecology, to Glen Wooldridge, Wooldridge Boats. Re: Results from the Urban Waters Environmental Compliance source control inspection at Wooldridge Boats Inc. on December 4, 2008: Corrective action required. December 22, 2008.

Ecology. 2008am. Boatyard General Permit Inspection Report, Delta Marine Industries, 1608 S 96th Street, Seattle, WA 98108, WAG030091C. December 30, 2008.

Ecology. 2009a. Stormwater Compliance Inspection Report, Western Ports Transportation, Inc. January 7, 2009.

Ecology. 2009b. Letter from Robert Wright, Ecology, to Dan Raymond, Gary Merlino Construction Company. RE: Warning Letter - Noncompliance with Industrial Stormwater General Permit No. SO3-003120C, terms and conditions. January 16, 2009.

Ecology. 2009c. Letter from Michael Jeffers, Ecology, to Jerry Koepping, Koepping & Koepping. RE: Results from the Urban Waters Environmental Compliance Inspection at Northwest Connecting Rod on December 10, 2008. February 3, 2009.

Ecology. 2009d. Letter from Michael Jeffers, Ecology, to Gerry Burke, Custom Metal Spinning LLC. RE: Results from the Urban Waters Environmental Compliance Inspection at Custom Metal Spinning LLC on January 26, 2009: Corrective action required. February 3, 2009.

Ecology. 2009e. Letter from Michael Jeffers, Ecology, to Glen Wooldridge, Wooldridge Boats. Re: Results from the Urban Waters Environmental Compliance source control inspection at Wooldridge Boats Inc. on February 4, 2009. February 5, 2009.

Ecology. 2009f. Letter from Michaels Jeffers, Ecology, to Gerry Burke, Custom Metal Spinning LLC. February 12, 2009.

Ecology. 2009g. Letter from Kevin Fitzpatrick, Ecology, to RJ Wilson, King Electrical. RE: Notice of Disposition Upon Application for Relief From Penalty From Penalty number 6235. March 6, 2009.

Ecology. 2009h. Letter from Michael Jeffers, Ecology, to Kevin Gracey, RMC, Inc. Re: Results from the Urban Waters Environmental Compliance inspection at RMC Inc on March 10, 2009: Corrective action required. March 16, 2009.

Ecology 2009i. Letter from Rachel Best, Ecology, to Mark Giustino, Delta Marine Industries. Re: Hazardous Waste Inspection on February 24, 2009 at Delta Marine Industries RCRA ID#: WAD052593480. March 19, 2009.

Ecology. 2009j. Source Control Checklist for Allied Body Works, Inc., 625 S 96th Street, Seattle, WA. March 25, 2009.

Ecology. 2009k. Letter from Barbara Smith, Ecology, to Dean Wilson, King Electrical Manufacturing. RE: Dangerous Waste Compliance Inspection at King Electrical Manufacturing RCRA ID# WAH000033636 on March 17, 2009. April 7, 2009.

Ecology. 2009l. Letter from Mike Jeffers, Ecology, to Don Robertson, Gary Merlino Construction. RE: Results from the Urban Waters Environmental Compliance follow-up inspection at Gary Merlino Construction Co, Inc conducted on April 15, 2009. April 17, 2009.

Ecology. 2009m. Letter from Michael Jeffers, Ecology, to Pete Richards, Progressive Fastening Inc. RE: Urban Waters Environmental Compliance Inspection at Progressive Fastening Inc on January 26, 2009. April 22, 2009.

Ecology. 2009n. Letter from Kevin Fitzpatrick, Ecology, to Hugh La Bossier, Puget Sound Coatings. RE: 9220 8th Avenue South, Seattle, WA 98108-4608. April 24, 2009.

Ecology. 2009o. Periodic Review, All-City Wrecking, Facility Site ID#: 22342251. June 2009.

Ecology. 2009p. Letter from Michael Jeffers, Ecology, to Kevin Gracey, RMC, Inc. Re: Results from the Urban Waters Environmental Compliance inspection at RMC Inc on July 7, 2009. July 9, 2009.

Ecology. 2009q. Letter from Barbara Smith, Ecology, to Dean Wilson, King Electrical Manufacturing. RE: Follow-up on Dangerous Waste Compliance Inspection at King Electrical Manufacturing RCRA ID# WAH000033636 on March 17, 2009. July 15, 2009.

Ecology. 2009r. Letter from Barbara Smith, Ecology, to Dean Wilson, King Electrical. RE: Dangerous Waste Compliance Inspection at King Electrical Manufacturing on March 17, 2009 RCRA ID# WAH000033636. August 20, 2009.

Ecology. 2009s. Boatyard General Permit Inspection Report, Delta Marine Industries, 1608 S 96th Street, Seattle, WA 98108. November 19, 2009.

Ecology. 2009t. Letter from David Misko, Ecology, to Travis Forslund, NRC Environmental Services. RE: Dangerous Waste Compliance Inspection on October 28, 2009 at NRC Environmental Services, RCRA ID#: WAH 000 019 661. November 30, 2009.

Ecology. 2010a. Letter from Warren Walton, Ecology, to Ken Morehead, Repair Technology, Inc. Re: Dangerous Waste Compliance Inspection on February 11, 2010 at Repair Technology Inc. RCRA Site ID#: WAH000001818. March 3, 2010.

Ecology. 2010b. Atomic Fabrications Source Control Checklist, Version 1. March 16, 2010.

Ecology. 2010c. Letter from Donovan Gray, Ecology, to Patrick Speleers, Atomic Fabrications LLC. RE: Results from the Urban Waters Environmental Compliance Inspection at Atomic Fabrication LLC on March 16, 2010: Corrective action required. March 30, 2010.

Ecology. 2010d. Re: Dangerous waste compliance inspection at Repair Technology Inc, 400 S 96th in Seattle on February 11, 2010, RCRA ID # WAH000001818. April 2, 2010.

Ecology. 2010e. Letter from Kevin Fitzpatrick, Ecology, to Tom Bridgham, Selland Auto Transport. Re: Notice of Penalty Incurred and Due No. 7700. May 14, 2010.

Ecology. 2010f. Letter from Donovan Gray, Ecology, to Pat Robinson, Allied Body Works, Inc. Re: Results from the Urban Waters Environmental Compliance Inspection at Allied Body Works Inc. on April 20, 2010: Corrective action required. May 17, 2010.

Ecology. 2010g. News Release: Duwamish Valley trucking firm fined for violating stormwater permit. May 24, 2010.

Ecology. 2010h. Water Quality Program Corrections Required, ICON Materials. May 25, 2010.

Ecology. 2010i. Water Quality Program Corrections Required, Western Ports Containers, LLC. May 25, 2010.

Ecology. 2010j. Letter from Susan Dier, Ecology, to Anthony Boulis, Sherwin-Williams. RE: Dangerous Waste Compliance Inspection on May 25, 2010 at Sherwin Williams Store 4317, RCRA Site ID#: WAH000013730. June 3, 2010.

Ecology. 2010k. Letter from Donovan Gray, Ecology to Patrick Speleers, Atomic Fabrications LLC. RE: Notification Compliance Achieved. June 21, 2010.

Ecology. 2010l. Stormwater Compliance Inspection Report, Architectural Stonewerkes, 429 ½ S. 96th Street, Seattle, WA 98108. July 20, 2010.

Ecology. 2010m. Water Quality Program Corrections Required for Allied Body Works, 625 S 96th Street, Seattle, WA. July 20, 2010.

Ecology. 2010n. Notice of Disposition Upon Application for Relief from Penalty number 7700. July 20, 2010.

Ecology. 2010o. PARIS Data Entry Router - Industrial Stormwater Survey (GMAP), Western Ports Transportation. July 27, 2010.

Ecology. 2010p. Letter from Robert Wright, Ecology, to Drew Rosenfelt, PSF Mechanical. RE: Warning Letter - Noncompliance with Industrial Stormwater General Permit No. WAR000264 terms and conditions. August 2, 2010.

Ecology. 2010q. Letter from Susan Dier, Ecology, to Anthony Boulis, Sherwin-Williams. RE: Dangerous Waste Compliance Inspection on May 25, 2010 at Sherwin Williams Store 4317, RCRA Site ID#: WAH000013730. August 27, 2010.

Ecology. 2010r. Letter from Donovan Gray, Ecology, to Tiffany Gallo, NRCES. RE: Results from the Urban Waters Environmental Compliance Inspection at NRC Environmental Services INC., RCRA ID# WAH000019661, on August 26, 2010: Corrective Action Required. October 18, 2010.

Ecology. 2010s. Letter from Bill Moore, Ecology, to Michael Water, Terex Utilities. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit, Permit Number: WAR010446, Facility/Site Name: Terex Utilities. October 29, 2010.

Ecology. 2010t. Letter from Donovan Gray, Ecology, to Pat Robinson, Allied Body Works, Inc. Re: Notification Compliance Achieved. November 10, 2010.

Ecology. 2010u. Letter from Donovan Gray, Ecology, to Chuck Carlson, Halfon Candy Company. RE: Notification Facility in Compliance. November 29, 2010.

Ecology. 2010v. Letter from Donovan Gray, Ecology, to Barb Meadows, Filterfresh Coffee Service, Inc. RE: Results from the Urban Waters Environmental Compliance Inspection at Filterfresh Coffee Services, Inc. on November 10, 2010: Corrective action required. November 30, 2010.

Ecology. 2010w. Letter from Donovan Gray, Ecology, to Barb Meadows, Filterfresh Coffee Service. RE: Notification Compliance Achieved. December 22, 2010.

Ecology. 2010x. Stormwater Compliance Inspection Report, Boeing South Park, NPDES#WAR001009, 1420 S Trenton Street, Seattle, WA 98032. December 22, 2010.

Ecology. 2011a. Letter from Donovan Gray, Ecology, to Tiffany Gallo, NRCES. RE: Notification Compliance Achieved. January 14, 2011.

Ecology. 2011b. Letter from Bill Moore, Ecology, to Nancy Brend, Industrial Automation Inc. Re: Administrative Order, Notice of Penalty. January 18, 2011.

Ecology. 2011c. Letter from Bill Moore, Ecology, to Delta Marine Industries. Re: Issuance of the State of Washington's Boatyard General Permit. March 2, 2011.

Ecology. 2011d. Letter from Donovan Gray, Ecology, to Anthony Boulis, Sherwin Williams. RE: Results from the Urban Waters Environmental Compliance Inspection at Sherwin Williams Company on February 17, 2011: Corrective Action Required. March 25, 2011.

Ecology. 2011e. Letter from Donovan Gray, Ecology, to David Skorupa, Aero-Lac, Inc. Re: Results from the Urban Waters Environmental Compliance Inspections at Aero-lac, Inc. on February 17, 2011: Corrective action required. March 25, 2011.

Ecology. 2011f. Letter from Susan Dier, Ecology, to Dean Hutchinson, Puget Sound Coatings. RE: Dangerous Waste Compliance Inspection at Puget Sound Coatings Machinists, Inc. on March 24, 2010 - RCRA ID: WAD002838068. April 7, 2011.

Ecology. 2011g. Letter from Warren Walton, Ecology, to Dean Wilson, King Electrical. RE: Immediate Action Required, Dangerous Waste Compliance Inspection at King Electrical Manufacturing Company, RCRA ID #: WAH-000033636 on April 13, 2011. April 14, 2011.

Ecology. 2011h. Letter from Warren Walton, Ecology, to Dean Wilson, King Electrical. RE: Dangerous Waste Compliance Inspection on April 13, 2011 at King Electrical Mfg. Co - RCRA ID#: WAH000033636. April 21, 2011.

Ecology. 2011i. Ecology Intranet, Turbowaste.net: Site Profile for NRC Environmental Services, 9520 10th Ave S, Ste 150, Seattle. April 28, 2011.

Ecology. 2011j. Letter from Donovan Gray, Ecology, to David Skorupa, Aero-Lac, Inc. Re: Notification Compliance Achieved. May 16, 2011.

Ecology. 2011k. Letter from Donovan Gray, Ecology, to Bruce O'Neal, Pacific Industrial Supply. RE: Results from the Urban Waters Environmental Compliance Inspection at Pacific Industrial Supply on May 10, 2011. Corrective action required. May 18, 2011.

Ecology. 2011l. Letter from Donovan Gray, Ecology, to Anthony Boulis, Sherwin Williams Company. RE: Notification Compliance Achieved. May 23, 2011.

Ecology. 2011m. Letter from Warren Walton, Ecology, to Travis Forslund, NRCES. RE: Dangerous Waste Compliance Inspection on April 21, 2011 at NRC Environmental Service RCRA Site ID #: WAH000019661. May 24, 2011.

Ecology. 2011n. Letter from Donovan Gray, Ecology, to Kent Hake, Avidex Industries, LLC. RE: Results from the Urban Waters Environmental Compliance Inspection at Avidex Industries, LLC on May 18, 2011: Corrective action required. May 27, 2011.

Ecology. 2011o. Letter from Donovan Gray, Ecology, to Rich Imus, Atacs Products. RE: Results from the Urban Waters Environmental Compliance Inspection at Atacs Products, Inc on May 18, 2011: Corrective action required. May 27, 2011.

Ecology. 2011p. Letter from Donovan Gray, Ecology, to Jimmy Blais, Gary Merlino Construction Co. RE: Results from the Urban Waters Environmental Compliance Inspection at Gary Merlino Construction Co on May 18, 2011: Corrective action required. June 8, 2011.

Ecology. 2011q. Letter from Warren Walton, Ecology, to Dean Wilson, King Electrical. RE: Dangerous Waste Compliance Inspection on April 13, 2011 at King Electrical Mfg. Co - RCRA ID#: WAH000033636. June 23, 2011.

Ecology. 2011r. Letter from Susan Dier, Ecology, to Matt Carey, Puget Sound Coatings Machinists. RE: Dangerous waste compliance inspection at Puget Sound Coatings Machinists, Inc., 9220 8th Ave S Seattle, WA 98108-4608 on March 24, 2011, RCRA ID: WAD001838068. June 29, 2011.

Ecology. 2011s. Letter from Mark Adams, Ecology, to James Okel, Precision Engineering. Re: Opinion under WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site: Name: Precision Engineering, Address: 1231 South Director Street, Seattle, WA 98108, Facility/Site No.: 2056, VCP No.: NW1511. July 8, 2011.

Ecology. 2011t. Letter from Donovan Gray, Ecology, to Jimmy Blais, Gary Merlino Construction Co. RE: Results from the Urban Waters Environmental Compliance Inspection at Gary Merlino Construction Co on July 14, 2011: Corrective action required. - referred to Department of Ecology's Water Quality Program. July 27, 2011.

Ecology. 2011u. Lower Duwamish Waterway Source Control Status Report, July 2009 through September 2010. Publication No. 11-09-169. Prepared by Washington Stated Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. August 2011.

Ecology. 2011v. Letter from Donovan Gray, Ecology, to Kent Hake, Avidex Industries, LLC. RE: Notification Compliance Achieved. August 30, 2011.

Ecology. 2011w. Letter from Donovan Gray, Ecology, to Bruce O'Neal, Pacific Industrial Supply. Re: Notification Compliance Achieved. September 6, 2011. [09180]

Ecology. 2011x. Letter from Donovan Gray, Ecology, to Rich Imus, Atacs Products. RE: Notification Compliance Achieved. September 7, 2011.

Ecology. 2011y. Site Visit Report for Atacs Products. November 10, 2011.

Ecology. 2011z. Letter from Bill Moore, Ecology, to Warren Beardsley, PSF Mechanical Inc. RE: Request for Modification of Permit Coverage, Level 3 Time Extension PSF Mechanical, Inc., Industrial Stormwater General Permit No. WAR000264. November 23, 2011.

Ecology. 2012a. Letter from Daylin Davidson, Ecology, to Loren McConnell, Ace Galvanizing. RE: Dangerous Waste Compliance Inspection on January 24, 2012 at Ace Galvanizing Inc, RCRA ID#: WAD009286881. January 27, 2012.

Ecology. 2012b. Water Quality Program Corrections Required, Absolute German, 9510 14th Ave S, Seattle, WA 98108. Permit #: WAR125038. February 1, 2012.

Ecology. 2012c. Letter from Russell Olsen, Ecology, to Property Owner, MA Segale. Re: No Further Action (NFA) Determination associated with Leaking Underground Storage Tank (LUST) Site: MA Segale, Inc. February 13, 2012.

Ecology. 2012d. Letter from Daylin Davidson, Ecology, to Loren McConnell, Ace Galvanizing. RE: Dangerous Waste Compliance Inspection on January 24, 2012 at Ace Galvanizing Inc, RCRA ID#: WAD009286881. March 26, 2012.

Ecology. 2012e. Letter from Russell E. Olsen, Ecology, to Property Owner, Sunnyvale Construction Co., Inc. RE: No Further Action (NFA) Determination associated with Leaking Underground Storage Tank (LUST) Site: Site Name: Sunnydale Construction Co. Inc., Property Address: 1119 S 96th, Seattle, WA 98108, Facility/Site No.: 48248356, LUST ID: 417097. April 23, 2012.

Ecology. 2012f. Industrial Stormwater General Permit Inspection Report, Ace Galvanizing Inc., 429 S 96th Street, Seattle, WA 98108. May 10, 2012.

Ecology. 2012g. Letter from Daniel Cargill, Ecology, to Eugene McCarthy, Seattle Commercial Development. Re: Independent Remedial Action, Seattle Commercial Development/10 LLC, former Markey Parcel 4/Holname Property, 9520 10th Ave. S., Seattle, WA, Parcel 5624200150. June 6, 2012.

Ecology. 2012h. Lower Duwamish Waterway Source Control Status Report, October 2010 through December 2011. Publication No. 12-09-131. Prepared by Washington Stated Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. July 2012.

Ecology. 2012i. Letter from Bill Moore, Ecology, to Dennis O'Donoghue, The Boeing Company. RE: Conditional No Exposure Certification Request Application Number 73. October 4, 2012.

Ecology. 2012j. Letter from Bill Moore, Ecology, to Dennis O'Donoghue, The Boeing Company. RE: Administrative Order for Modification of Permit Coverage, Level 2 and 3 waiver and time extensions, Boeing Company, South Par; Industrial Stormwater Permit, number WAR001009. November 13, 2012.

Ecology. 2013a. Stormwater Compliance Inspection Report for RMC, Inc., 10766 Myers Way S, Seattle, WA. January 8, 2013.

Ecology. 2013b. Lower Duwamish Waterway Source Control Status Report, January 2012 through December 2012. DRAFT. Prepared by Washington Stated Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. April 2013.

EMCON. 1995a. Fax Transmittal of Ground Water Analytical Results from Mike Staton, to Louise Bardy. RE: Chiyoda Site. June 20, 1995.

EMCON. 1995b. Independent Remedial Action Report, Chiyoda International Corporation Property, Seattle, Washington. November 14, 1995.

EMCON. 1995c. Letter from Michael Staton and Linda Dawson, EMCON, to Elaine Atkinson, Ecology. Re: Independent Remedial Action Report, Chiyoda International Corporation Property, 1237 South Director Street, Seattle, Washington. November 20, 1995.

EMCON. 1996. Letter from Michael Staton and Linda Dawson, EMCON, to Dave Nazy, Ecology. Re: Addendum to Independent Remedial Action Report, Chiyoda International Corporation Property, 1237 South Director Street, Seattle, Washington. September 9, 1996.

EMCON. 1997. Letter from Michael Staton, EMCON, to Dave Nazy, Ecology. Re: Additional Soil Remediation Activities Report, Chiyoda International Corporation Property, 1237 South Director Street, Seattle, Washington. January 28, 1997.

EMCON. 1998. Fax of Letter from Michael Staton, Emcon, to Dave Nazy, Ecology. Re: Additional Groundwater Sampling Report, Chiyoda International Corporation Property, Seattle, Washington. March 4, 1998.

EPA and Ecology. 2002. Lower Duwamish Waterway Site Memorandum of Understanding between the United States Environmental Protection Agency and the Washington State Department of Ecology. April 2002.

EPA and Ecology. 2004. Lower Duwamish Waterway Site Memorandum of Understanding between the United States Environmental Protection Agency and the Washington State Department of Ecology. April 2004.

ERC (Environmental Regulatory Compliance). 1988. Letter from Peter Pedone, ERC, to Lee Dorigan, Ecology. September 26, 1988.

Exponent. 1998. Phase 1 Site Characterization. March 26, 1998.

Filterfresh. 2010. Compliance Certificate for Filterfresh Coffee Service, Inc., for Date of Visit: November 10, 2010. December 9, 2010.

Fischer. 1999. Email from Bruce Fischer, Terrasolve, to Al Armstrong, Ecology. Re: Selland Auto Transport. April 28, 1999.

Floyd Snyder. 1999a. Voluntary Cleanup Action Plan, All-City Auto Wrecking, King County, Washington. March 18, 1999.

Floyd Snyder. 1999b. VCP Site Closure Report, All City Auto Wrecking, King County, Washington. May 27, 1999.

Fruehauf (Fruehauf Trailer Services). 1967. Letter from C. Jorgensen, Fruehauf, to J.C. Christiansen, Washington State Pollution Control Commission. Re: Waste Discharge Permit No. 1689, Expiration Date April 23, 1967. January 31, 1967.

Galloway (Galloway Environmental, Inc.). 2002. Letter from Gary Galloway, Galloway Environmental, Inc. to Lisa Perle, Ecology. Re: Compliance Report - ToxGon/Former Penberthy Site, Seattle, WA, RCRA ID# - WAD061669644, 631 S. 96th Street, Seattle, WA 98108. April 10, 2002.

GeoEngineers. 1989a. Environmental Site Assessment, Cement Kiln Dust Landfill, Markey Machinery Property, Seattle, Washington for Helsell, Fetterman, Martin, Todd & Hokanson. August 16, 1989.

GeoEngineers. 1989b. Report, Phase 1 Environmental Site Assessment and Underground Storage Tank Removal, Property Located at 1237 South Director Street, Seattle, Washington, for Chiyoda International Corporation. October 18, 1989.

GeoEngineers. 1990. Environmental Sampling Report, Upper Fill, Proposed Parcel 4, South 96th Street and 10th Avenue South for Helsell, Fetterman, Martin, Todd & Hokanson. June 13, 1990.

GeoEngineers. 1991. Report of Remedial Action: Underground Storage Tank Removal, M. A. Segale Asphalt Plant, Seattle, Washington. April 17, 1991.

GeoEngineers. 1992. Progress Report of Remedial Action Diesel Tank Remedial Excavation, Puget Sound Coatings Property, Seattle, Washington for SEBCO, Inc. November 2, 1992.

GeoEngineers. 1993a. Report of Remedial Action, Protective Coating Release, Puget Sound Coatings Property, Seattle, Washington for SEBCO, Inc. February 17, 1993.

GeoEngineers. 1993b. Results of Site Characterization Activities, Puget Sound Coatings Property, Seattle, Washington, for Sebco, Inc. March 19, 1993.

GeoEngineers. 1998. Phase 1 Environmental Site Assessment Report, Puget Sound Coatings and PacRim Properties, Seattle, Washington, for Sebco, Inc. March 2, 1998.

GeoEngineers. 1999. Results of Ground Water Sampling, December 1998, Puget Sound Coatings Property, 9220 8th Avenue South, Seattle, Washington, for Sebco, Inc. February 1, 1999.

Giustino. 2005. Washington State Department of Ecology, Compliance Certificate, NPDES#WAD052593480, Inspection Date: January 5, 2005. May 11, 2005.

Giustino. 2009. Hazardous Waste and Toxic Reduction Program Compliance Certificate, Delta Marine Industries. June 30, 2009.

Global Intermodal. 1996. Stormwater Pollution Prevent Plan, Global Intermodal Systems (Formerly ITEL Terminals) 1818 South 93rd Street, Seattle, Washington 98108. February 2, 1996.

Gray, Donovan. 2010. Hazardous Waste and Toxics Reduction - Northwest Regional Office Monthly Report, January-September 2010. October 2010.

Gray, Donovan. 2011. Email from Donovan Gray to Michael Jeffers et al., Ecology. Subject: RE: Show Quality Metal Finishing. May 26, 2011.

Hamner. 1992. Water Reduction, recycling, and Litter Control Program Site Visit or Contact Report for Delta Marine Industries, Inc. August 5, 1992.

Hamner. 1993. Executive Summary Adequacy Review Checklist. Revision Reviewed April 2, 1993. [08969]Hart Crowser. 1996. Environmental Study and Remedial Action Evaluation Holnam - Markey Property, Seattle, Washington, Prepared for Holnam Inc. October 28, 1996.

Hart Crowser. 2012. Lower Duwamish Waterway, Bank Sampling Summary Report, Seattle, Washington. Prepared for Washington State Department of Ecology. March 13, 2012.

Harter and Rollins (Thomas Harter and Larry Rollins). 2008. Watersheds, Groundwater and Drinking Water: A Practical Guide. University of California (System) Division of Agriculture and Natural Resources. 2008.

Herrera (Herrera Environmental Consultants). 1994. South 96th Street Water Quality Engineering Report, Nonpoint Source Pollution Controls for the Hamm Creek Watershed. Prepared by Herrera Environmental Consultants for King County Surface Water Management Division. April 1994.

HFMTH (Helsell, Fetterman, Martin, Todd & Hokanson). 1992. Letter from Danford Henke, HFMTH, to Michael Gallagher, Ecology. Re: Markey Machinery Co., Inc. - South 96th Street and 10th Avenue South Site. August 21, 1992.

Hong West (Hong West and Associates, Inc.). 1995. South 96th Street Soil, Sediment, and Groundwater Quality Assessment and Supplemental Geotechnical Study, Draft Final Report. Prepared by Hong West and Associates, Inc. for TAMS Consultants, Inc. January 19, 1995.

Hurley, James P. 2000. Letter from James P. Hurley, James P Hurley Co., to Joe Hickey, Ecology. Subject: Voluntary Cleanup Program Submission, Hydraulic Oil Contaminated Soil Cleanup Project, KRS marine at 1621 South 92nd Place, Seattle, Washington. May 23, 2000.

ICON Materials. 2001. Letter from Laurie Pinard, ICON, to John Drabek, Ecology. Re: NPDES Discharge Permit No. WAG 50-3282, Seattle Asphalt Plant, Plant #2604, 115 South 96th Street, Seattle, WA. February 12, 2001.

ICON Materials. 2006. King County Maintenance Corrections List, completed by Jeffry Wright, ICON Materials. December 6, 2006

ICON Materials. 2010. Stormwater Pollution Prevention Plan (SWPPP), Spill Prevention, Control, and Countermeasures Plan (SPCCP), and Spill Response Plan (SRP): ICON Materials. June 25, 2010.

Industrial Automation (Industrial Automation Inc.). 1999. Letter from Dianne Hamilton, Industrial Automation, to Elliott Zimmermann, Ecology. Subject: Notice of Correction Response (WAR 000009068). April 16, 1999.

Industrial Automation. 2011. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-001949, Industrial Automation, Inc., King County. May 13, 2011.

Industrial Automation. 2012a. Stormwater Pollution Prevention Plan (SWPPP) for Industrial Automation, Inc., Permit No. WAR001949. Updated February 1, 2012.

Industrial Automation. 2012b. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR001949, Industrial Automation, King County. May 17, 2012.

ITEL Terminals. 1993. Notice of Intent For Baseline General Permit to Discharge Storm Water Associated with Industrial Activity. June, 2, 1993.

Jeffers, Mike. 2008a. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC, and Sarah Good, Ecology. Update from Ecology's HWTR LDW inspector - March. April 16, 2008.

Jeffers, Mike. 2008b. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC, and Sarah Good, Ecology. RE: Update from Ecology's HWTR LDW inspector August 2008. September 4, 2008.

Jeffers, Mike. 2008c. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC. RE: Update from Ecology's HWTR LDW inspector October 2008. December 1, 2008.

Jeffers, Mike. 2009a. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC, and Sarah Good, Ecology. Update from Ecology's HWTR LDW inspector. March 9, 2009.

Jeffers, Mike. 2009b. Notes from meeting/inspection with Gary Merlino and Don Robertson, Merlino Construction. April 15, 2009.

Jeffers, Mike. 2009c. Email from Michael Jeffers, Ecology, to Ryan Gracey, RMC, Inc. Re: Ecology guidance information. June 1, 2009.

Jeffers, Mike. 2009d. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC, and Sarah Good, Ecology. Update from Ecology's HWTR LDW inspector. July 22, 2009.

Kaspac. 1989. Letter from Carole Pearsall, Kaspac, to Barbara Trejo, Ecology, with copies of the Bill of Lading and Manifest for the disposal of the oil and dirt. Re: Letter of April 25, 1989. May 12, 1989.

King County. 1991. Letter from Ole Olsen, King County, to Theodore Norman, Norman Property. Re: Underground Tanks; 11603 Tenth Avenue South. February 12, 1991.

King County. 1994a. Letter from Curt Crawford, King County, to Richard Minice, Allied Body Works. Re: King County Water Quality Complaint 93-1044. January 13, 1994.

King County. 1994b. Letter from Curt Crawford, King County, to Dave Lichtenfels, Selland Auto Transport. Re: Notice of King County Water Quality Violation - SWM-DIR 93-1041. January 19, 1994.

King County. 1994c. King County Surface Water Management Division. Sea King Industrial Park Drainage Investigation file. April 15, 1994.

King County. 1994d. Surface Water Management Division, Drainage Investigation Report, Ace Galvanizing, 419 & 429 S 96 St. August 16, 1994.

King County. 1994e. Letter from Curt Crawford, King County, to Larry de Teurenne, Selland Auto Transport. Re: Release of King County Water Quality Violation - SWM-DIR 93-1041. September 27, 1994.

King County. 1996a. South 96th Street Groundwater Assessment: Landuse, Contaminants, and Subsurface Soils. March 1996.

King County. 1996b. Letter from Curt Crawford, King County, to Donald Hurst, PSF Mechanical Inc. RE: Water Quality Site Consultation 96-0580. March 12, 1996.

King County. 1996c. Letter from Curt Crawford, King County, to Larry de Teurenne, Selland Auto Transport. Re: Best Management Practices (BMPs) - Implementation SWM 95-0437. April 5, 1996.

King County. 1996d. Letter from Rey Verduzco, King County, to Larry de Teurenne, Selland Auto Transport. Re: Follow-up for site visit. April 12, 1996.

King County. 1997a. Drainage Investigation Report - Investigation Request, Merlino Construction (Vacant Property). June 25, 1997.

King County. 1997b. Letter from Kate Rhoads, King County, to Rich Minice, Allied Body Works, Inc. Re: King County Water Quality Site Consultation 93-1044. October 30, 1997.

King County. 1998a. Drainage Investigation Report - Investigation Request, Tukwila Roofing. April 6, 1998.

King County. 1998b. Letter from Curt Crawford, King County, to Birney Dempcy, Duwamish Manor Associates. RE: Notice of King County Water Quality Violation 97-1015. May 7, 1998.

King County. 1999. South 96th Street Source Control Project, Agreement No. G9500236. Final Report. Prepared by King County Water and Land Resources Division for Washington State Department of Ecology. February 8, 1999.

King County. 2000a. Letter from Patricia Magnuson, King County, Jim Bellamy, ToxGon Corporation. Review of Discharge Request. August 10, 2000.

King County. 2000b. News Release - Salmon using newly restored Hamm Creek channel. Retrieved from http://your.kingcounty.gov/exec/news/2000/111400.htm on January 31, 2013.

King County. 2003. King County Surface Water Management Division - Drainage Investigation Report, Carey Limousine. May 29, 2003.

King County. 2004. King County Surface Water Management Division - Drainage Investigation Report, Advanced Electroplating. September 1, 2004.

King County. 2005. Letter from Kenneth Krank, King County, to Selland Property/AAA Transfer. Re: Selland Auto Transport, Inc. - 615 S 96th St - D95706. October 24, 2005.

King County. 2008a. Letter from Despina Strong, Ecology, to John Nguyen, Western United Fish Company. RE: Issuance of Wastewater Discharge Permit No. 7839-01 to Western United Fish Company by the King County Department of Natural Resources and Parks. August 29, 2008.

King County. 2008b. Combined Sewer Overflow Control Program, 2007-2008 Annual Report. October 2008.

King County. 2008c. Letter from Jim Sifford, King County, to RJ Wilson, King Electrical Manufacturing. Re: Results from King County's recent sampling. October 27, 2008.

King County. 2008d. Letter from Dave Haberman, King County, to Ken Morehead, Repair Technology, Inc. Re: Authorization for Repair Technology, Inc. Operate as a Zero Discharge Facility by King County Department of Natural Resources and Parks Permit Number 9707-01. November 11, 2008.

King County. 2009a. Drainage Investigation Report - Investigation Request, Simplex Grinell. March 24, 2009.

King County. 2009b. Letter from Kenneth Krank, King County, to Jim Grove, Pacific Industrial Supplies. RE: Pacific Industrial Supplies - 1231 S Director St - D95655. April 24, 2009.

King County. 2009c. Drainage Investigation Report - Investigation Request, Puget Sound Coatings. June 18, 2009.

King County. 2009d. Combined Sewer Overflow Control Program: 2008 Annual Report. Prepared by King County Department of Natural Resources and Parks, Wastewater Treatment Division. July 2009.

King County. 2010. Letter from Kenneth Krank, King County, to Jeffrey Right, Icon Materials. RE: ICON Materials - 1115 S 96th St - D95600. June 30, 2010.

King Electrical (King Electrical Manufacturing Company). 2008. Letter from Robert Wilson, Sr., King Electrical, to Barbara Smith, Ecology. Re: Dangerous Waste Compliance Inspection at King Electrical Manufacturing RCRA ID#WAH000033636 on October 16, 2008 and October 17, 2008. December 24, 2008.

King Electrical. 2009a. Letter from Dean Wilson, King Electric, to Barbra Smith, Ecology. Subject: Compliance certificate form. May 21, 2009.

King Electrical. 2009b. Letter from Dean Wilson, King Electrical, to Barbara Smith, Ecology. RE: Follow-up letter dated July 15th, 2009 regarding Inspection RCRA ID# WAH000033636 on March 17, 2009. August 5, 2009.

King Electrical. 2011a. Waste Disposal Procedures, Spill Management and Storm Water Pollution Prevention Plan. April 13, 2011.

King Electrical. 2011b. Letter from Dean Wilson, King Electrical, to Warren Walton, Ecology. RE: Compliance Inspection Response on April 13, 2011, WAH000033636. May 27, 2011.

King Electrical. 2011c. Letter from Dean Wilson, King Electrical, to Warren Walton, Ecology. RE: Compliance Inspection Response on April 13, 2011, WAH000033636. June 10, 2011.

KTA (KTA Associates, Inc.). 2012a. Memo from Ken Taylor, KTA Associates, Inc., to Joe Roberto, USEPA. Re: Report – First Round of Duwamish Sediment Sampling – King County. January 4, 2012.

KTA. 2012b. Memo from Ken Taylor, KTA Associates, Inc., to Joe Roberto, USEPA. Re: Report – Second Round of Duwamish Sediment Sampling – King County. May 31, 2012.

Laucks (Laucks Testing Laboratories, Inc.). 1982. Letter from J.M. Owens, Laucks, to Dave Vistaunet, Duwamish Yacht Club. Report on Water. December 21, 1982.

Laucks. 1985. Letter from J.M. Owens, Laucks, to Werner Otto, Duwamish Yacht Club Inc. Report on Soil. July 18, 1985.

M.A. Segale. 1993a. Letter from Mark Segale, M.A. Segale, to Joanne Polayes-Wien, Ecology. Reference: Potential Water Quality Violations, Asphalt Plant, 1115 South 96th Street, Seattle. March 12, 1993.

M.A. Segale. 1993b. Letter from Mark Segale, M.A. Segale, to Joanne Polayes-Wien, Ecology. Reference: Potential Water Quality Violation, Asphalt Plant, 1115 South 96th Street, Seattle. April 18, 1993.

M&M Environmental (M&M Environmental, Inc.). 1990. Letter report from Mike Reid, M&M Environmental, to Judith M. Aiken, Ecology. Subject: Precision Engineering, Inc. (PEI), 1231 South Director Street, Seattle, WA 98108, Status on the Department of Ecology's Site Register Toxics Cleanup Program Listing. December 4, 1990.

MacMillan Piper. 2012. MacMillan-Piper Company Website. http://macpiper.com/south_park.html. Retrieved on November 20, 2012.

Marketing NW. 2010. Marketing NW.com Blog for ColorGraphics. http://marketingnw.com/blog/colorgraphics. Retrieved on October 30, 2012.

Merlino Construction (Gary Merlino Construction Company). 1997. Discharge Stormwater Associated with Industrial Activity (Notice of Intent), Gary Merlino Construction Co., 9125 10th Avenue South, Seattle, WA 98108-4612. July 28, 1997.

Merlino Construction. 2009. Letter from Don Robertson, Gary Merlino Construction, to Michael Jeffers, Ecology. Re: Results from the Urban Waters Urban Environmental Compliance Inspection at Gary Merlino Construction Company on 12-4-08. January 20, 2009.

Merlino Construction. 2011a. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-003120, Gary Merlino Construction Office BD. May 18, 2011.

Merlino Construction. 2011b. Compliance Certificate for Gary Merlino Construction Co, Date of Visit: May 18, 2011. July 7, 2011.

Merlino Construction. 2012. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-003120, Gary Merlino Construction Office BD. May 17, 2012.

METRO. 1969. Memo from A.L. Poole to G.D. Farris. Subject: Advance Electroplating, Inc. (9585 8th Ave. S.) Industrial Wastes. September 23, 1969.

METRO. 1977. Letter from Denise Healy, METRO, to R.E. Wilson, King Electrical Manufacturing. Spray paint booth discharge. November 3, 1977.

METRO. 1985. Letter from Vallana M. Piccolo, METRO, to Larry Showland, Precision Engineering. Re: Cancellation of Permit No. 7052. September 18, 1985.

METRO. 1986. In the Matter of Enforcement Action Against Precision Engineering, Inc., Notice of Penalty and Compliance Schedule. Issued to Mr. D.F. Morgan, President, Precision Engineering. February 26, 1986.

METRO. 1988. Letter from Douglas A. Hilderbrand, METRO, to Gary Bottoms, Precision Engineering. RE: Cost Recovery for Metro Trunk Sewer Cleaning. October 10, 1988.

METRO. 1990. Letter from Ray Carveth, King County, to Larry Penberthy, Penberthy Electromelt. Re: Minor Discharge Authorization. July 19, 1990.

METRO. 1994. Letter from Debra Liceaga, METRO, to Barb Smith, Ecology. Thomas Equipment Rental vacated office. April 13, 1994.

MFA (Maul Foster & Alongi, Inc.). 2005. Preliminary Soil and Groundwater Site Assessment Report, Precision Engineering, Inc., 1231 S. Director Street, Seattle, Washington. Prepared for Precision Engineering. August 5, 2005.

MFA. 2008. Final Remedial Investigation and Risk Assessment Report, Former Precision Engineering, Inc. Site, 1231 South Director Street, Seattle, Washington, VCP ID Number NW 1511. Prepared for Stoel Rives, LLP. July 21, 2008.

MFA. 2011. Final Feasibility Study, Former Precision Engineering, Inc. Site, 1231 South Director Street, Seattle, Washington. Prepared for Stoel Rives, LLP. March 3, 2011.

Morgan Trucking. 1993. Letter from Robert McClane, Morgan Trucking, to Martha Turvey, Ecology. Re: January 29th Warning Letter. February 24, 1993.

Morgan Trucking. 2012. Morgan Trucking Company Website. http://www.morgantrucking.com/html/history.html. Retrieved on November 20, 2012.

NOAA (National Oceanic and Atmospheric Administration). 1998. Duwamish Waterway Sediment Characterization Study Report. As cited in Windward 2003.

New York Times. 1989. Company News; Fruehauf Sale of Operations. March 29, 1989. http://wwwnytimes.com/1989/03/29/business/company-news-fruehauf-sale-of-operations.html. Retrieved on January 2, 2013.

Nisqually (Nisqually Environmental Sampling and Consulting). 2010. Puget Sound Coatings Hexavalent Chromium Groundwater Intrusion Discovery. Prepared for Puget Sound Coatings. November 4, 2010.

North West Galvanizing (North West Galvanizing Company). 1970. Application to permit waste discharges into the State waters in accordance with Chapter 90.48 RCW and Chapter 372.24 WAC, Northwest Galvanizing Company (now Ace Galvanizing), 429 South 96th Street, Seattle, Washington 98108. September 9, 1970.

NRC Environmental. 2009. Letter from Jason Potts, NRCES, to Warren Walton, Ecology. Subject: NRC Environmental Service’s (NRCES) internal investigation on 10-Day Hazardous Waste Site Discrepancies. December 28, 2009.

NRC Environmental. 2010. Letter from Donovan Gray, Ecology, Tiffany Gallo, NRCES. RE: Results from the Urban Waters Environmental Compliance Inspection at NRC Environmental Services Inc., RCRA ID# WAH000019661, on August 26, 2010: Corrective action required. October 18, 2010.

Pacific Industrial (Pacific Industrial Supply). 2011. Compliance Certificate for Pacific Industrial Supply, Date of Visit: May 10, 2011. May 10, 2011.

Pacific Testing Labs. 1993. Letter from Robert Shopbell, Pacific Testing, to H. Peter Kasama, K & C Development. Subject: Data Review and Analytical Results for Kaspac Property, South Seattle, Washington. August 10, 1993.

Pacific Testing Labs. 1995. Chiyoda International Corporation Subsurface Soil and Ground Water Investigation for the Kaspac Property, Seattle, Washington, Certificate No. 9411-6630. January 3, 1995.

Pacific Utility (Pacific Utility Equipment Company). 1993. Letter from Dennis Landowski, Pacific Utility Equipment Co, to Joanne Polayes-Wien, Ecology. Re: Response to March 8, 1993 letter. March 10, 1993.

Pacific Utility. 1994. Notice of Intent for Baseline General Permit to Discharge Stormwater Associated with Industrial Activity for Pacific Utility Equipment Company, 1303 S 96th Street, Seattle, WA. August 5, 1994.

Pacific Utility. 2001. Letter from Wayne Miller, Pacific Utility Equipment Co, to Ecology. Re: Request for SWPPP, Permit #SO30019101C. October 3, 2001.

Parametrix (Parametrix, Inc.) and SAIC (Science Applications International Corporation). 1991a. Site Hazard Assessment Summary Report for Ace Galvanizing Company, Seattle, Washington. Prepared for Washington Department of Ecology. June 1991.

Parametrix and SAIC. 1991b. Final Site Hazard Assessment Summary Report for Advance Electroplating, Seattle, Washington. July 1991.

Pedone. 1988. Letter from Peter Pedone, ERC, to Lee Dorigan, Ecology. Re: 96-hour static fish bioassay performed on floor sweepings from Advance Electroplating. November 17, 1988.

Penberthy (Penberthy Electromelt Int’l Inc.). 1990a. Letter from Larry Penberthy, Penberthy Electromelt Int’l, Inc., to Mary Kautz, Ecology. Re: Compliance with Order No. DE 90-N154. July 20, 1990.

Penberthy. 1990b. Waste Discharge Permit Application for Penberthy Electromelt Int'l Inc., 631 S 96th Street, Seattle, WA. February 27, 1990.

Penberthy. 1992. Notice of Intent For Baseline General Permit to Discharge Stormwater Associated with Industrial Activity, Penberthy Electromelt, 631 S 96th Street, Seattle, WA. September 28, 1992.

PGG (Pacific Groundwater Group). 2001a. RCRA Interim Status Closure Sampling and Analysis Plan, Indoor S01 Unit, ToxGon/Penberthy Site, Seattle, WA. January 2001.

PGG. 2001b. RCRA Interim Status Closure Investigation Report, ToxGon/Penberthy Site, Seattle, WA. April 10, 2001.

PGG. 2001c. Letter from Inger Jackson, PGG, to Dean Yasuda, Ecology. Re: Thallium Concentrations in ToxGon Soil Samples. June 29, 2001.

PGG. 2002. RCRA Interim Status Clean Closure Report, ToxGon/Penberthy Site, Seattle, WA. August 8, 2002.

PGG. 2003. RCRA Interim Status Clean Closure Report, West Drainage Ditch/Hamm Creek, ToxGon/Penberthy Site, Seattle, WA. April 10, 2003.

Potts. 2009. E-mail from Jason Potts, NRCES to Warren Walton, Ecology. Subject: NRCES 10-Day Storage Site Discrepancy Investigation. November 15, 2009.

PRC Environmental (Plant Recovery Company). 1990. Final RCRA Facility Assessment Report, Penberthy Electromelt International, Inc., Seattle, WA. Prepared by PRC Environmental for USEPA. October 12, 1990.

Propulsion (Propulsion Controls Engineering). 2012. Propulsion Controls Engineering Company Website. Http://www.pceshiprepair.com/aboutus/index.shtml. Accessed on November 7, 2012.

Precision Engineering. 1976. Municipality of Metropolitan Seattle, Industrial Waste Discharge Permit, Application Form, Precision Engineering, Inc., 1231 So. Director St. Seattle, Wa. 98108. Prepared by J.E. Riedeman, Precision Engineering. December 6, 1976.

Precision Engineering. 1993. Independent Remedial Action Report, Precision Engineering, Inc., 1231 South Director Street, Seattle, Washington 98108. June 30, 1993.

Precision Engineering. 2000. Letter from Chuck Luce, Precision Engineering, to J. David Hohman, Ecology. RE: Response to Ecology’s letter dated June 19, 2000 and submittal of revised inspection report by Caliber Inspection. June 26, 2000.

Precision Engineering. 2003. Letter from Tom Gratzer, Precision Engineering, to Rachel Best, Ecology. RE: Dangerous Waste Compliance Inspection at Precision Engineering, RCRA ID# WAD041338252. February 13, 2003.

Precision Engineering. 2005. Voluntary Cleanup Program Application, Precision Engineering, 1231 South Director Street, Seattle, WA, 98108. Prepared by James Okel. October 20, 2005.

Precision Equipment. 1990. Letter from Bob Mikkelsen, Precision Equipment, to Barbara Trejo, Ecology. Subject: Removal of contaminated soil around chrome plating tanks No. 1 and No. 2. July 16, 1990.

Professional Coating (Professional Coating Inc.). 1998. Professional Coating, Hazardous Waste Facility Inspection Checklist, Week of October 19, 1996. October 23, 1998.

PSCI (Pacific Specialty Construction, Inc.). 1998. Site Investigation Report, PSCI-WA-98-0541, Selland Auto Transport, Inc. Facility, 615 S 96th St, Seattle, WA. November 16, 1998.

PSCI. 1999. Voluntary Cleanup Program Request for Assistance/Review Form for Selland Auto Transport, 615 S 96th St, Seattle, WA. January 19, 1999.

PSF Mechanical (PSF Mechanical, Inc.). 2001. Stormwater Pollution Prevention Plan for PSF Mechanical, Inc. September 7, 2001.

PSF Mechanical. 2006. Letter from Drew Rosenfelt, PSF Mechanical Inc., to Sally Alexander, Ecology. RE: Storm Water Pollution Prevention Plan (SWPPP) For Permit Number SO3000364D. June 19, 2006.

PSF Mechanical. 2010. Revised Stormwater Pollution Prevention Plan, PSF Mechanical. February 2010.

PSF Mechanical. 2011. Industrial Stormwater General Permit Annual Report Form, Permit No WAR-000264, PSF Mechanical, Inc. May 11, 2011.

PSF Mechanical. 2012. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-000264, PSF Mechanical, Inc. May 3, 2012.

Puget Sound Coatings. 1993. Letter from Hugh LaBossier, Puget Sound Coatings, Martha Turvey, Ecology. Re: Warning Letter dated January 13, 1992. January 18, 1993.

Puget Sound Coatings. 1998. Completed Compliance Certificate, Puget Sound Coatings, 9220 8th Avenue S, Seattle, WA 98108. March 4, 1998.

Puget Sound Coatings. 2001. Letter from Richard Tieman, PSC, to Dave Misko, Ecology. RE: Inspection/Compliance Report, RCRA ID# WAD002838068 9/19/01. October 28, 2001.

Puget Sound Coatings. 2005. Compliance Certificate for Puget Sound Coatings, Inspection Date: December 9, 2004. June 9, 2005.

Puget Sound Coatings. 2008a. Compliance Certificate for Puget Sound Coatings, Inc., RCRA ID #: WAD 002838068. February 13, 2008.

Puget Sound Coatings. 2008b. Puget Sound Coatings SWPPP. April 30, 2008.

Puget Sound Coatings. 2011. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-002142, Puget Sound Coatings. May 16, 2011.

Puget Sound Coatings. 2012a. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-002142, Puget Sound Coatings. March 9, 2012.

Puget Sound Coatings. 2012b. Stormwater Pollution Prevention Plan (SWPPP) for Puget Sound Coatings, 9220 8th Ave S, Seattle, WA 98108. May 25, 2012.

Qual-Fab (Qual-Fab Precision Sheet Metal). 2012. Qual-Fab Company Website. Http://www.qual-fab.com/About-Us.html. Accessed on November 7, 2012.

Repair Technology (Repair Technology, Inc.). 2000. Letter from Ken Morehead, Repair Technology, Inc., to Robert Stone, Ecology. Re: Dangerous Waste Compliance Inspection, RCRA ID# WAH000001818 on February 8, 2000. April 10, 2000.

Repair Technology. 2008. Zero Discharge Compliance Certification Statement for Repair Technology, Inc. November 26, 2008.

Repair Technology. 2010. Completed Compliance Certificate for Repair Technology, Inc. March 29, 2010.

RMC Inc. 2012. Industrial Stormwater General Permit Annual Report Form for RMC, Inc., 10766 Myers Way South, Seattle, WA. January 3, 2012.

Roadway Express. 2001. Letter from Robert E. Zimmerman, Roadway Express, to Ecology. Re: Submittal of NOI - Application for General Permit to Discharge Stormwater Associated with Industrial Activity, Roadway Express, Inc. 600 S 96th Street, Seattle, WA. January 16, 2001.

SAIC (Science Applications International Corporation). 2006. Soil and Groundwater Screening Criteria, Source Control Action Plan, Slip 4, Lower Duwamish Waterway. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. August 2006 (Revised February 2007).

SAIC. 2011. Surface Sediment Sampling at Outfalls in the Lower Duwamish Waterway, Seattle, WA, Data Report. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. October 2011.

SAIC. 2012a. Lower Duwamish Waterway, RM 2.2 to 3.4 West (Riverside Drive): Summary of Existing Information and Identification of Data Gaps. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. April 2012.

SAIC. 2012b. Lower Duwamish Waterway, RM 0.0 to 1.0 West (Spokane Street to Kellogg Island): Summary of Existing Information and Identification of Data Gaps, Volume 1. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. September 2012.

SAIC. 2013. Lower Duwamish Waterway, RM 4.2 to 5.8 West (Restoration Areas): Draft Summary of Existing Information and Identification of Data Gaps. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. May 2013.

SCS Engineers. 1986. Preliminary METRO Compliance Report for Precision Engineering, Inc., Seattle, Washington. May 28, 1986.

Seattle Commercial. 1998. Voluntary Cleanup Program, Request for Assistance Form, Seattle Commercial Development. November 3, 1998.

Seattle Commercial. 2001a. Letter from Robert Power, Seattle Commercial Development, to Dan Cargill, Ecology. REF: NFA - Holnam / Markey Site. February 26, 2001.

Seattle Commercial. 2001b. Letter from Brian Yandell, SEA CON, to John Blincoe, Seattle Commercial Development. RE: South Park Utilities. May 3, 2001.

Seattle Times. 1995. “Polluter's Sentence Angers Neighbors.” The Seattle Times. August 6, 1995. http://community.seattletimes.nwsource.com/archive/?date=19950806&slug=2135155. Retrieved on December 17, 2012.

Seattle Times. 1998. “Tukwila Construction Firm Segale Sold to Oldcastle.” The Seattle Times. April 30, 1998. http://community.seattletimes.nwsource.com/archive/?date=19980430&slug=2748086. Retrieved on December 19, 2012.

Security Contractor Services. 2013. Company Website: http://www.scsfence.com/index.php?page=home. Retrieved on January 9, 2013.

Selland Auto (Selland Auto Transport). 1992a. Letter from Gary Ball, Selland Auto Transport, to Martha Turvey, Ecology. Re: Response to January 23, 1992 Letter. January 30, 1992.

Selland Auto. 1992b. Letter from Gary Ball, Selland Auto Transport, to Martha Turvey, Ecology. Re: Phone conversation and last visit. February 14, 1992.

Selland Auto. 2010. Application for Relief from Penalty No. 7700. June 10, 2010.

Selland Auto. 2011. Industrial Stormwater General Permit Annual Report Form for Selland Auto Transport, 615 S 96th St, Seattle, WA. May 9, 2011.

Selland Auto. 2012a. Stormwater Pollution Prevention Plan for Selland Auto Transport, Inc., 615 S 96th Street, Seattle, WA. February 27, 2012.

Selland Auto. 2012b. Industrial Stormwater General Permit Annual Report Form for Selland Auto Transport, 615 S 96th St, Seattle, WA. May 9, 2012.

Sherwin Williams. 2007. Letter from Mark Bowden, Sherwin-Williams #4317, to Warren Walton, Ecology. RE: Dangerous Waste Compliance Inspection at Sherwin-Williams #4317 on October 9, 2007 RCRA ID# WAH 000013730. October 30, 2007.

Show Quality Metal (Show Quality Metal Finishing). 2012. Show Quality Metal Finishing Company Website. http://www.metlfin.com/about.html. Retrieved on December 13, 2012.

SKCDPH (Seattle-King County Department of Public Health). 1985. Letter from Wally Swofford, SKCDPH, to Werner Otto, Duwamish Yacht Club. Re: Classification of Dredge Spoils Presently Stored on City Light Property. August 5, 1985.

SKCDPH. 2002. Letter from Peter Isaksen, SKCDPH, to Ken Morehead, Repair Technology Inc. Re: Completed Site Hazard Assessment of the Repair Technology site, 400 S 96th Street, Seattle, WA. March 1, 2002.

SKCDPH. 2005. Site Hazard Assessment, Recommendation for No Further Action, Norman Property, 11603 10th Avenue S, Seattle, WA. December 28, 2005.

SKCDPH. 2006. Letter from Carsten Thomsen, SKDPH, to Tran Development Corporation. January 16, 2006.

SNR. 2009. NPDES Industrial Storm Water Discharge Permit Level 2 and 3 Response Report, PSF Mechanical. February 13, 2009.

Sound Propeller (Sound Propeller Services, Inc.). 2012. Sound Propeller Systems Company Website. http://www.soundpropellersystems.com/services.html. Retrieved October 30, 2012.

SoundEarth (Sound Earth Strategies). 2012. Stormwater pollution Prevention Plan for RMC, Inc., 10766 Myers Way South, Seattle, WA. April 2012.

SPU (Seattle Public Utilities). 2002. Letter from Ryean-Marie Woods, SPU, to John McCarthy, MacMillan-Piper. Subject: Results from the January 13, 2002 stormwater pollution prevention inspection: No action required. February 13, 2002.

SPU. 2007a. Source Control Inspection Program, Sediment Remediation, Initial Inspection for Puget Sound Coatings, 9220 8th Avenue S, Seattle, WA. January 17, 2007.

SPU. 2007b. Letter from Tasha Bassett, SPU, to Dean Hutchinson, Puget Sound Coatings. Subject: Results from January 17, 2007 environmental compliance inspection: Corrective action required. February 9, 2007.

SPU. 2007c. Joint Inspection Program, Lower Duwamish Waterway, Followup Inspection for Puget Sound Coatings, 9220 8th Avenue S, Seattle, WA. May 4, 2007.

SPU. 2007d. Letter from Tasha Bassett, SPU, to Dean Hutchinson, Puget Sound Coatings. Subject: Results from the pollution prevention re-inspection: In Compliance. May 29, 2007.

SPU. 2008a. Letter from Robert Zimmermann, Roadway Express, Inc., to Ecology. RE: Submittal of NOI-Application for General Permit To Discharge Stormwater Associated with Industrial Activity, Roadway Express, Inc., 600 South 9th Street, Seattle, Washington. January 16, 2001.

SPU. 2008b. Letter from Megan Wisdom, SPU, to RJ Wilson, King Electrical Manufacturing. Re: Results from the Environmental Compliance Inspection: Corrective action required.

SPU. 2010a. Source Control Inspection Program - Sediment Remediation: Halfon Candy Co. Inc. September 16, 2010.

SPU. 2010b. Source Control Inspection Program - Sediment Remediation: Filterfresh Seattle, 9243 10th Avenue S, Seattle, WA. September 16, 2010.

SPU. 2010c. Joint Inspection Program Sediment Remediation, Initial Inspection for Avidex Industries LLC, 860 S Cambridge Street, Seattle, WA. September 16, 2010.

SPU. 2010d. Source Control Inspection Program, Sediment Remediation, Initial Inspection for ATACS Products Inc., 850 S Cambridge Street, Seattle, WA. September 16, 2010.

SPU. 2010e. Source Control Inspection Program, Sediment Remediation, Initial Inspection for Johnson Western Gunite Company, 833 S Director Street, Seattle, WA. November 5, 2010.

SPU. 2010f. Source Control Inspection Program, Sediment Remediation, Initial Inspection for Keithly Electric Co., 827 S Director Street, Seattle, WA. November 5, 2010.

SPU. 2010g. Letter from Brian Robinson, SPU, to Victor Kelmis, SPU. Re: Environmental Compliance re-inspection. November 6, 2010.

SPU. 2010h. Joint Inspection Program, Lower Duwamish Waterway, Screening Inspection for Heavy Haul Specialists, 829 S Director Street, Seattle, WA. November 15, 2010.

SPU. 2010i. Seattle Public Utilities Source Control Program for the Lower Duwamish Waterway, December 2010 Progress Report. December 2010.

SPU. 2010j. Source Control Inspection Program, Sediment Remediation, Initial Inspection for Progressive Fastening, Inc., 837 S Director Street, Seattle, WA. December 8, 2010.

SPU. 2011. Letter from Beth Schmoyer, SPU, to Katherine Scott, Ecology. Re: Source Tracing Progress Report. December 30, 2011.

SPU. 2012a. Joint Inspection Program, Sediment Remediation, Initial Inspection for MacMillan-Piper Inc., 9228 10th Ave S., Seattle, WA. January 6, 2012.

SPU. 2012b. Letter from Brian Robinson, SPU, to Paul Peck, PNP Properties LLC. Re: Stormwater Pollution Prevention inspection Results: Corrective Action Required. January 25, 2012.

SPU. 2012c. Letter from Nathan Hart, King County, to RJ Wilson, King Electrical Manufacturing. Re: Environmental Compliance Inspection Results. March 6, 2012.

SPU. 2012d. Letter from Brian Robinson, SPU, to Paul Peck, PNP Properties LLC. Re: Environmental Compliance re-inspection. May 30, 2012.

Sweet Edwards/EMCON. 1989a. Tank #7, Precision Engineering, Inc, Seattle, Washington. Prepared for the Washington State Department of Ecology. June 1989.

Sweet Edwards/EMCON. 1989b. Letter from Kevin Lakey, Sweet Edwards/EMCON, to James R. Musgrove (Bud), Ecology. RE: Precision Engineering, Status Report, Soils/Ground Water Investigation December 15, 1988 (excerpts enclosed with letter). August 24, 1989. August 24, 1989.

Sweet Edwards/EMCON. 1989c. Letter from Kevin Lakey, Sweet Edwards/EMCON, to Barbara Trejo, Ecology. RE: Surface Soil Sampling, Precision Engineering Seattle Facility. August 30, 1989.

Sweet Edwards/EMCON. 1990a. Letter from Kevin Lakey, Sweet Edwards/EMCON, to Barbara Trejo, Ecology. RE: Soil Sample Results; Tank No. 1 and Drainage Ditch, Precision Engineering, Inc., Seattle Facility. January 4, 1990.

Sweet Edwards/EMCON. 1990b. Sediment Sampling, Precision Engineering, Inc., Seattle, Washington. Prepared for the Washington Department of Ecology. February 26, 1990.

Terex (Terex Corporation). 2008. Application for General Permit to Discharge Stormwater Associated with Industrial Activity, Terex Utilities. January 29, 2008.

ToxGon (ToxGon Corporation). 1996. Letter from William Whitacre, ToxGon Corporation, to James Krull, Ecology. Re: Permit No. SO3000280 Issued to Penberthy Electromelt Int'l, Inc., Notice of Intent: Change of Information. March 28, 1996.

ToxGon. 2001. Completed Compliance Certificate for ToxGon Corporation. March 18, 2001.

USEPA. 1989. RCRA Inspection Report for Penberthy Electromelt Int'l, Inc. 631 S 96th Street, Seattle, WA. November 16, 1989.

USEPA. 1991. News Release: Penberthy Electromelt International, Inc. March 28, 1991.

USEPA. 1995a. EPA News Release, Advance Electroplating. June 26, 1995.

USEPA. 1995b. United States Environmental Protection Agency Advance Electroplating Removal Action. Prepared by Thor Cutler. USEPA. September 2, 1995.

USEPA. 1996. United States Environmental Protection Agency Pollution Report, Advance Electroplating Removal Site. Prepared by Thor Cutler, USEPA. August 15, 1996.

USEPA. 2002. Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites. OSWER Directive 9285.6-08. U.S. Environmental Protection Agency. February 12, 2002.

USEPA. 2003. Agreement and Covenant Not to Sue South Park Industrial Properties, LLC. In the Matter of: Advance Electroplating and Fruehauf Trailer Services, Seattle, WA. October 15, 2003.

USEPA. 2008a. Letter from Sheila Eckman, EPA, to Ivor Jones, Delta Marine Industries. Re: General Notice of Potential Liability Pursuant to Section 107(a) and Request for Information Pursuant to Section 104€ of CERCLA, for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. March 25, 2008.

USEPA. 2008b. Letter from Sheila Eckman, EPA, to Michelle Jones, Latitude Forty-Seven LLC. Re: Request for Information Pursuant to Section 104c of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. March 25, 2008.

USEPA. 2008c. Letter from Howard Orlean, USEPA, to Annette Llanos, Duwamish Yacht Club. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. July 17, 2008.

USEPA. 2008d. Letter from Howard Orlean, USEPA, to CT Corporation System, Registered Agent for Sea King Industrial Park LLC, and Sea King Industrial Park LLC. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. July 17, 2008.

USEPA. 2009a. Letter from Sheila Eckman, USEPA, to Nancy Pellegrino, Mellon Trust of Washington. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. April 23, 2009.

USEPA. 2009b. Letter from Sheila Eckman, USEPA, to Dan Raymond, Registered Agent for Gary Merlino Construction Co., Inc. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. July 21, 2009.

USEPA. 2009c. E-mail from US EPA to Dennis Johnson, Ecology. Re: Boat Manufacturers Pay over $50,000 for Chemical Reporting Violations. Sent August 17, 2009.

USEPA. 2010a. Letter from Howard Orlean, USEPA, to Robert Wilson, King Electrical Manufacturing. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. December 1, 2010.

USEPA. 2010b. Letter from Sheila Eckman, USEPA, to Puget Sound Coatings. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. December 1, 2010.

USEPA. 2011. Letter from Sheila Eckman, EPA, to Global Intermodal Systems, Inc. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. May 24, 2011.

USEPA. 2013. Proposed Plan, Lower Duwamish Waterway Superfund Site. U.S. Environmental Protection Agency, Region 10. February 28, 2013.

Warp Corp. 2013. Company Website: http://warpexhibits.com/about.html. Retrieved on January 9, 2013.

WDOH (Washington Department of Health). 2000. Health Consultation for Toxgon Corporation, Seattle, King County, Washington. June 2, 2000.

Western Ports (Western Ports Transportation, Inc.). 2011. Industrial Stormwater General Permit Annual Report Form, Western Ports. May 11, 2011.

Western Ports. 2012. Industrial Stormwater General Permit Annual Report Form, Western Ports. May 15, 2012.

Weston (Roy F. Weston, Inc.). 1999. Site inspection report: Lower Duwamish River, RM 2.5-11.5, Volume 1 – Report and appendices. Prepared by Roy F. Weston, Inc., for U.S. Environmental Protection Agency Region 10, Seattle, WA.

Windward (Windward Environmental). 2003. Phase 1 Remedial Investigation Report, Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. July 3, 2003.

Windward. 2004. Data Report: Survey and Sampling of Lower Duwamish Waterway Seeps, Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. November 18, 2004.

Windward. 2005a. Lower Duwamish Waterway Remedial Investigation: Chemical Analyses of Benthic Invertebrate and Clam Tissue Samples and Co-Located Sediment Samples Final, Prepared by Windward Environmental. May 20, 2005.

Windward. 2005b. Data Report: Round 1 Surface Sediment Sampling for Chemical Analyses and Toxicity Testing, Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. October 21, 2005.

Windward. 2005c. Data Report: Round 2 Surface Sediment Sampling for Chemical Analyses and Toxicity Testing, Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. December 9, 2005.

Windward. 2007a. Data Report: Subsurface Sediment Sampling for Chemical Analyses, Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. January 29, 2007.

Windward. 2007b. Data Report: Round 3 Surface Sediment Sampling for Chemical Analyses, Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. March 12, 2007.

Windward. 2010a. Lower Duwamish Waterway Remedial Investigation. Technical Memorandum: 2009/2010 Surface Sediment Sampling Results for Dioxins and Furans and Other Chemicals. Prepared by Windward Environmental LLC for the U.S. Environmental Protection Agency and the Washington State Department of Ecology. May 21, 2010.

Windward. 2010b. Lower Duwamish Waterway Remedial Investigation Report. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. July 9, 2010.

Woodward Clyde. 1993. Letter from Cindy Thrush, Woodward-Clyde Consultants, to Martha Turvey, Ecology. Re: Progress Report; Morgan Trucking Corrective Action Plan of February 24, 1993. May 28, 1993.

Wooldridge (Wooldridge Boats). 2013. Company Website: http://www.wooldridgeboats.com/about-us. Retrieved on January 23, 2013.

WPCC (Water Pollution Control Commission). 1964. Memorandum from Duwan, WPCC, to file. Subject: Advance Electroplating, Inc., 9885 8th Avenue South, Seattle (South Park). December 23, 1964.

WPCC. 1969a. Memorandum from John Hodgson, WPCC, to file. Subject: Conversation with Mark Reese re: Fruehauf Trailer Co. September 29, 1969.

WPCC. 1969b. Letter from James, Behlke, WPCC, to Fruehauf Trailer Division. Waste Discharge Permit number 3239. December 16, 1969.

WPCC. 1970a. Memo from M. Palko to Dave N. and John H. Subject: Advance Electroplating, Seattle, Washington. February 4, 1970.

WPCC. 1970b. Memo from Mike P. and Ron Devitt, to Dave N. Subject: Drainage from Advance Electroplating. March 18, 1970.

WPCC. 1970c. Memorandum from Ron Devitt, WPCC, to Dave Nunnallee and Don Provost, WPCC. Subject: Advanced Electroplating and North West Galvanizing. May 6, 1970.

WPCC. 1970d. Memorandum from Stewart Messman, WPCC, to Mac, Dave and WPCC Files. Subject: Northwest Galvanizing Company. June 17, 1970.

WPCC. 1970e. Letter from James P. Behlke and Stewart A. Messman, WPCC, to Ken Taylor, Northwest Galvanizing Company. Subject: Application for Industrial Waste Discharge Permit. June 24, 1970.

Wright. 2010. Lower Duwamish Source Control Status Report - August 1, 2009 to September 30, 2010. November 8, 2010.

YRC Freight. 2013. Company Website. http://www.yrc.com/about/history.html. Retrieved on January 18, 2013.

Zand, Shab. 2007. E-mail from Shab Zand to Dan Cargill, Ecology. RE: Call about 9229 10th Ave S. August 7, 2007.

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Figures

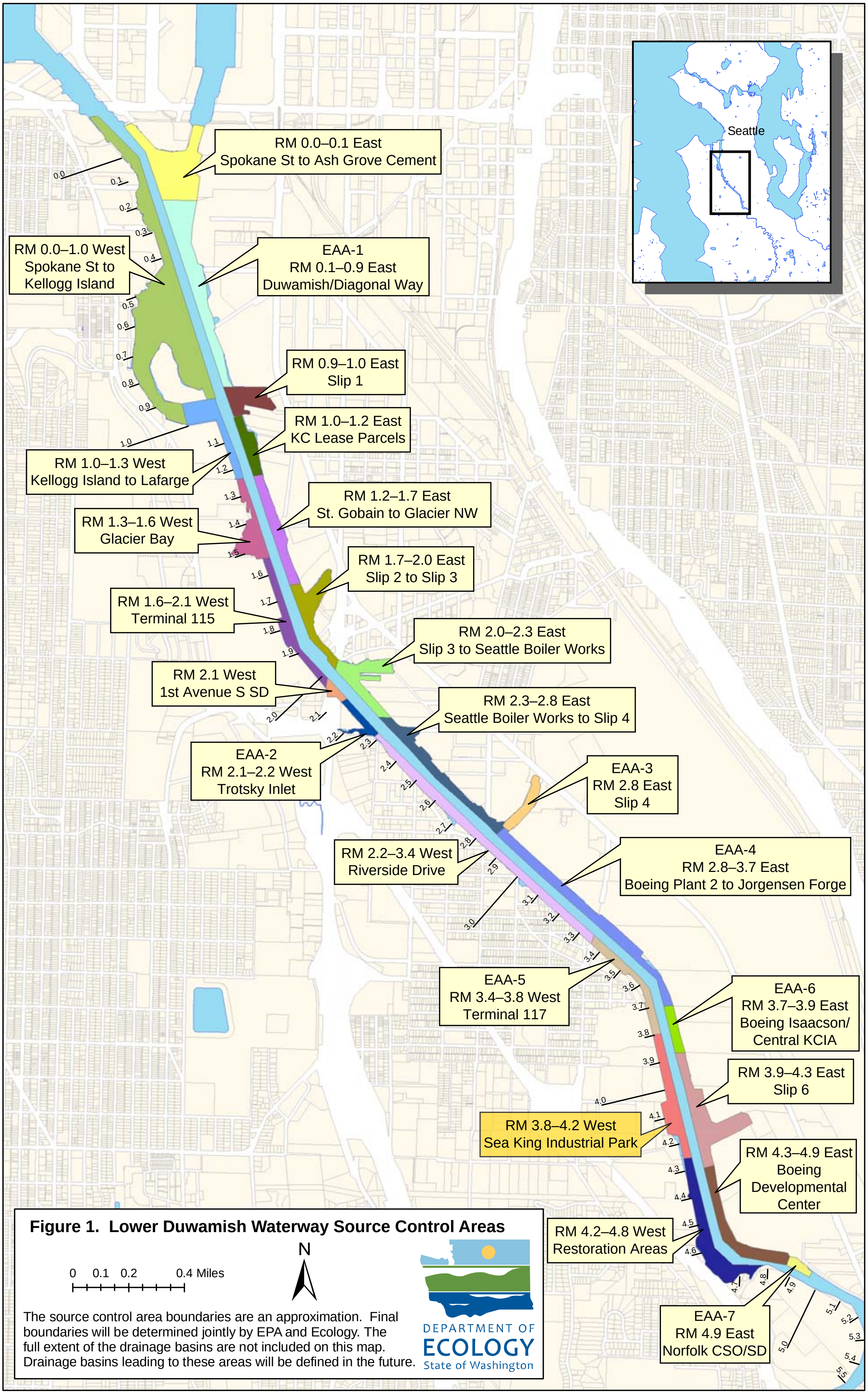

Figure 1. Lower Duwamish Waterway Source Control Areas

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

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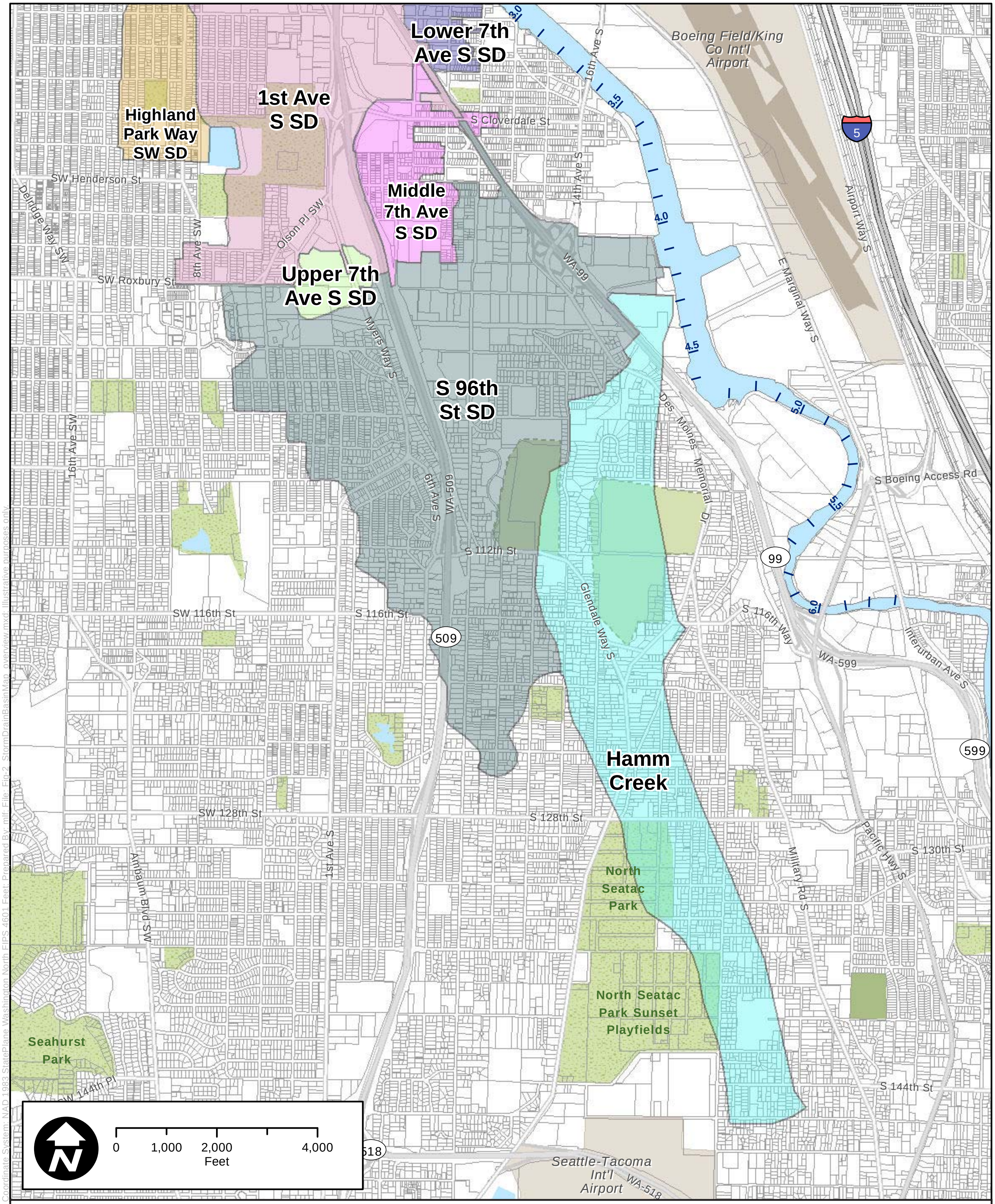

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Figure 2. Lower Duwamish Waterway Storm Drain Basins
Near the Sea King Industrial Park Source Control Area

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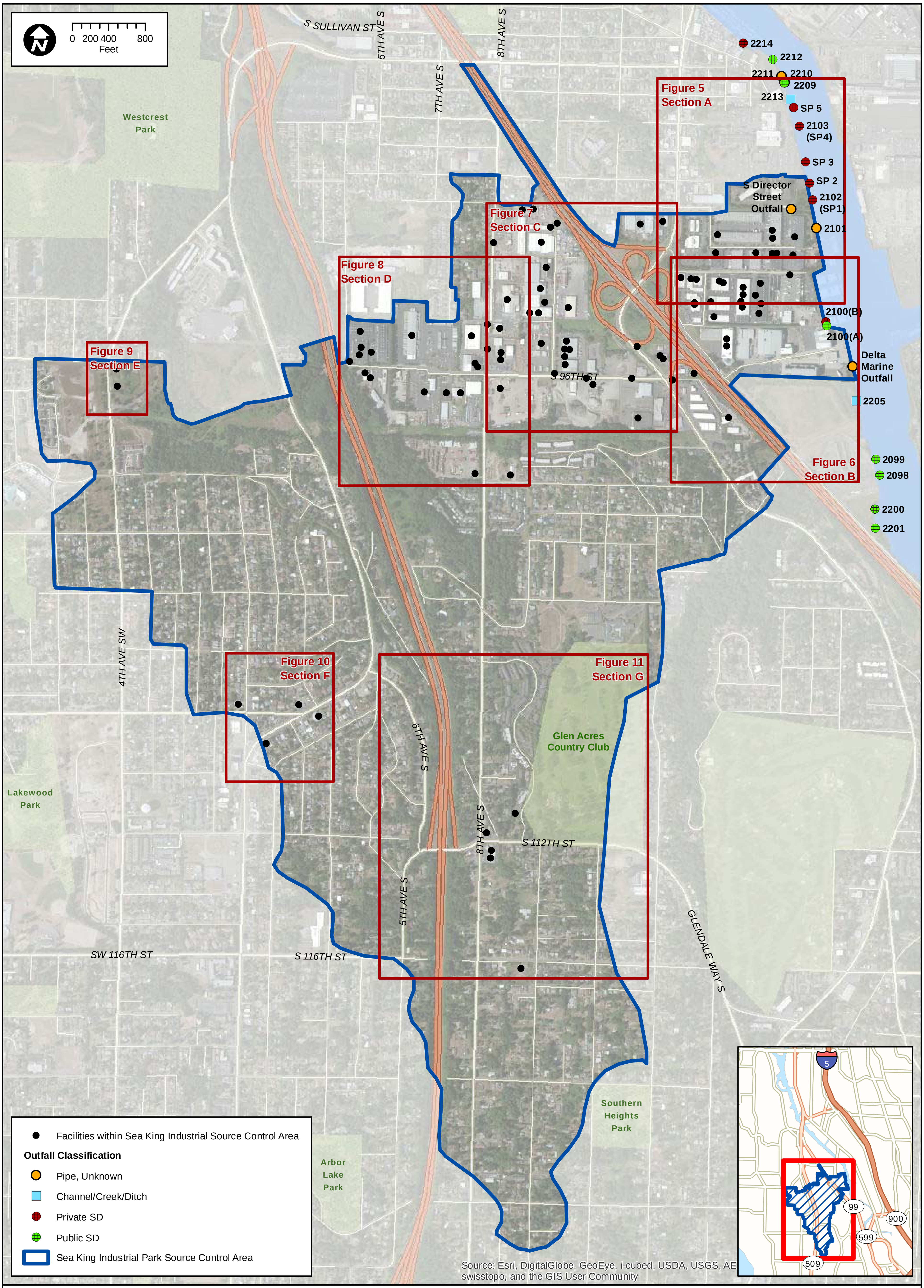

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, swisstopo, and the GIS User Community

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Figure 3. Sea King Industrial Park Source Control Area

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Coordinate System:
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Prepared By: mlf
File: Fig-03_SeaKing_SCA.mxd
Illustrative purposes only.

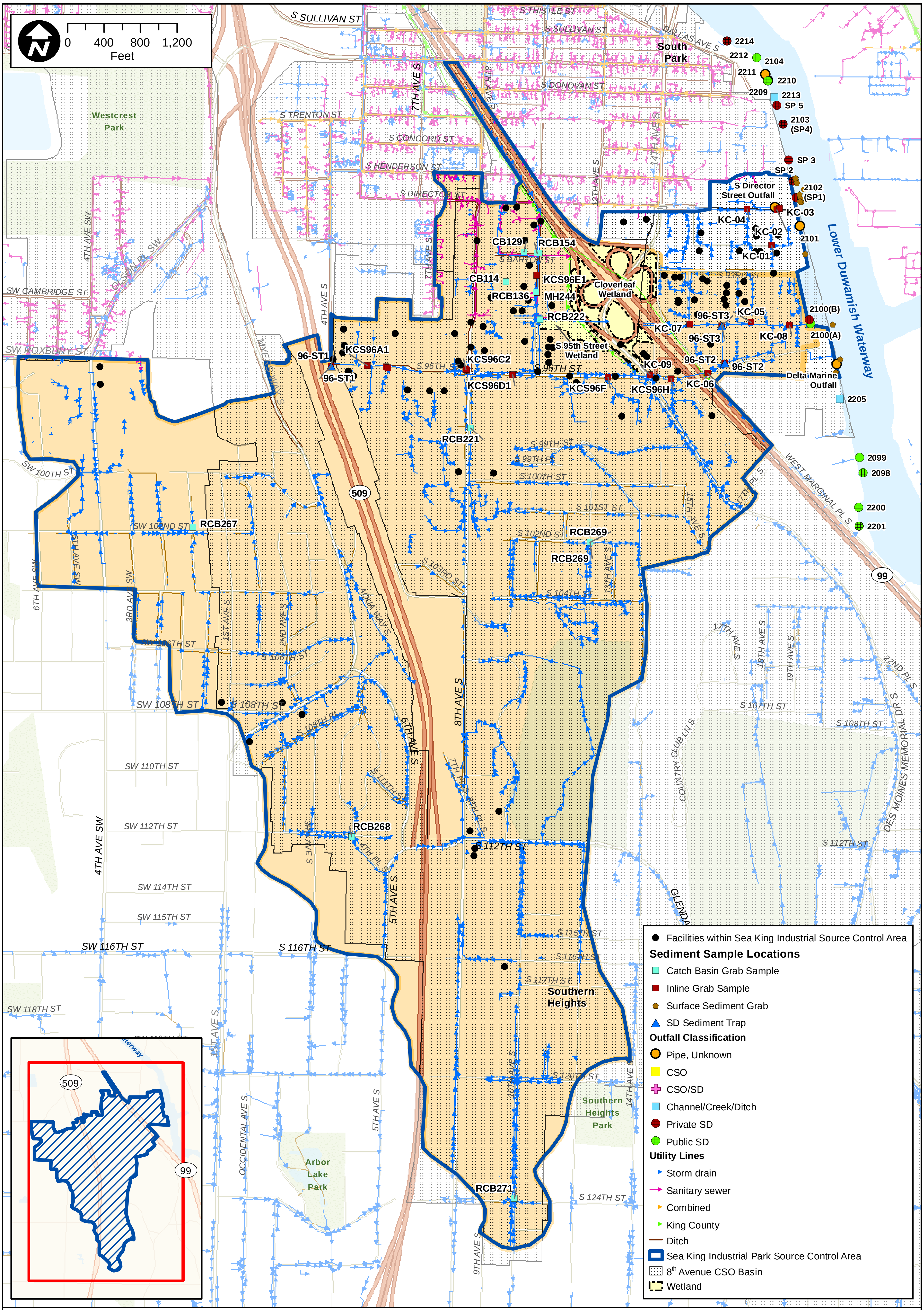

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Figure 4. Storm Drain and Sanitary Sewer Lines in Sea King Industrial Park Source Control Area

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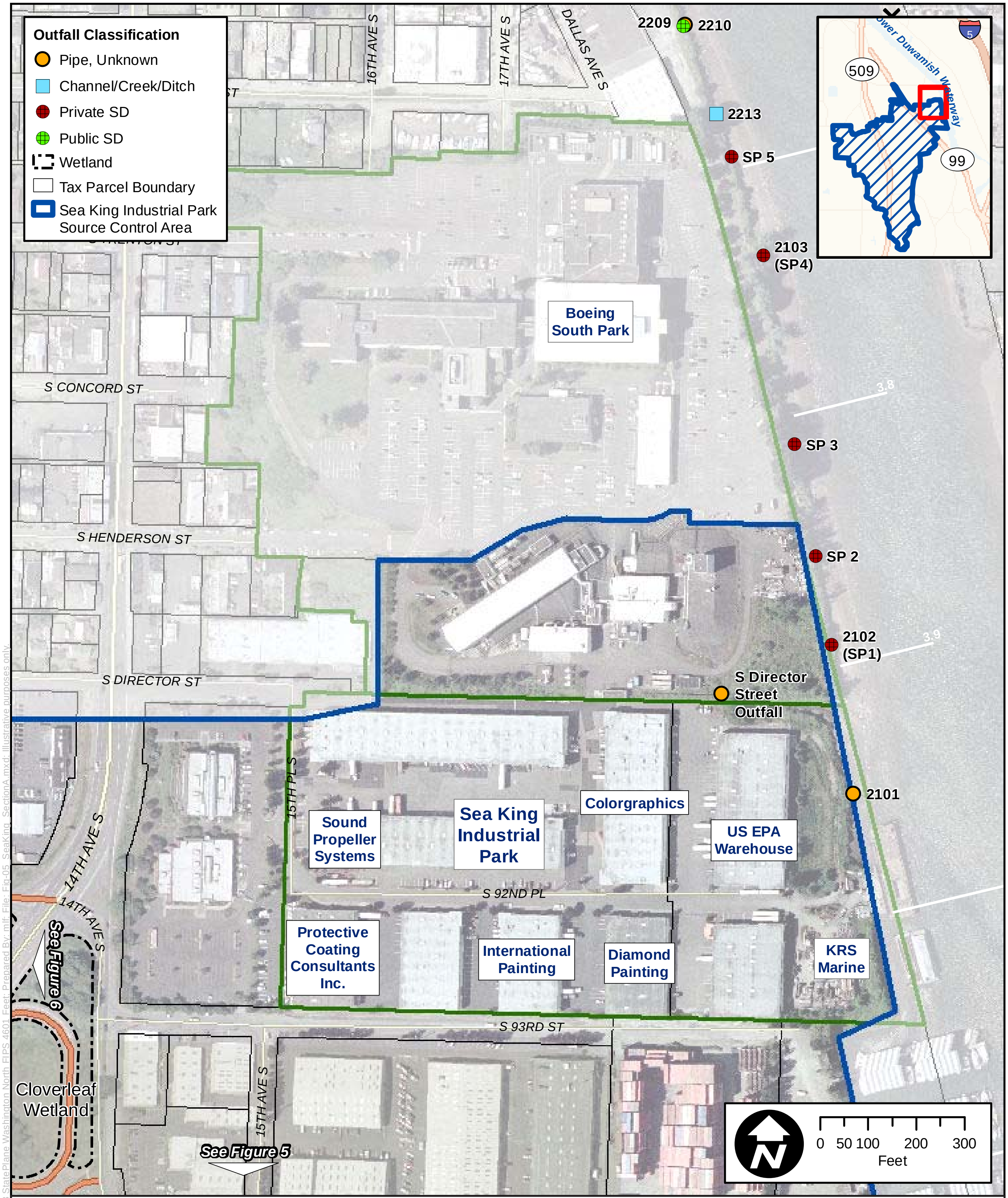

Figure 5. Sea King Industrial Park Source Control Area (Section A)

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet; Prepared By: mlf; File: Fig-05_SeaKing_SectionA.mxd; Illustrative purposes only.

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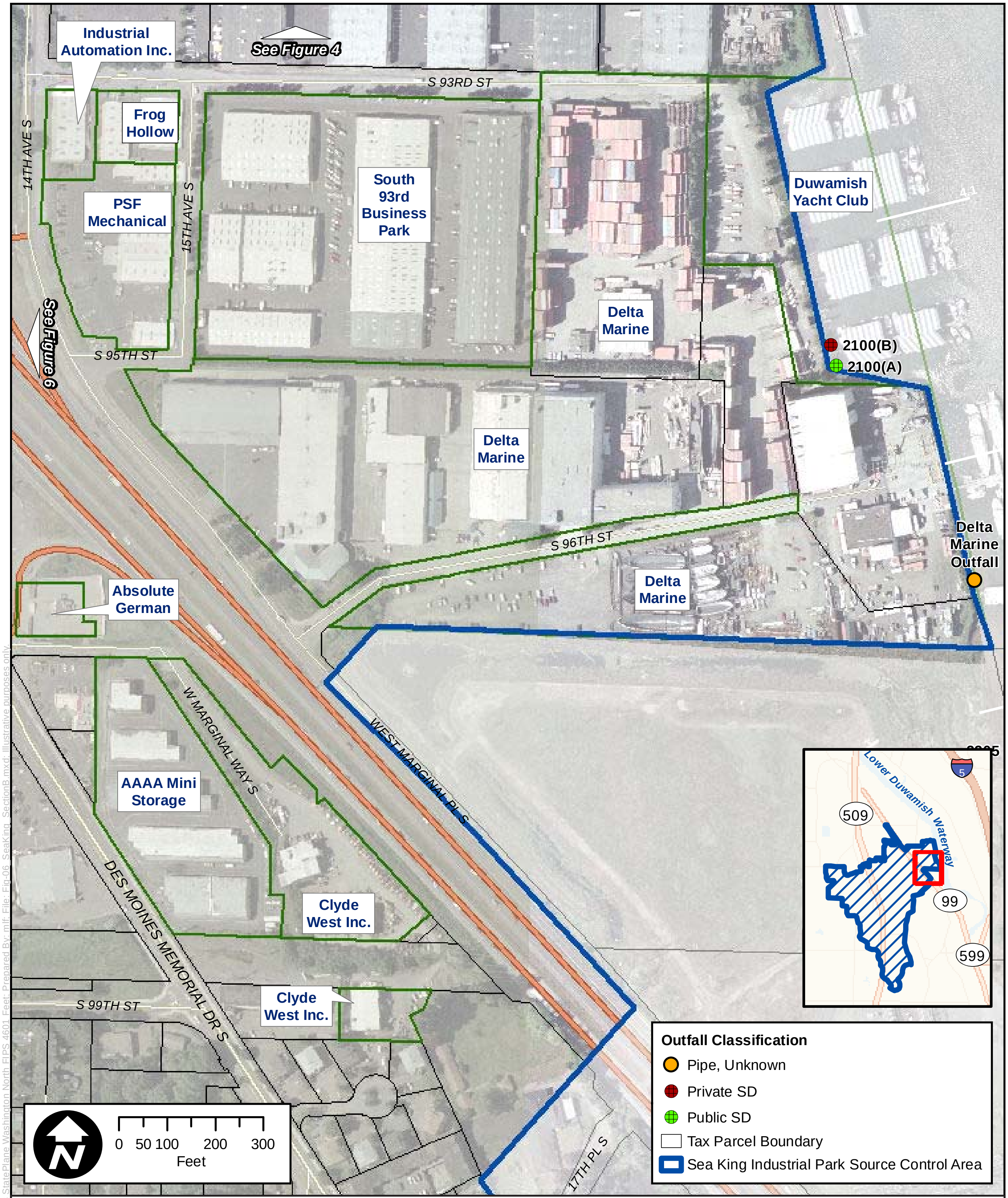

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Figure 6. Sea King Industrial Park Source Control Area (Section B)

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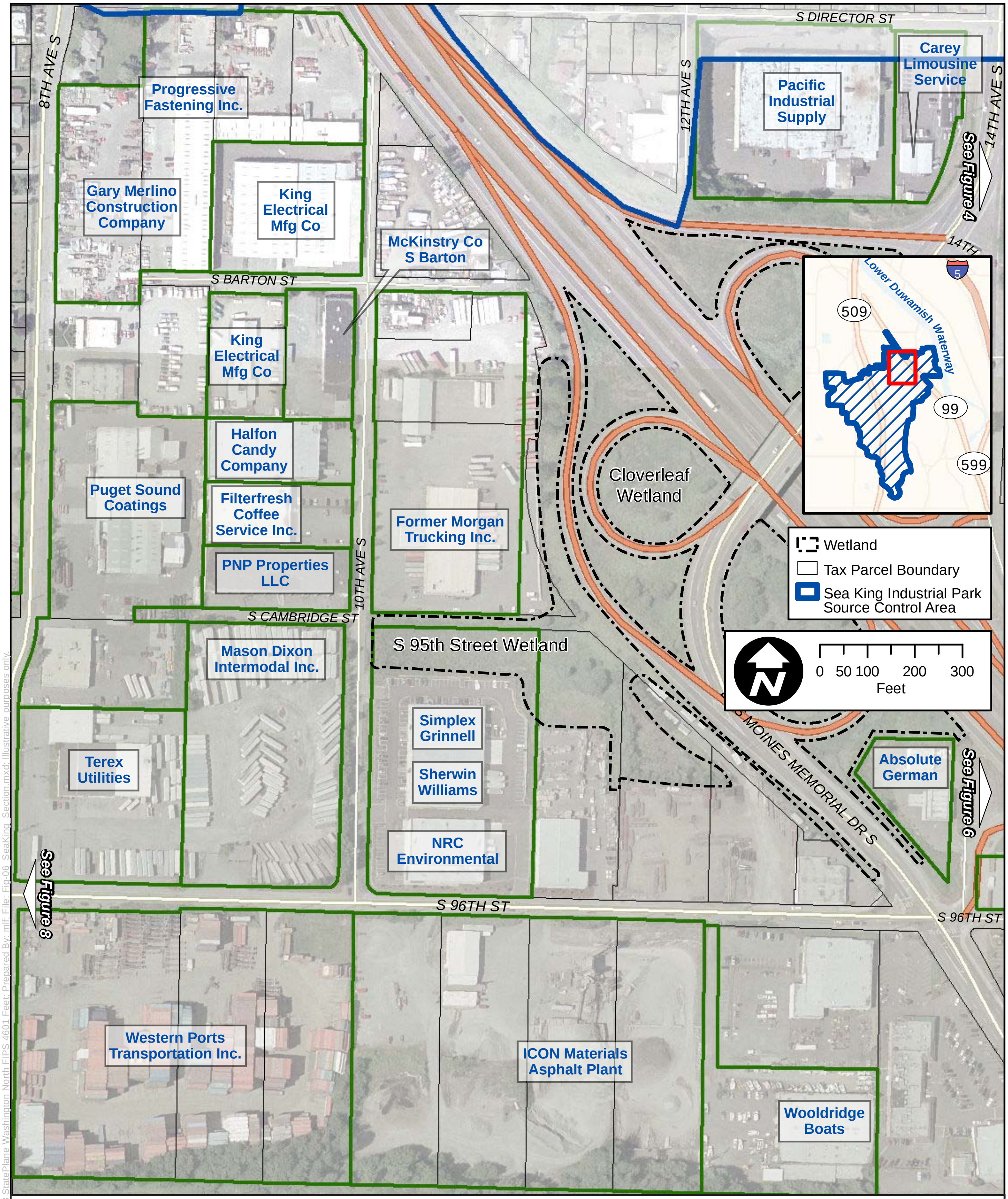

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Figure 7. Sea King Industrial Park Source Control Area (Section C)

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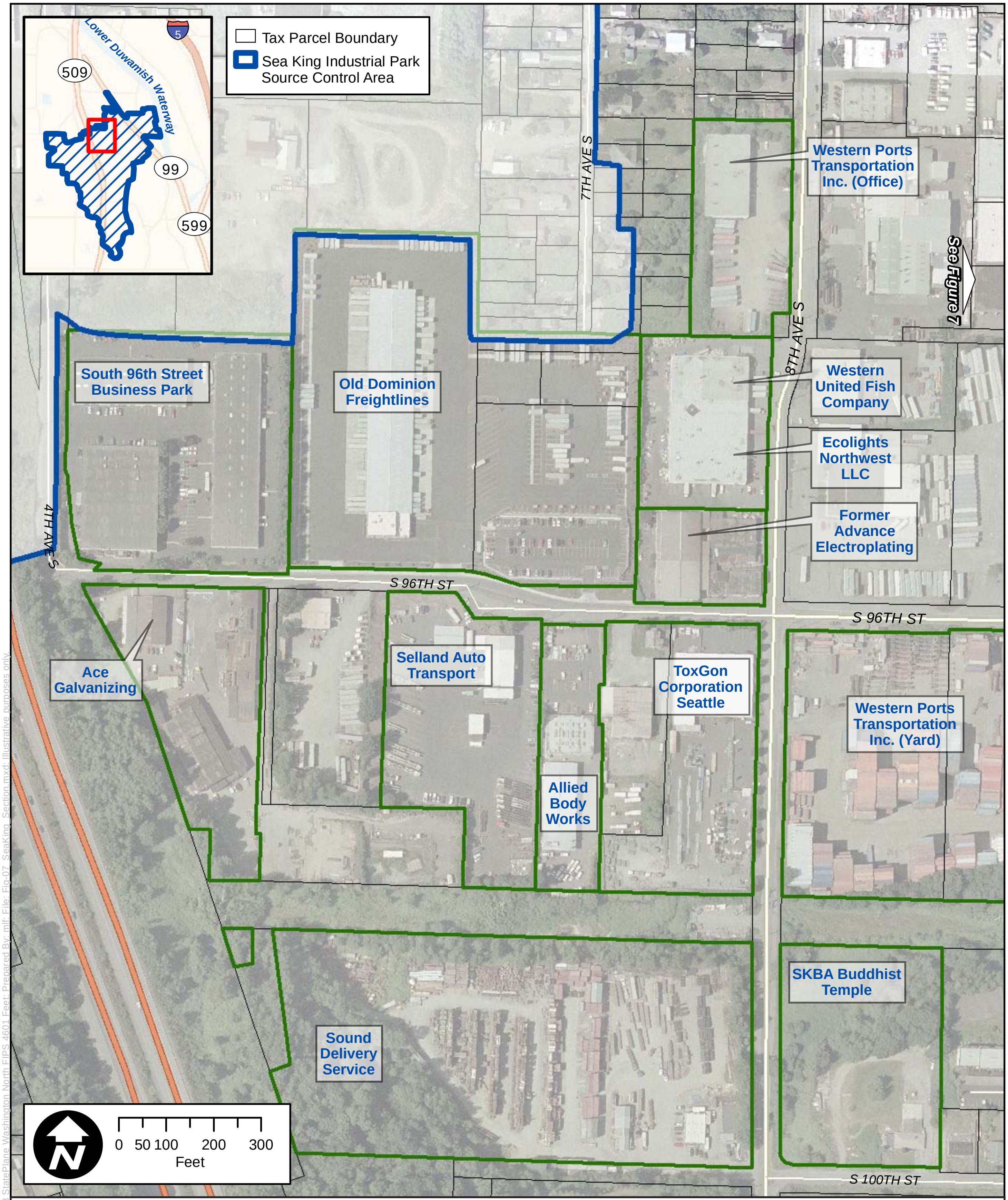

Figure 8. Sea King Industrial Park Source Control Area (Section D)

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet; Prepared By: mlf; File: Fig-07_SeaKing_Section.mxd; Illustrative purposes only.

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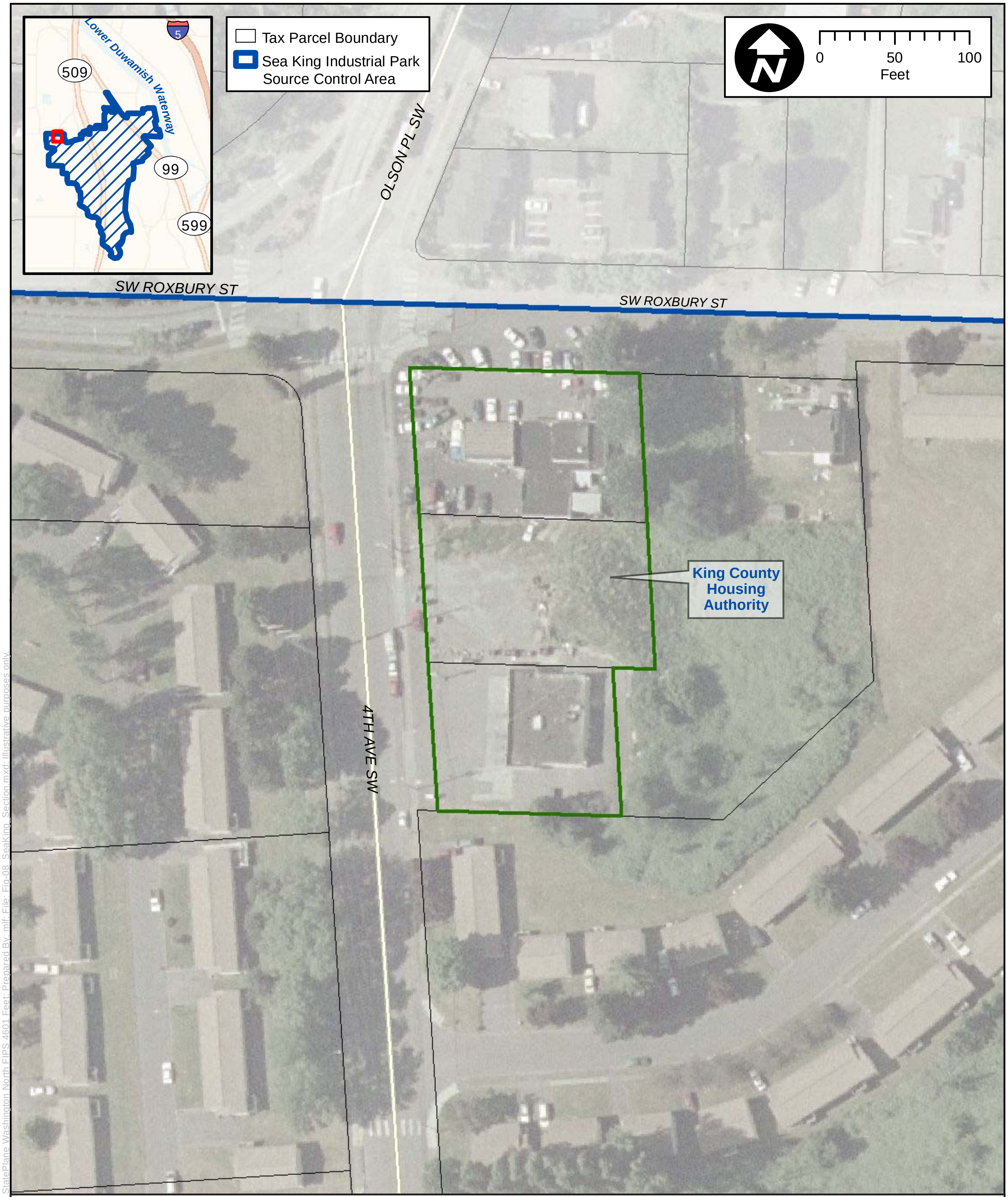

Figure 9. Sea King Industrial Park Source Control Area (Section E)

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet; Prepared By: mlf; File: Fig-08_SeaKing_Section.mxd; Illustrative purposes only.

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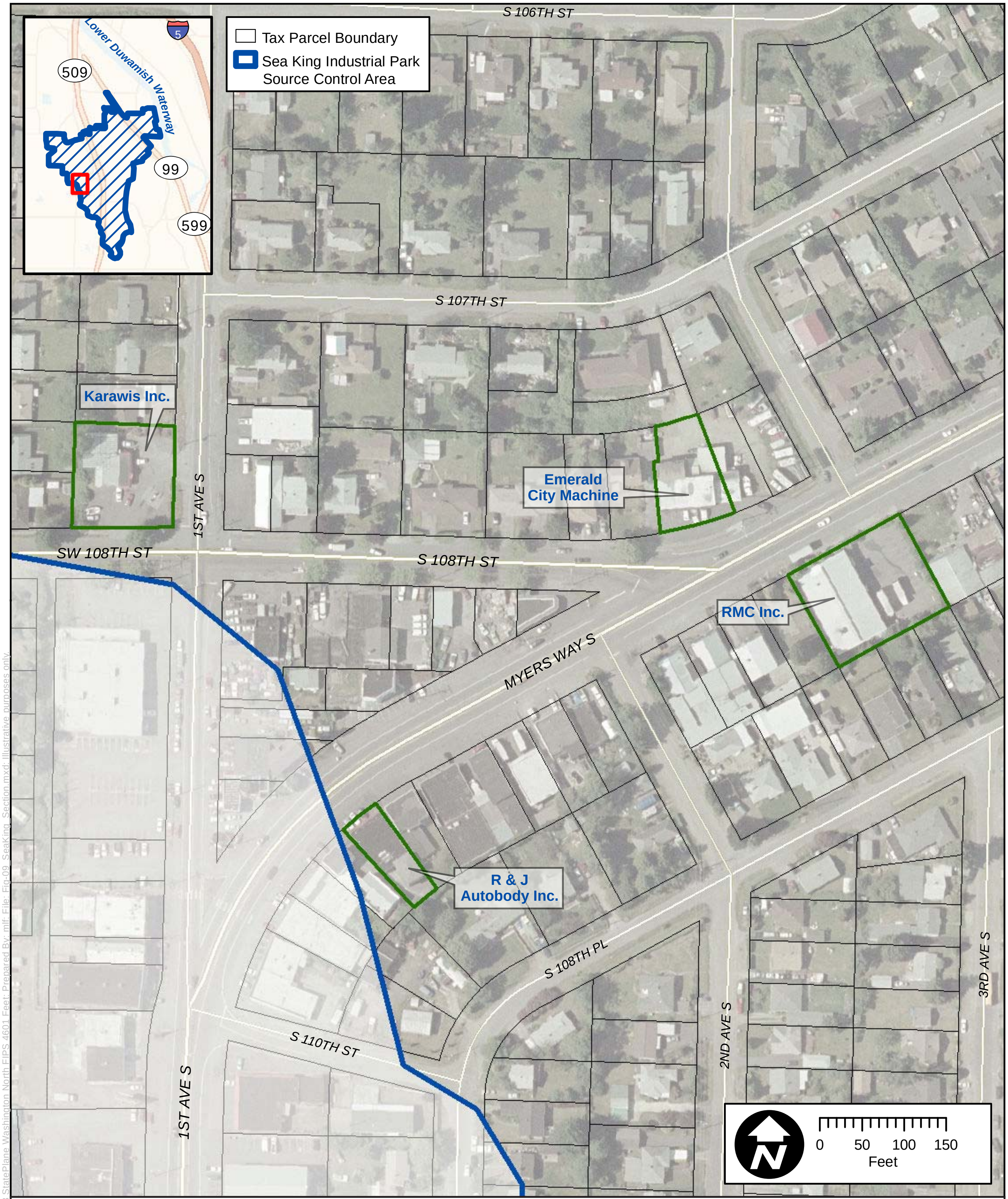

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Figure 10. Sea King Industrial Park Source Control Area (Section F)

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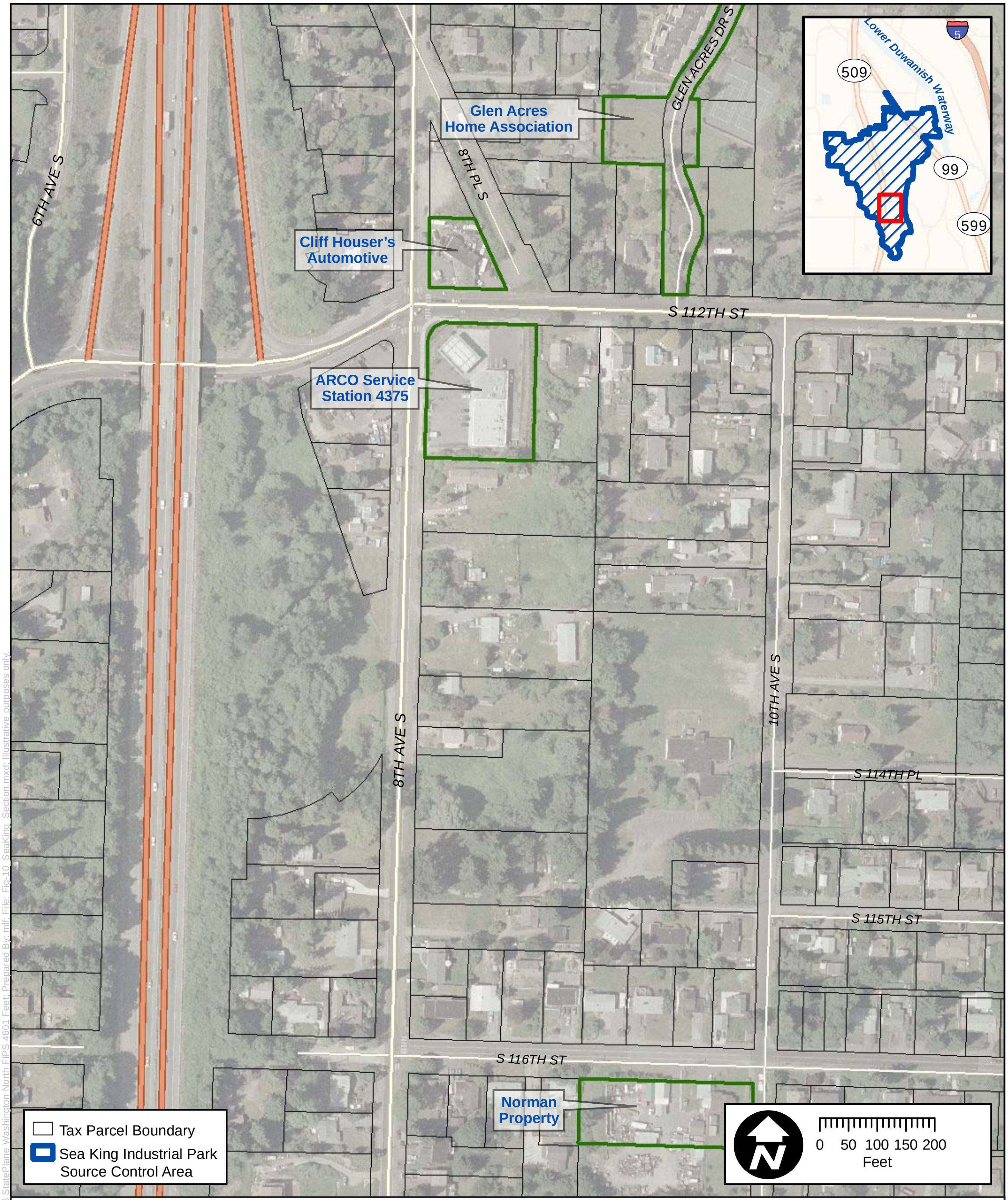

Figure 11. Sea King Industrial Park Source Control Area (Section G)

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet; Prepared By: mlf; File: Fig-10_SeaKing_Section.mxd; Illustrative purposes only.

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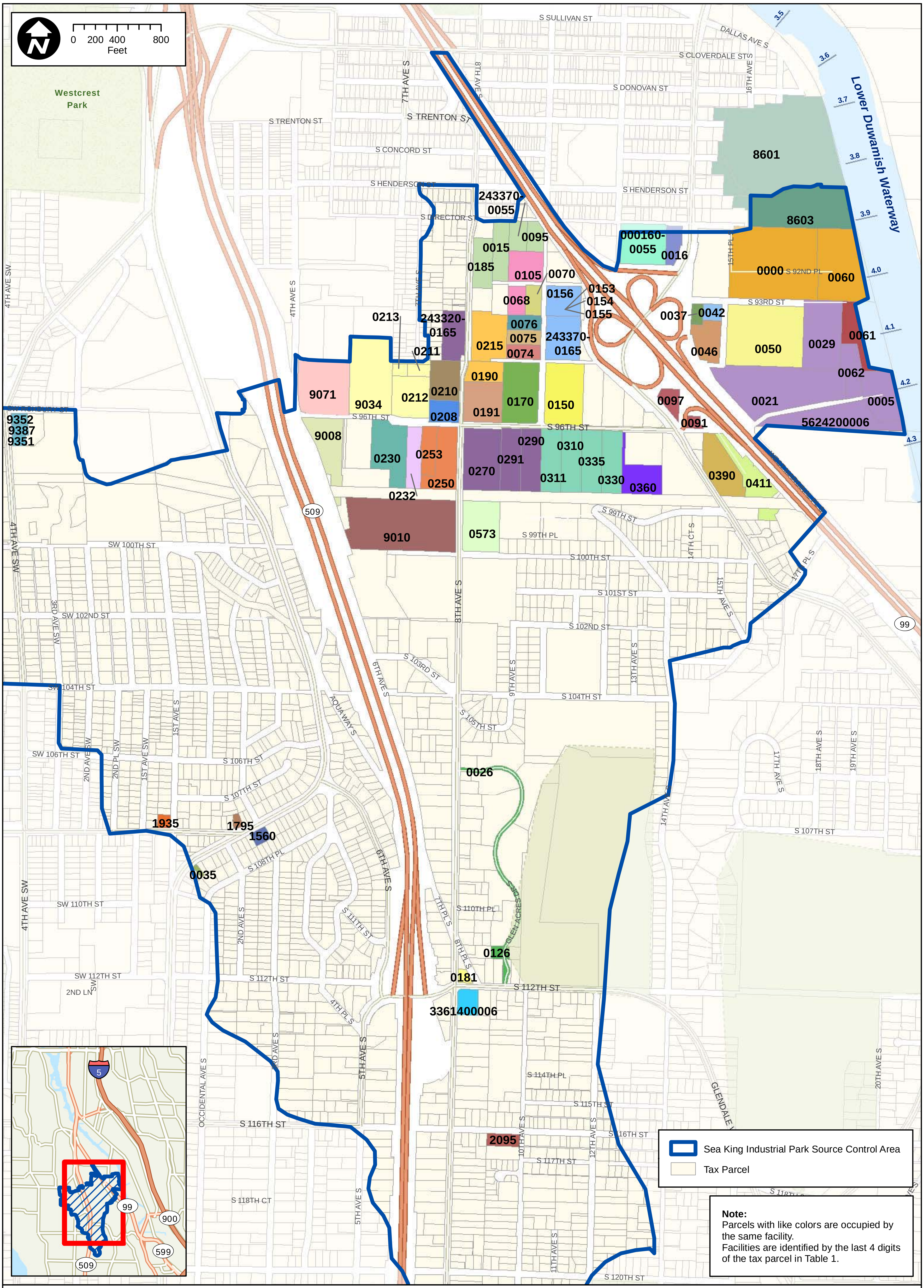

Note:
Parcels with like colors are occupied by the same facility.
Facilities are identified by the last 4 digits of the tax parcel in Table 1.

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Figure 12. Tax Parcels for Properties in the Sea King Industrial Park Source Control Area

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Prepared By: mlf
File: Fig-11_SeaKing_TaxParcels.mxd
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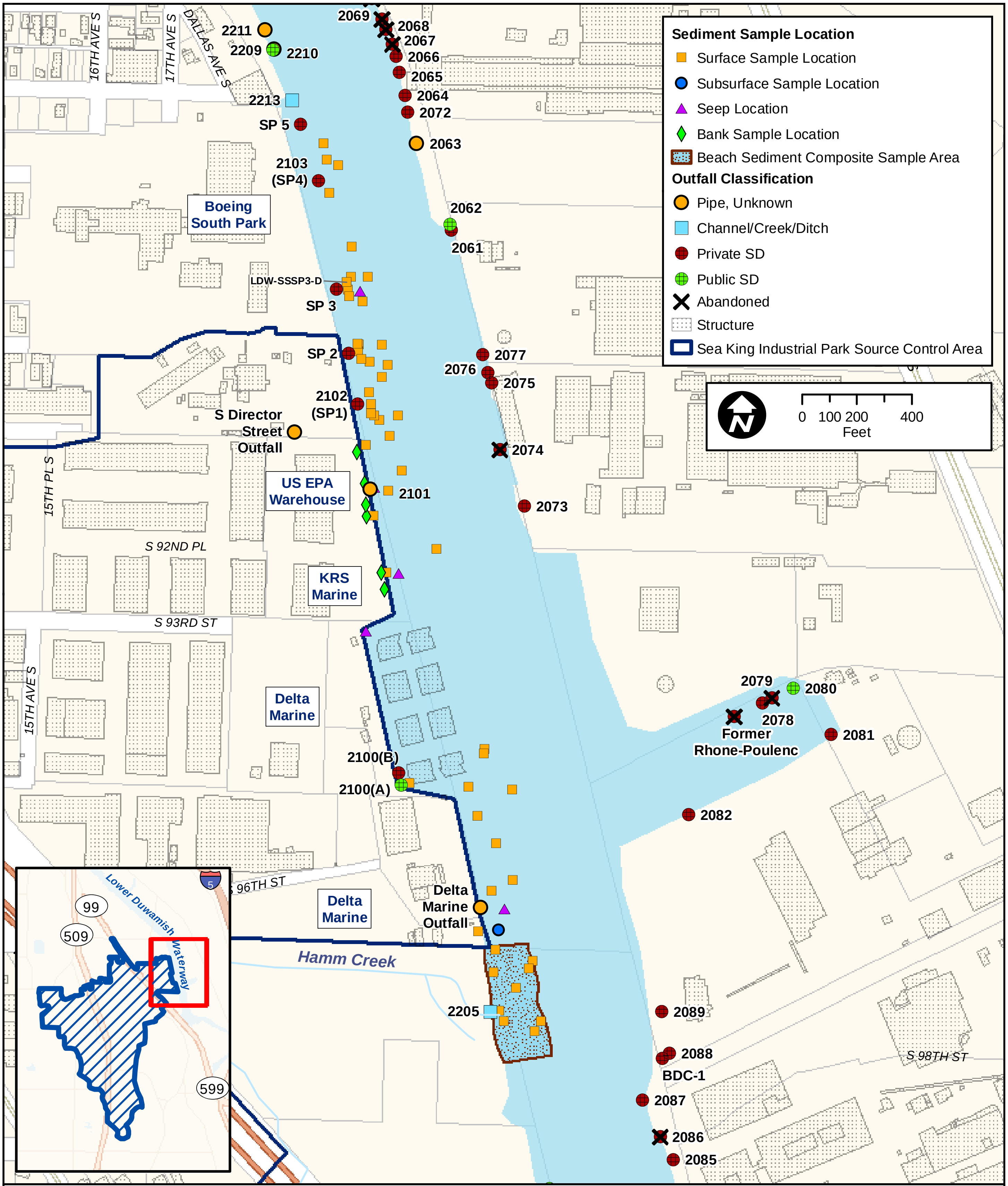

Figure 13a. Sediment, Seep, and Bank Soil Sample Locations Near the Sea King Industrial Park Source Control Area

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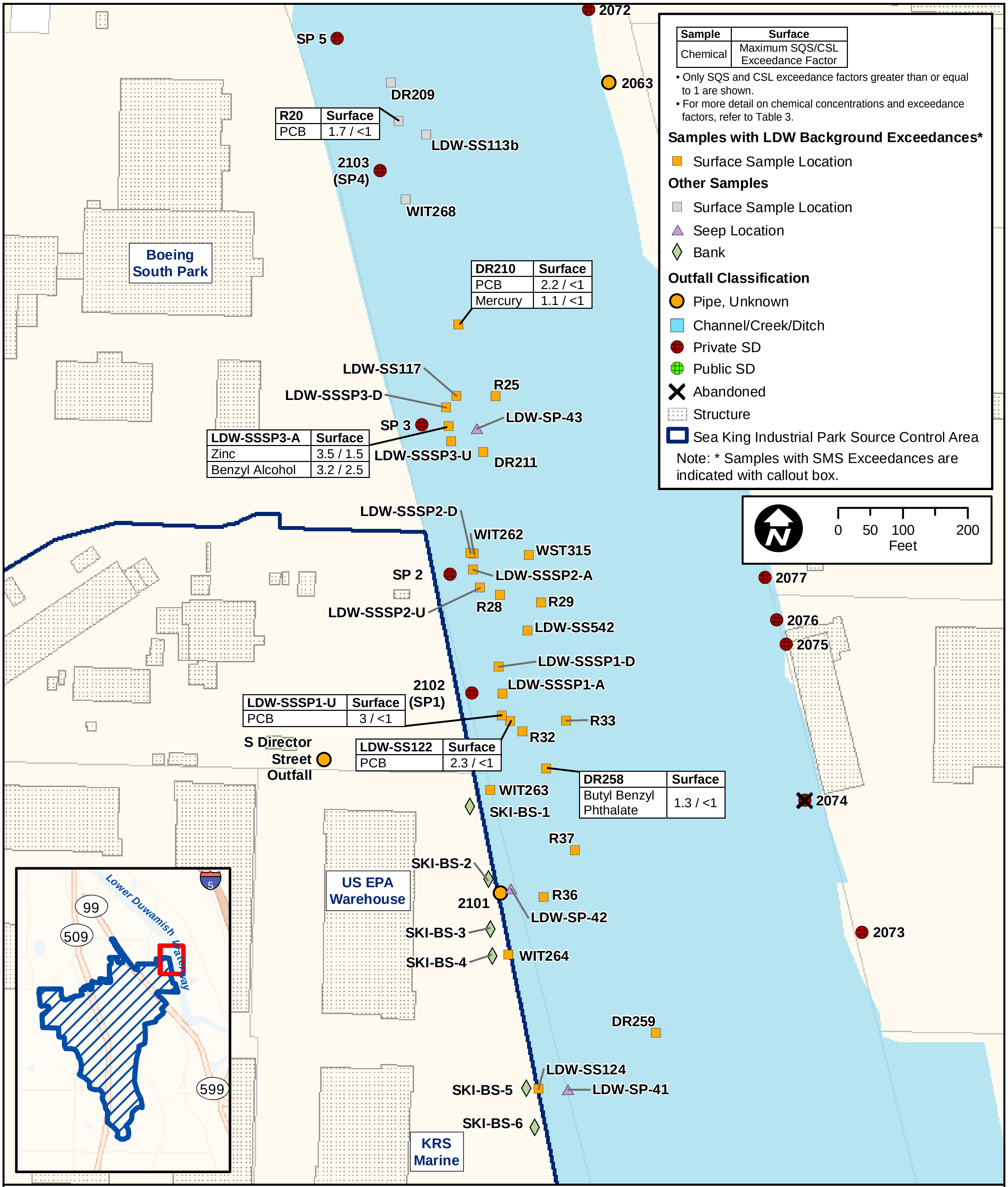

Sample	Surface
Chemical	Maximum SQS/CSL Exceedance Factor

- Only SQS and CSL exceedance factors greater than or equal to 1 are shown.
- For more detail on chemical concentrations and exceedance factors, refer to Table 3.

Samples with LDW Background Exceedances*

🟧 Surface Sample Location

Other Samples

⬜ Surface Sample Location

△ Seep Location

◇ Bank

Outfall Classification

● Pipe, Unknown

🟦 Channel/Creek/Ditch

● Private SD

● Public SD

✕ Abandoned

▨ Structure

▭ Sea King Industrial Park Source Control Area

Note: * Samples with SMS Exceedances are indicated with callout box.

R20	Surface
PCB	1.7 / <1

DR210	Surface
PCB	2.2 / <1
Mercury	1.1 / <1

LDW-SSSP3-A	Surface
Zinc	3.5 / 1.5
Benzyl Alcohol	3.2 / 2.5

LDW-SSSP1-U	Surface
PCB	3 / <1

LDW-SS122	Surface
PCB	2.3 / <1

DR258	Surface
Butyl Benzyl Phthalate	1.3 / <1

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ECOLOGY
State of Washington

Figure 13b. Sediment, Seep, and Bank Soil Sample Locations Near the Northern Portion of the Sea King Industrial Park Source Control Area

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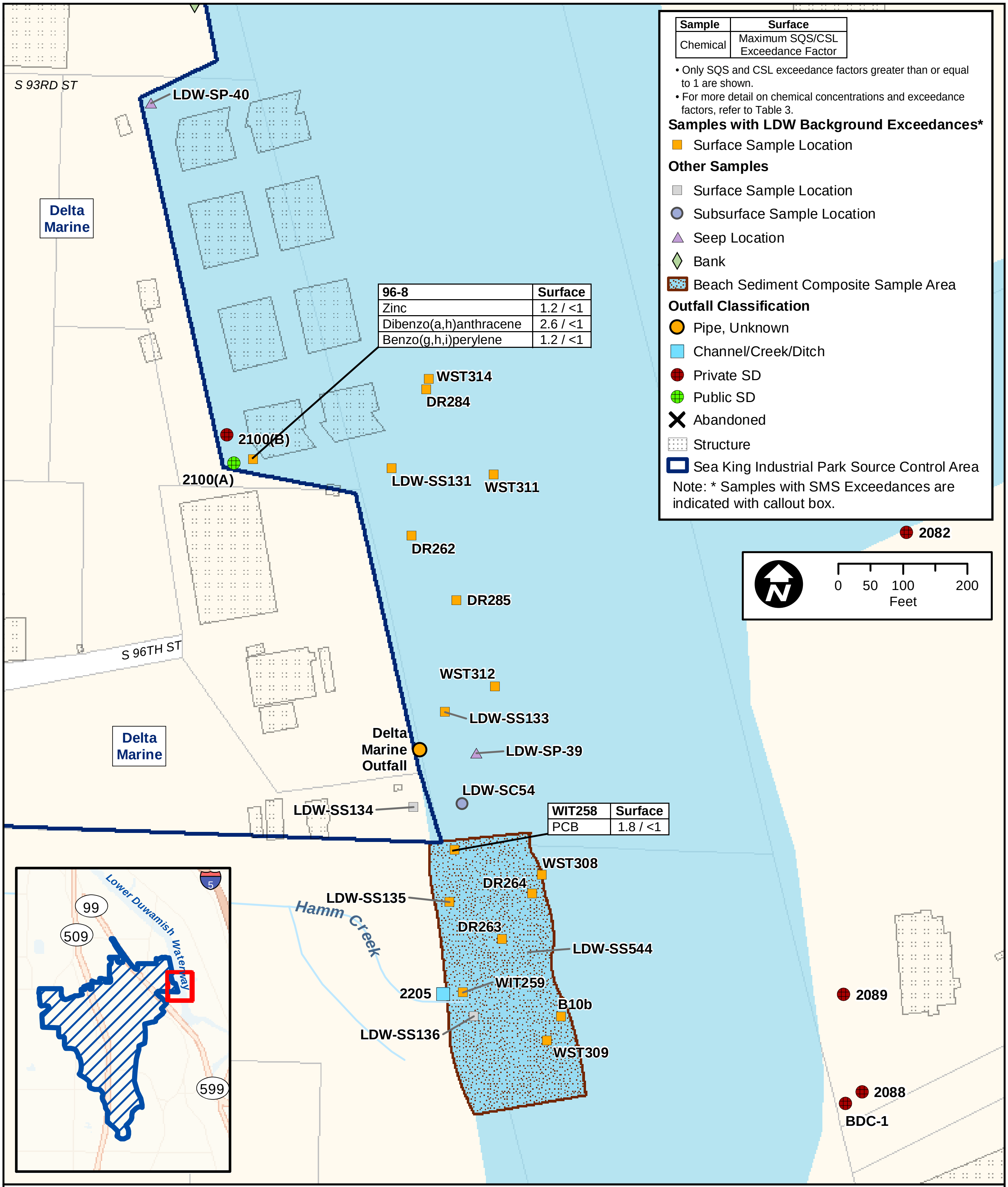

Sample	Surface
Chemical	Maximum SQS/CSL Exceedance Factor

- Only SQS and CSL exceedance factors greater than or equal to 1 are shown.
- For more detail on chemical concentrations and exceedance factors, refer to Table 3.

Note: * Samples with SMS Exceedances are indicated with callout box.

96-8	Surface
Zinc	1.2 / <1
Dibenzo(a,h)anthracene	2.6 / <1
Benzo(g,h,i)perylene	1.2 / <1

WIT258	Surface
PCB	1.8 / <1

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State of Washington

Figure 13c. Sediment, Seep, and Bank Soil Sample Locations Near the Southern Portion of the Sea King Industrial Park Source Control Area

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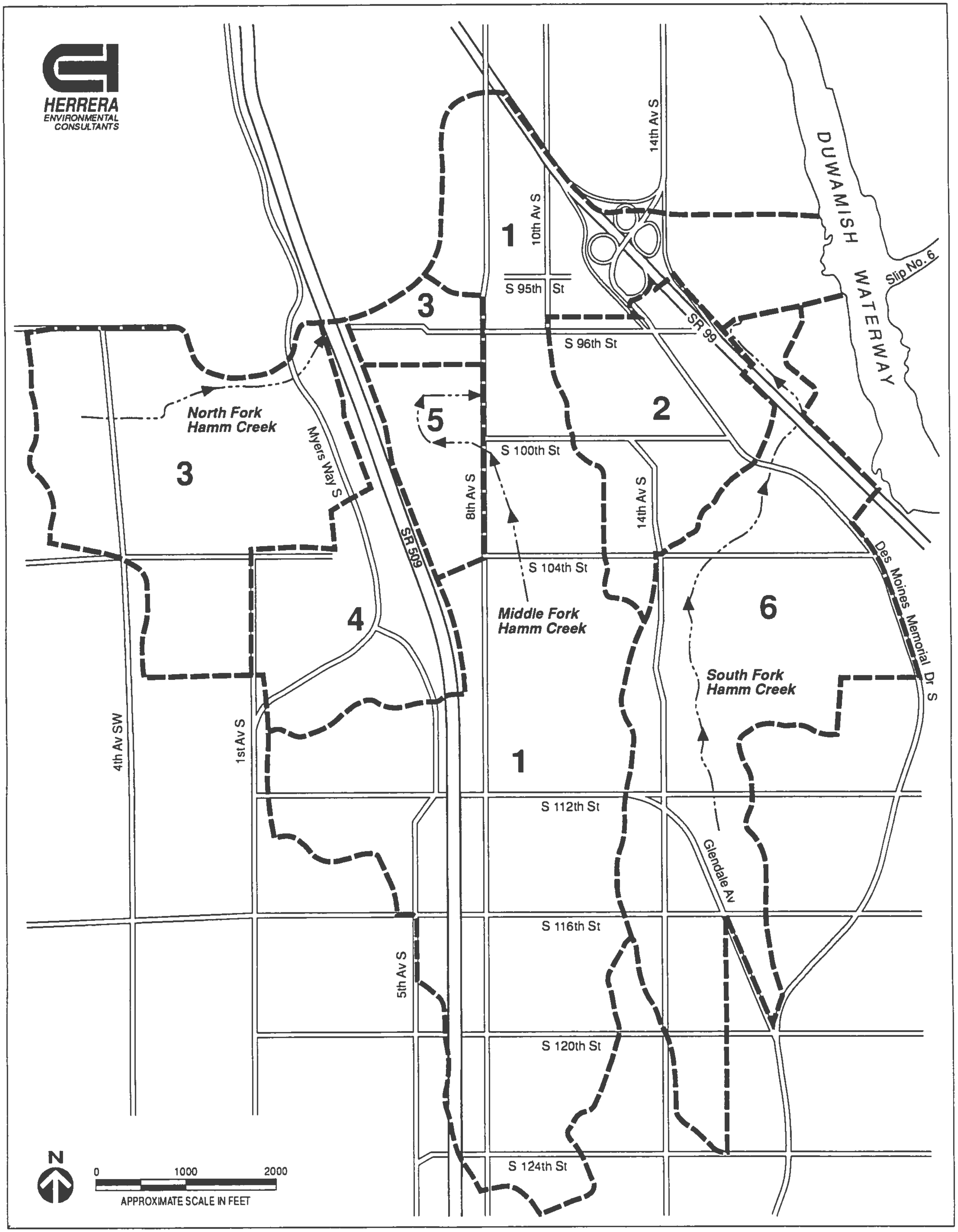

Source: Herrera 1994

Figure 14. S 96th Street Drainage Basin and Sub-basins (1994)

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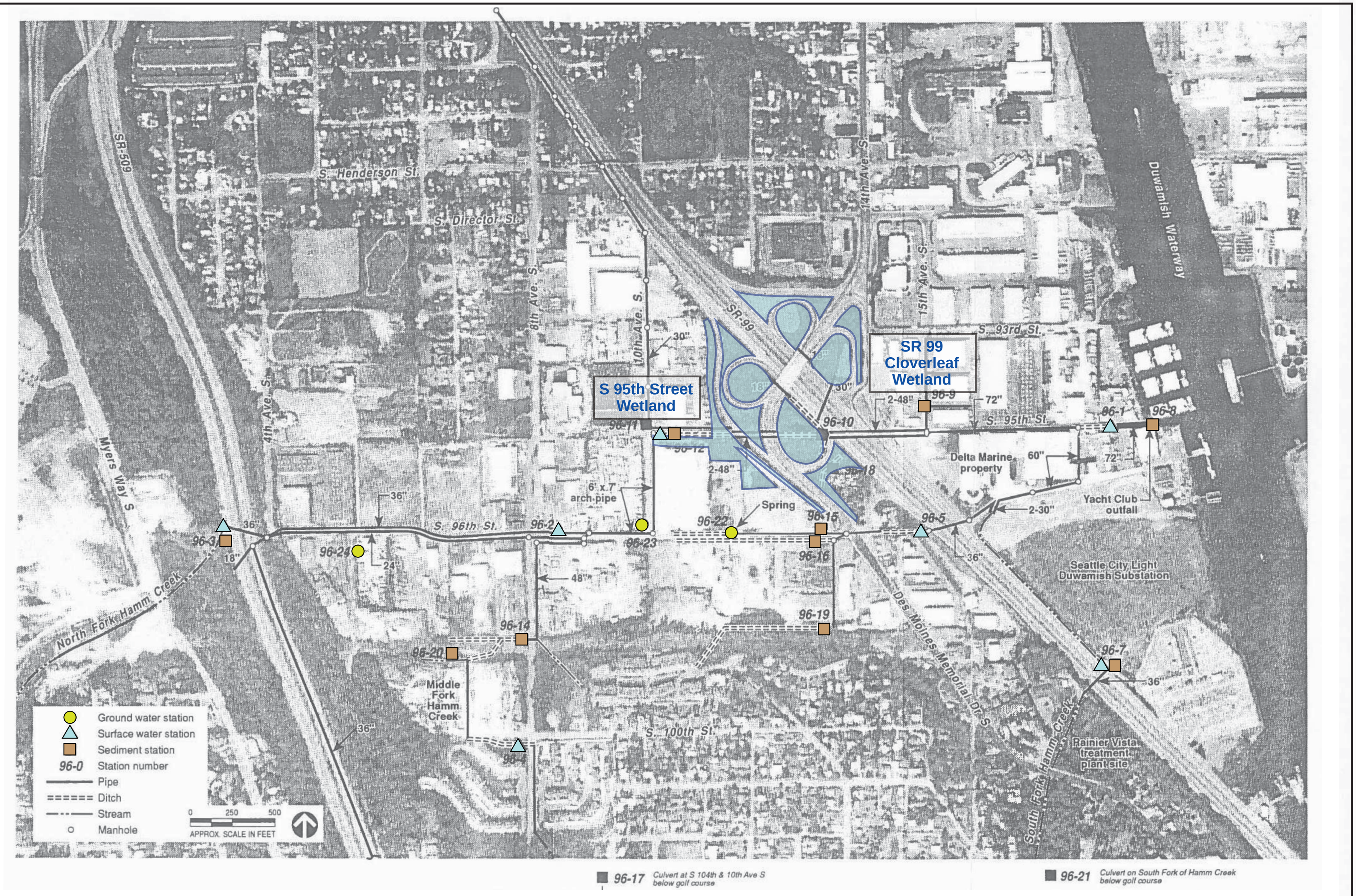
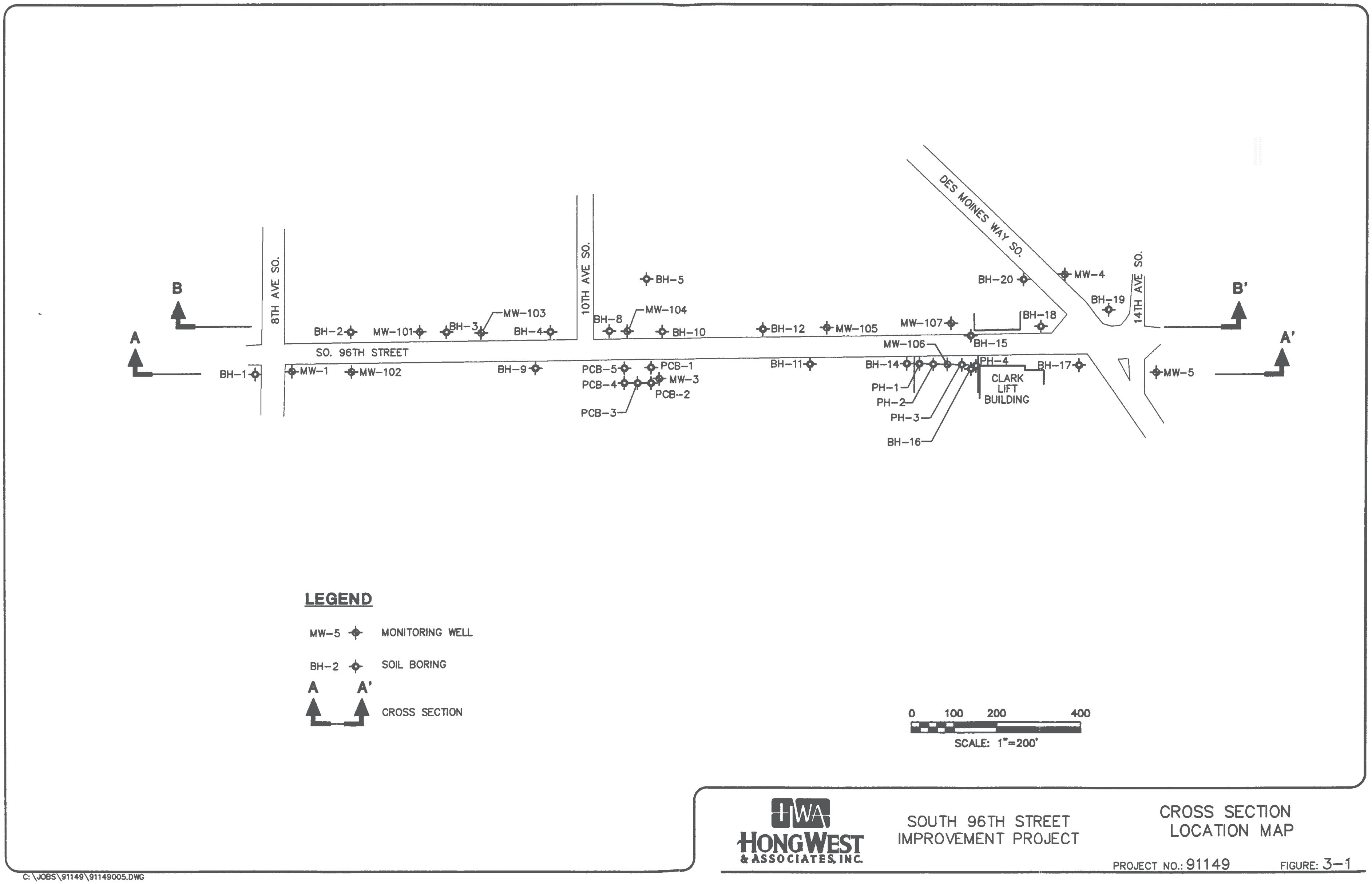
SAIC From Science to Solutions



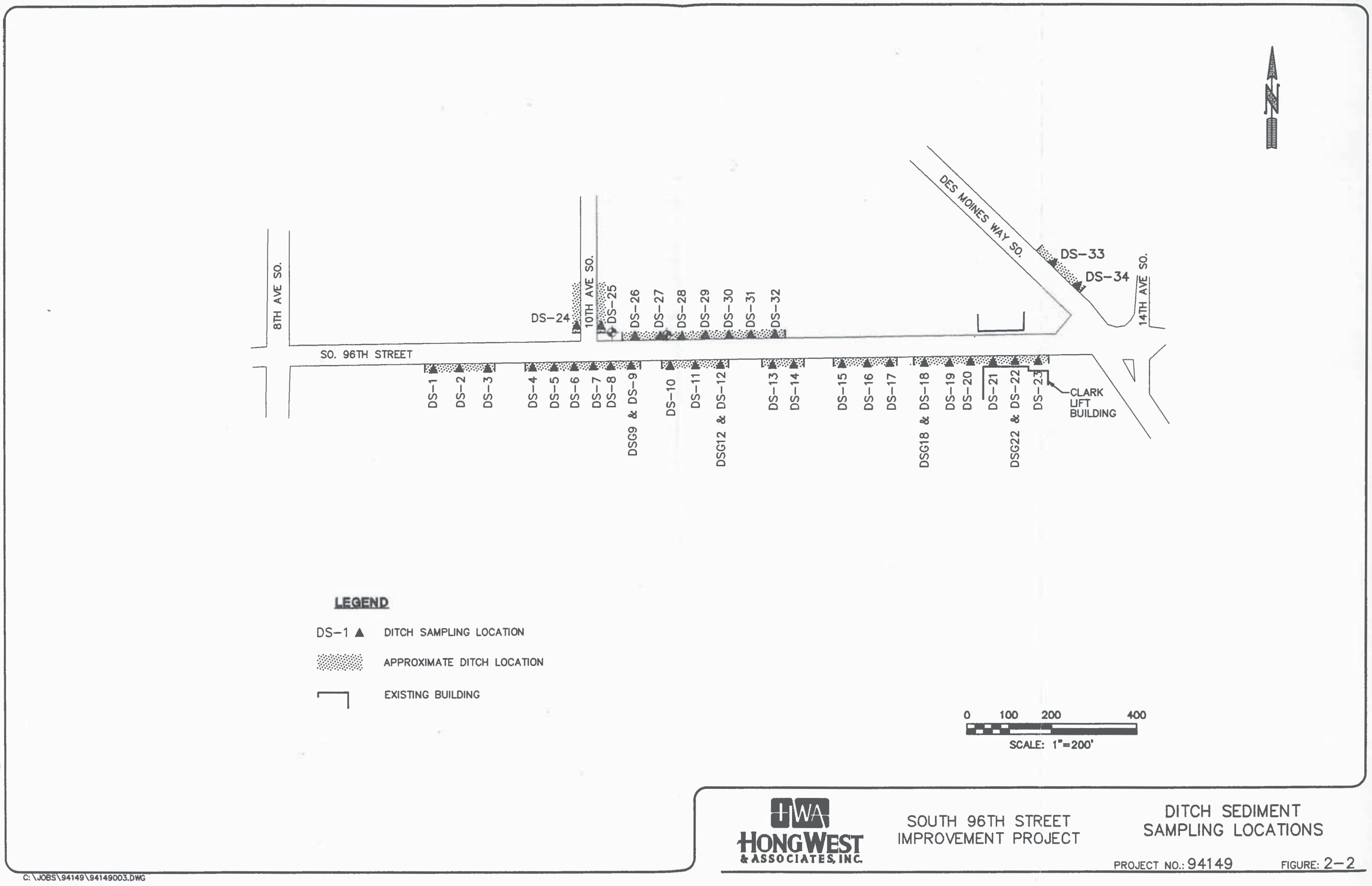
Source: Herrera 1994

Figure 15a. S 96th Street Drainage Basin (1994) and Water Quality Engineering Study Sample Locations



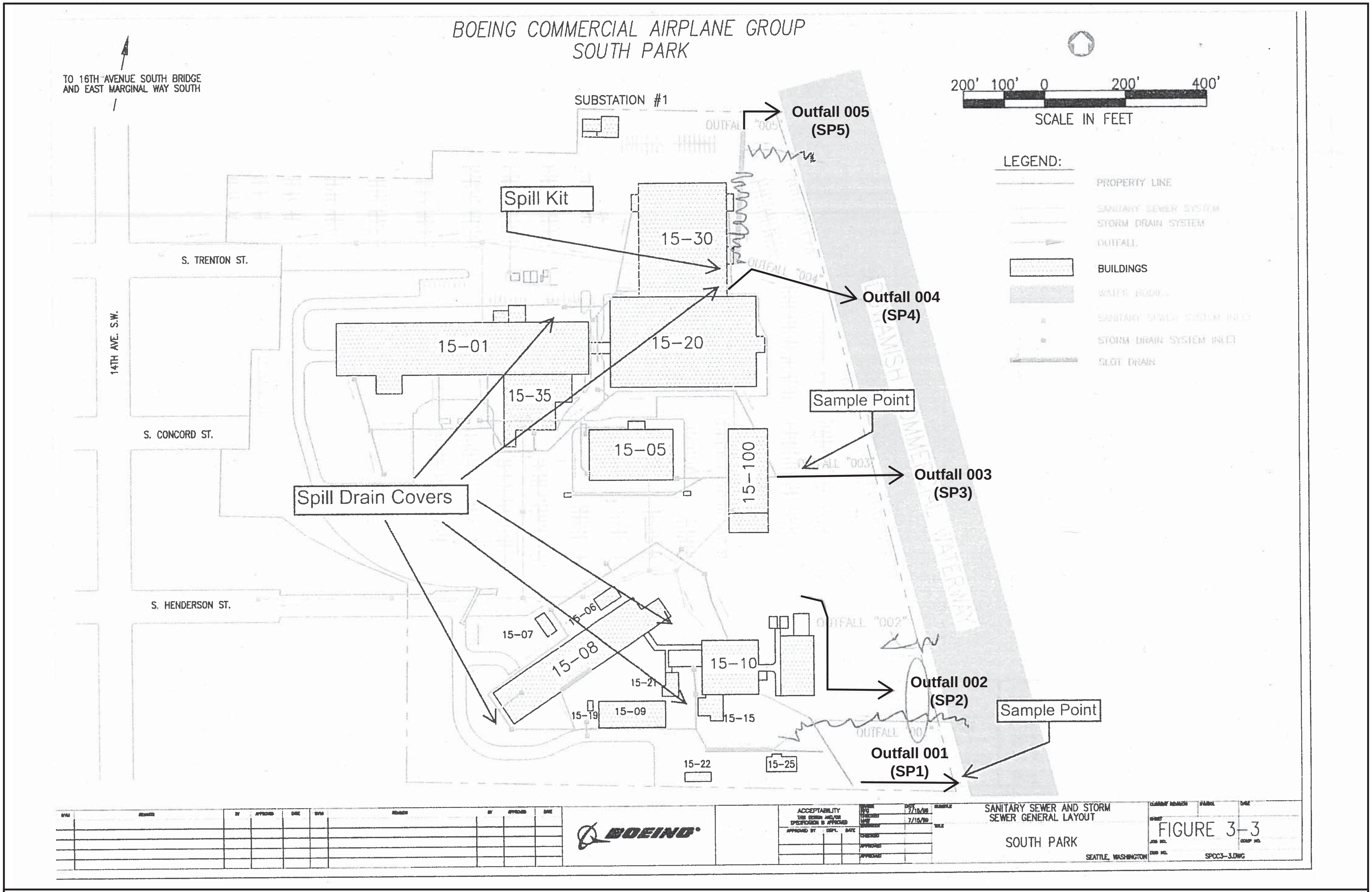
Source: Hong West 1995

Figure 15b. S 96th Street Soil and Groundwater Quality Assessment (1991 to 1995)



Source: Hong West 1995

Figure 15c. S 96th Street Drainage Ditch Soil Sample Locations (1993)



Source: Boeing 2011a

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Figure 16. Boeing South Park Facility Drainage Map

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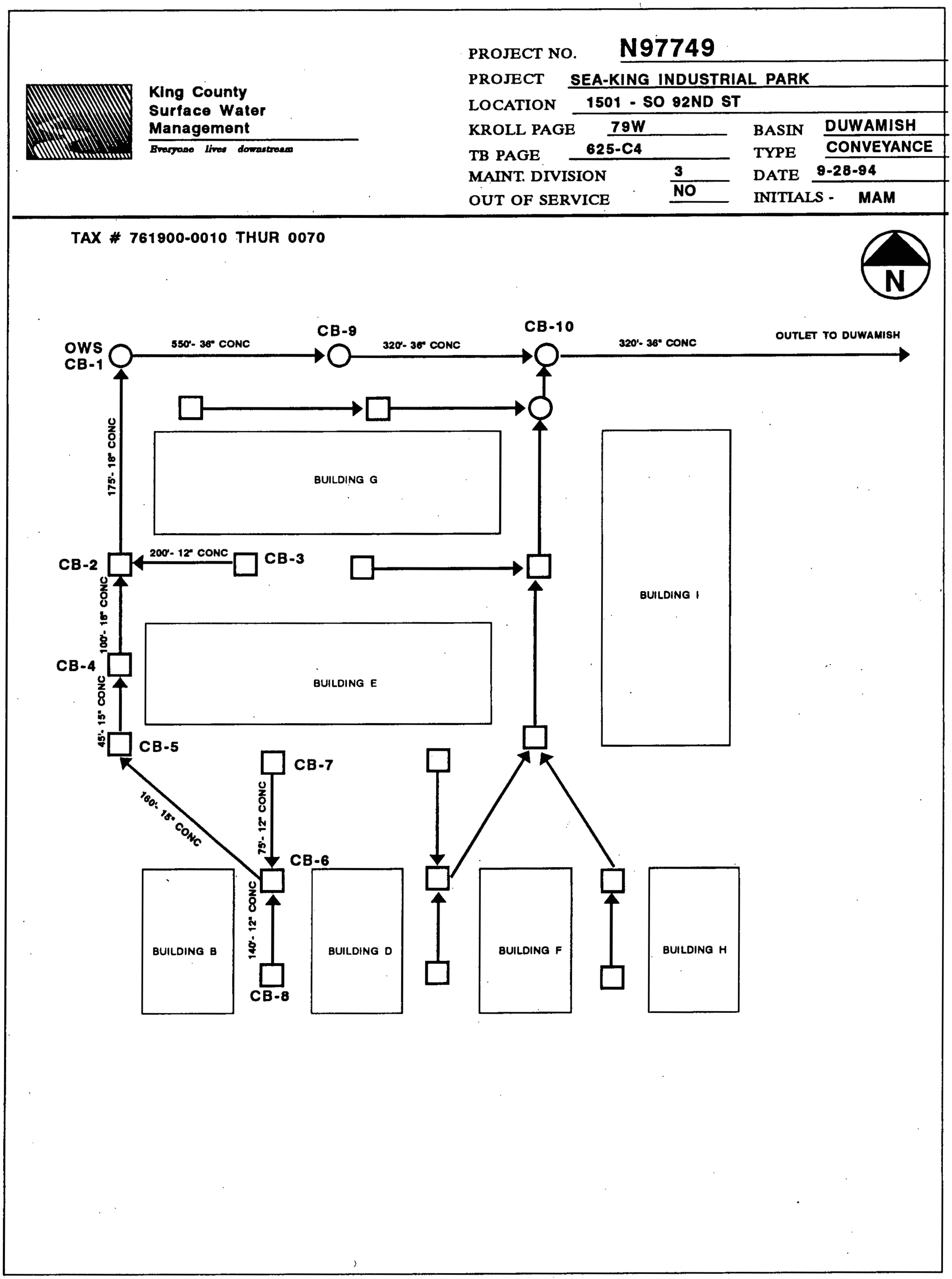


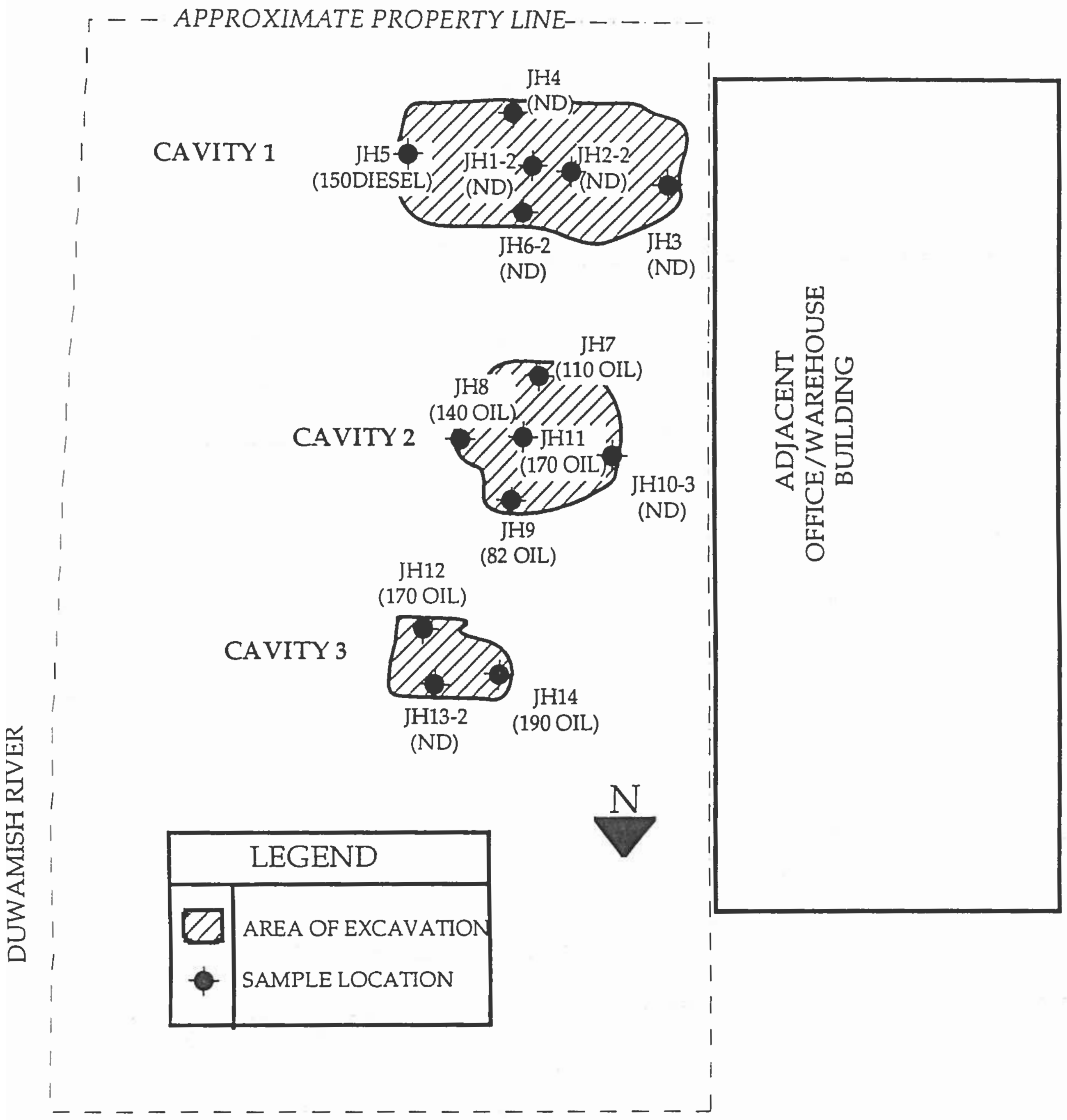
King County
Surface Water
Management
Everyone lives downstream

PROJECT NO. N97749
PROJECT SEA-KING INDUSTRIAL PARK
LOCATION 1501 - SO 92ND ST
KROLL PAGE 79W
BASIN DUWAMISH
TB PAGE 625-C4
TYPE CONVEYANCE
MAINT. DIVISION 3
DATE 9-28-94
OUT OF SERVICE NO
INITIALS - MAM

TAX # 761900-0010 THUR 0070

Source: King County 1994c

Figure 17. Sea King Industrial Park Facility Drainage Map



Source: Hurley 2000

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Figure 18. KRS Marine
Environmental Investigation Map

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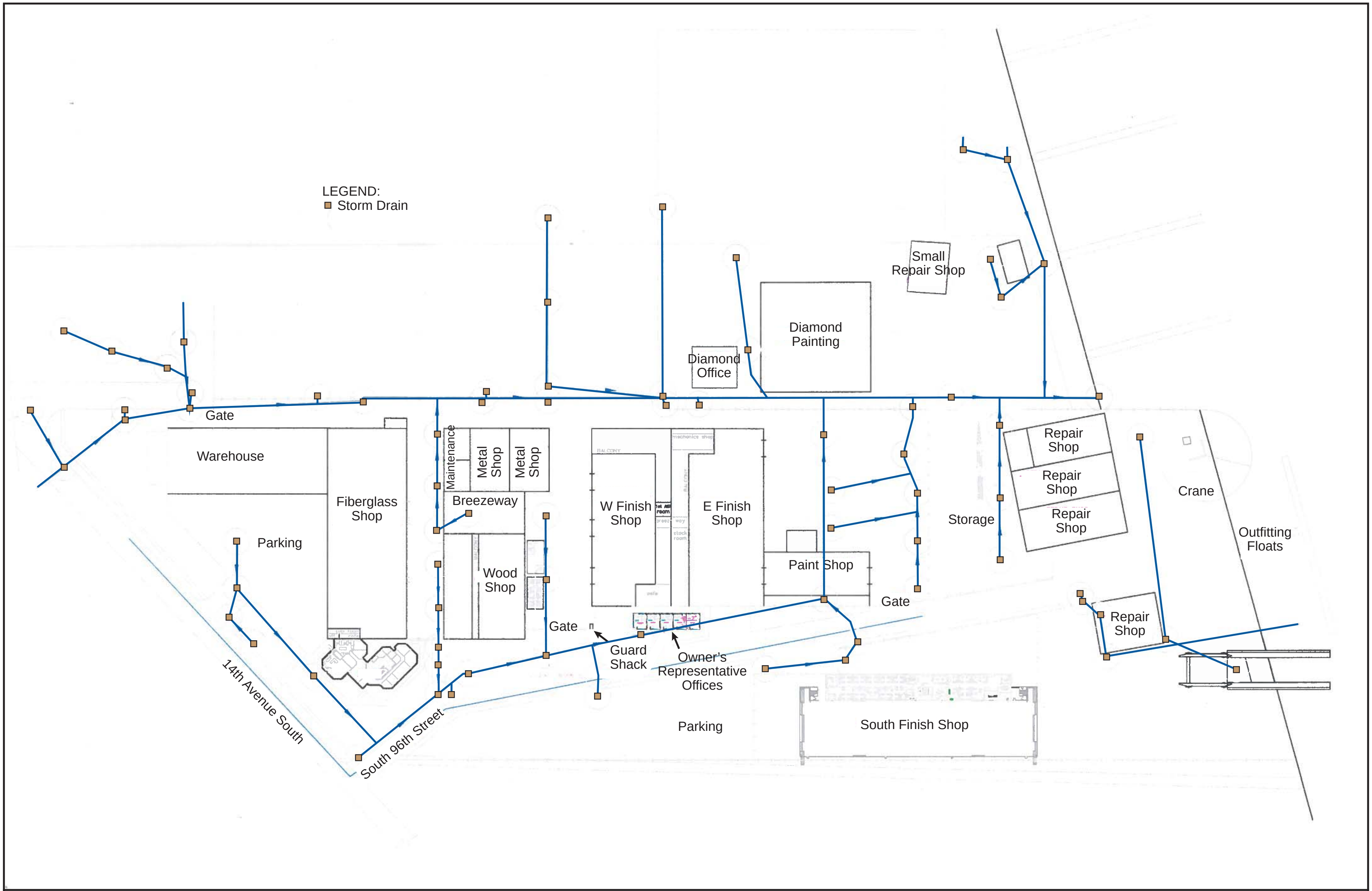
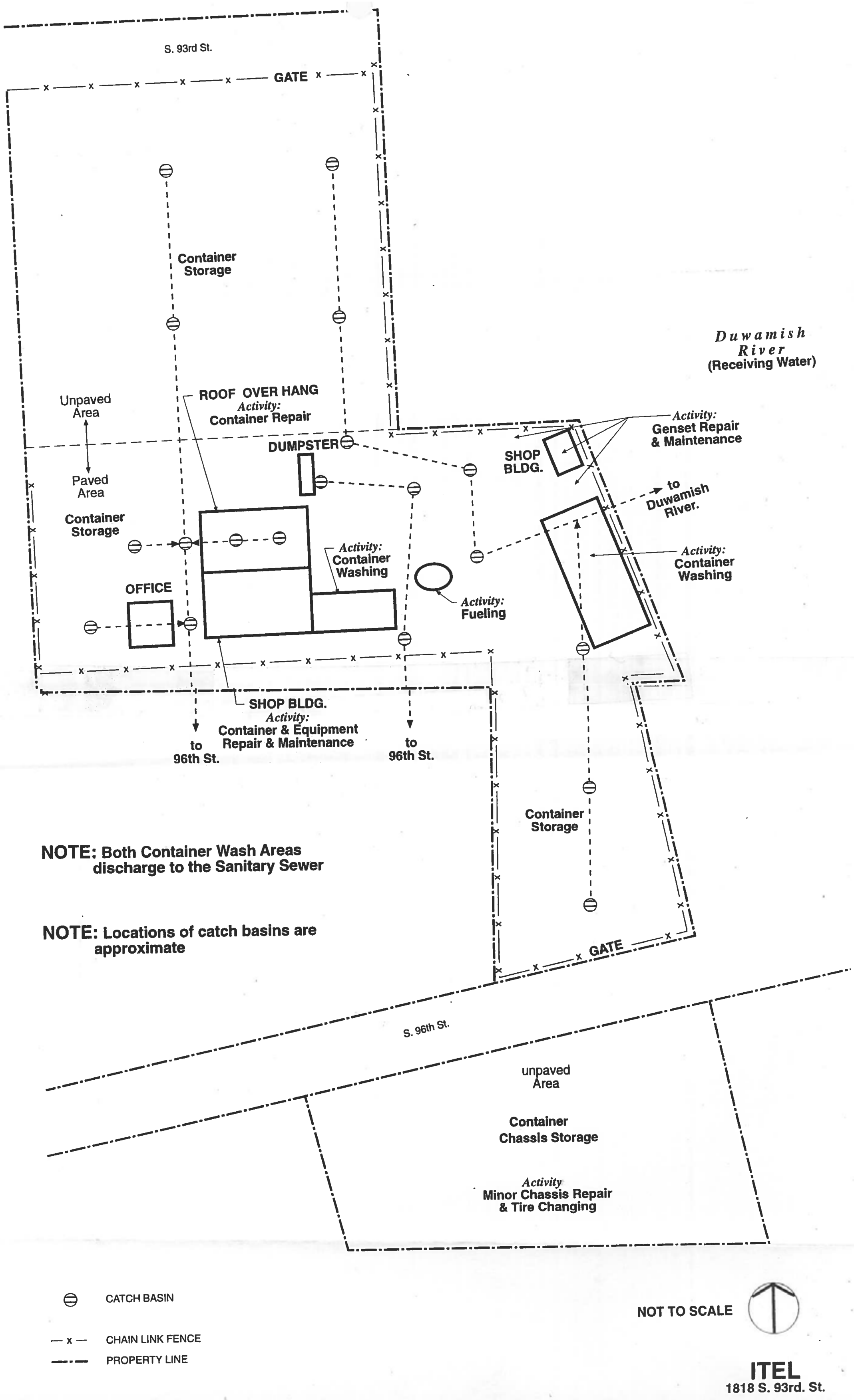


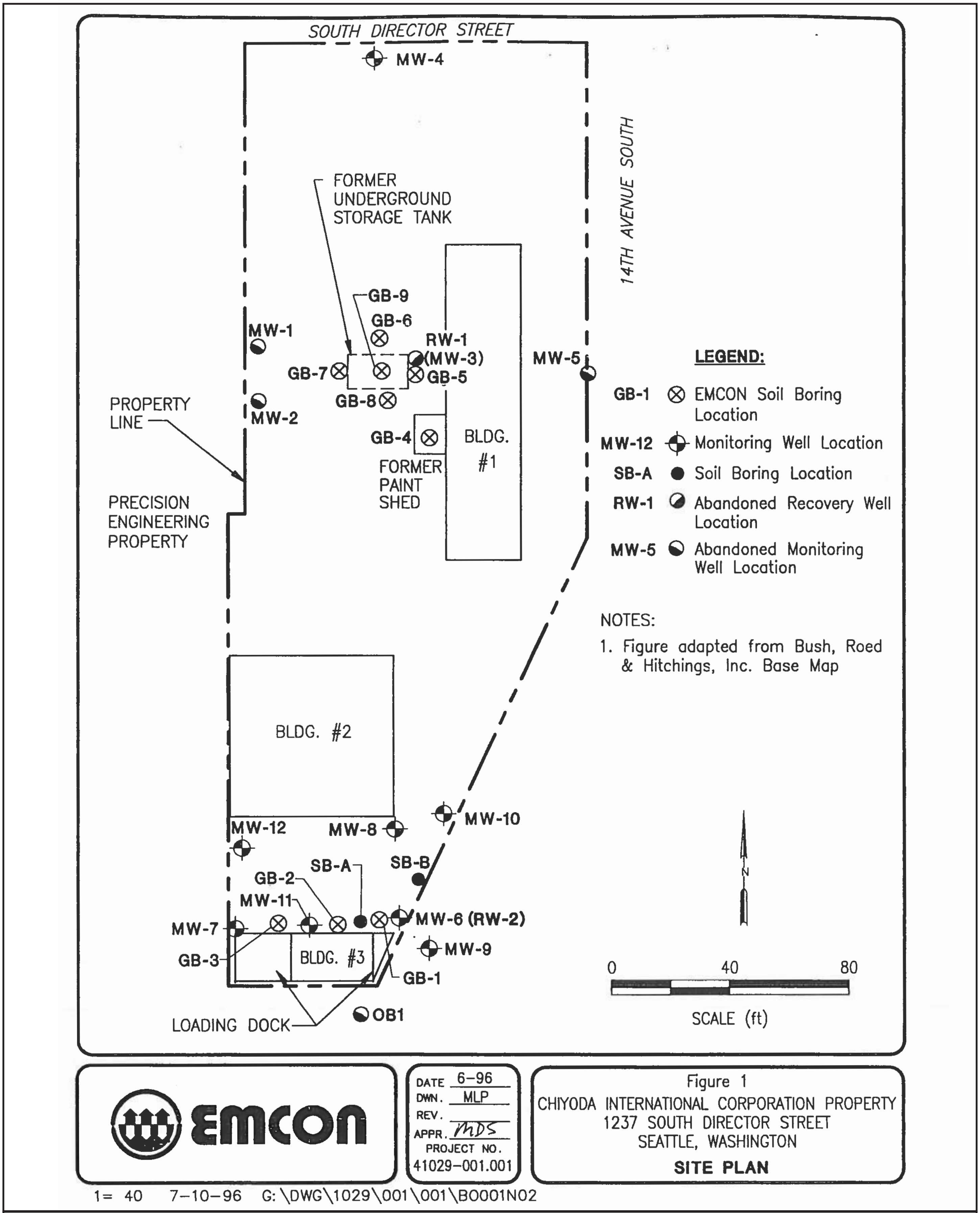
Source: Delta Marine 2012a

Figure 19a. Delta Marine Facility Drainage Map



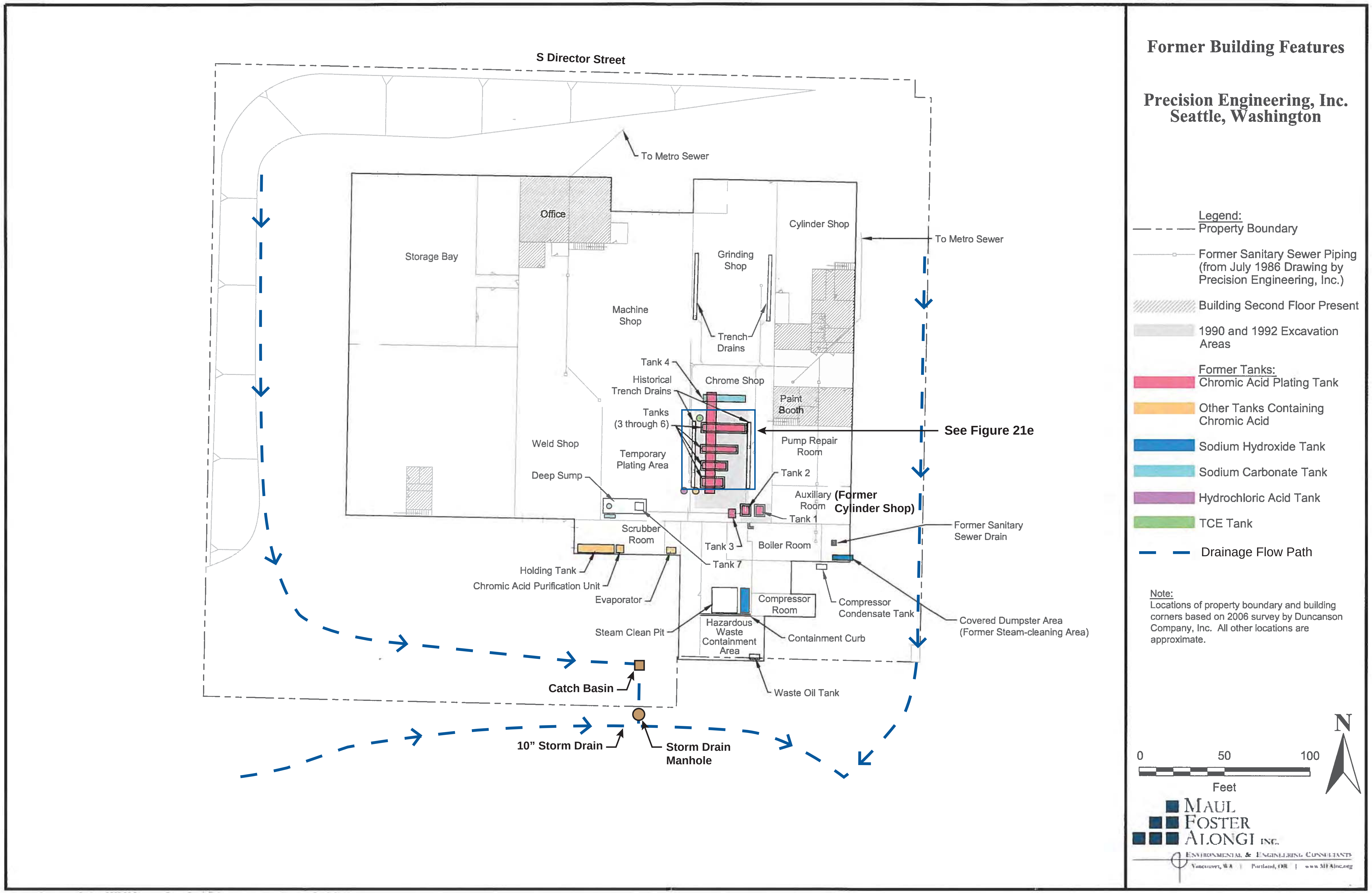
Source: Global Intermodal 1996

Figure 19b. Former Global Intermodal Facility Drainage Map



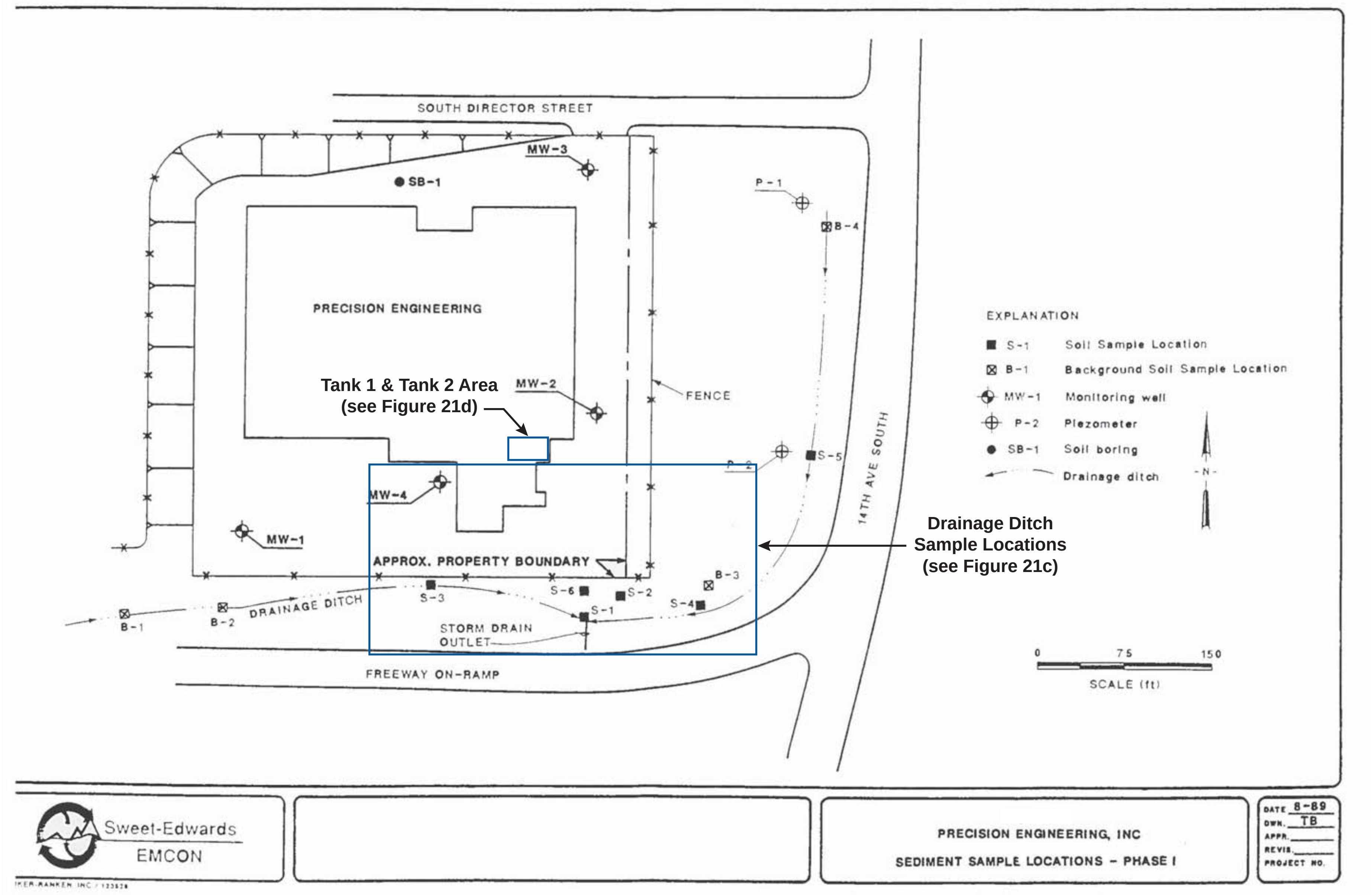
Source: EMCON 1996, 1998

Figure 20. Carey Limousine Service (Former Kaspac Chiyoda Property) Environmental Investigation Map



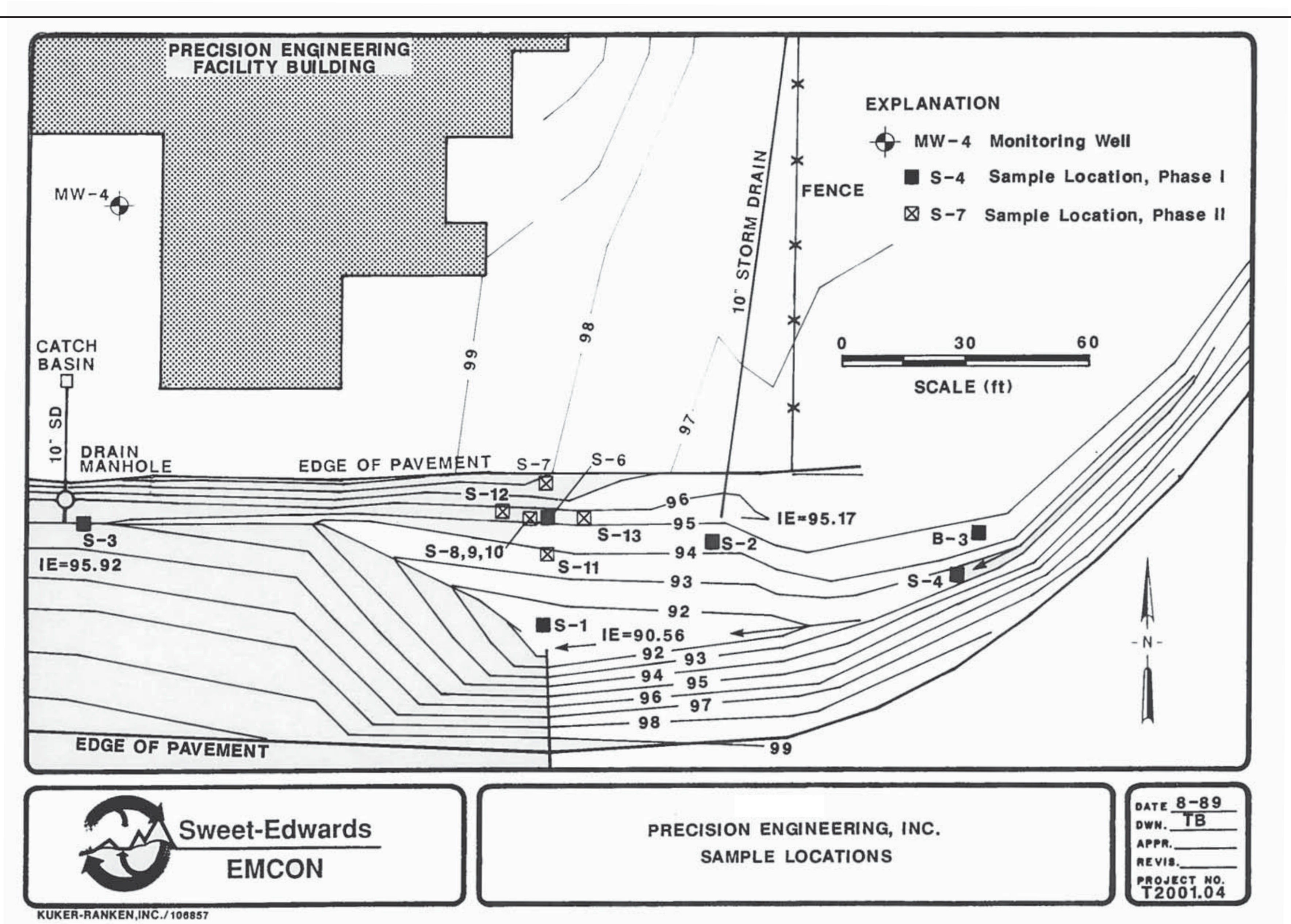
Source: MFA 2005, MFA 2008

Figure 21a. Former Precision Engineering Facility Plan



Source: Sweet-Edwards/EMCON 1990a

Figure 21b. Former Precision Engineering Environmental Investigations (1988 to 1990)



Source: Sweet-Edwards/EMCON 1990a

DEPARTMENT OF ECOLOGY State of Washington

Figure 21c. Former Precision Engineering Drainage Ditch Sample Locations

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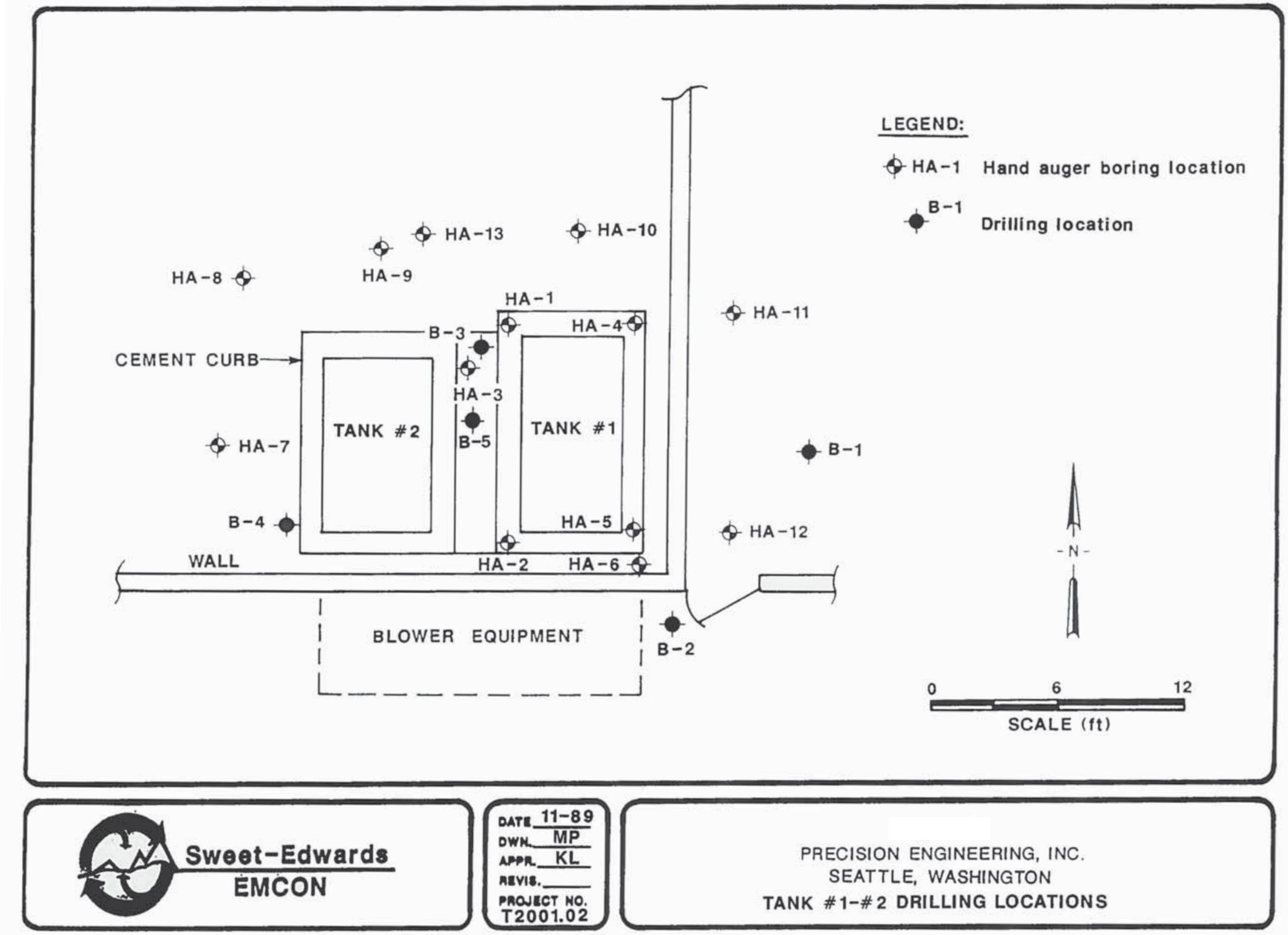
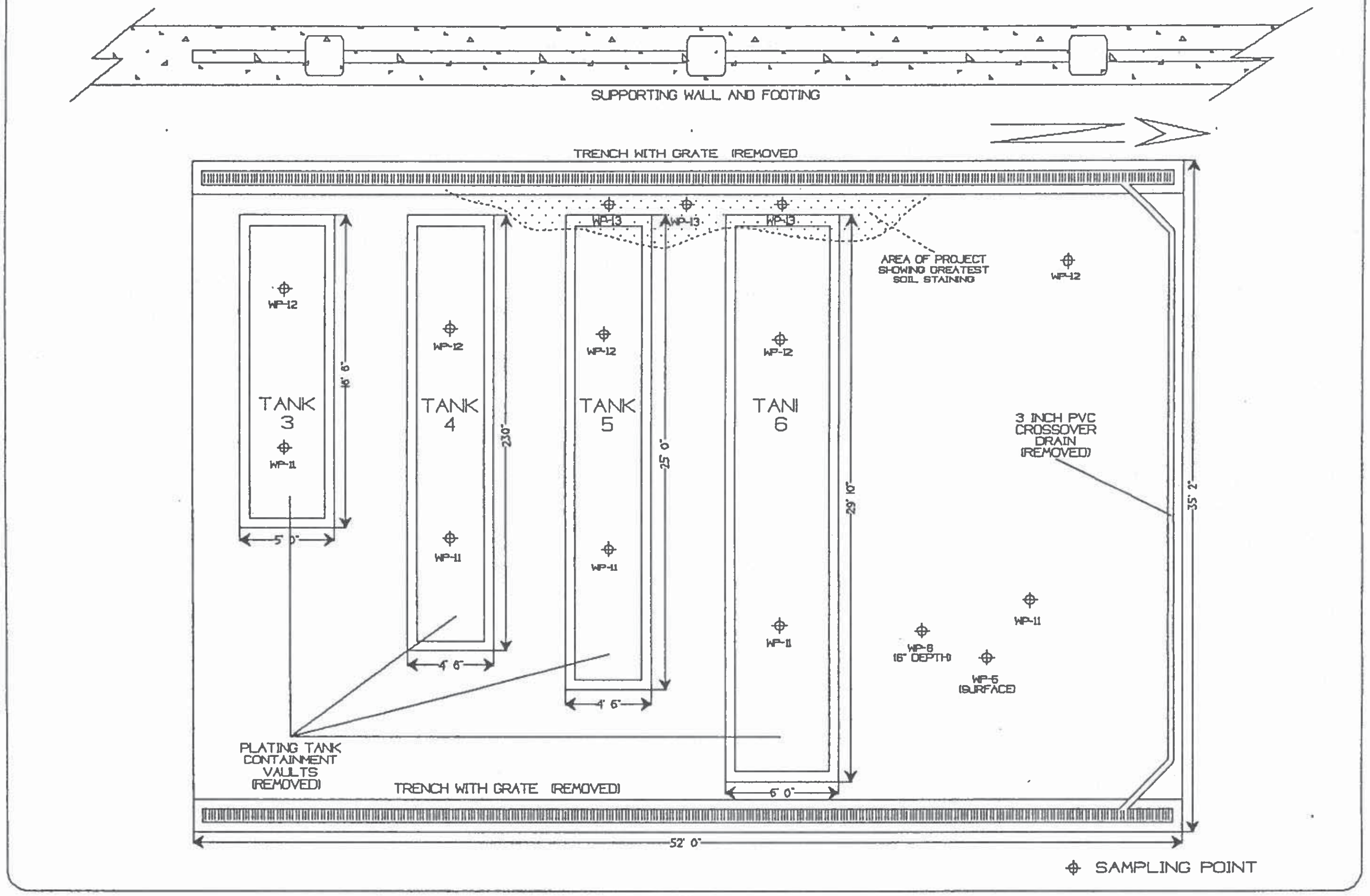


Source: Sweet-Edwards/EMCON 1990a

Figure 21d. Former Precision Engineering
Tank 1 and 2 Investigation

2.17 Map of Site - Remediation Site



Independent Remedial Action Report
Precision Engineering, Inc.
Seattle, Washington
Page 2 - 11

Precision Engineering, Inc.
1231 South Director Street
Seattle, Washington 98108
206-763-0320

PRECISION ENGINEERING, INC.
REMEDIATION AREA

DATE: 7/12/93
DWN: D.M.R.
REVISED:
PROJECT:
DWG NUM: 5036

Source: Precision Engineering 1993

Figure 21e. Former Precision Engineering Chrome Plating Tank Removal Investigation (1993)

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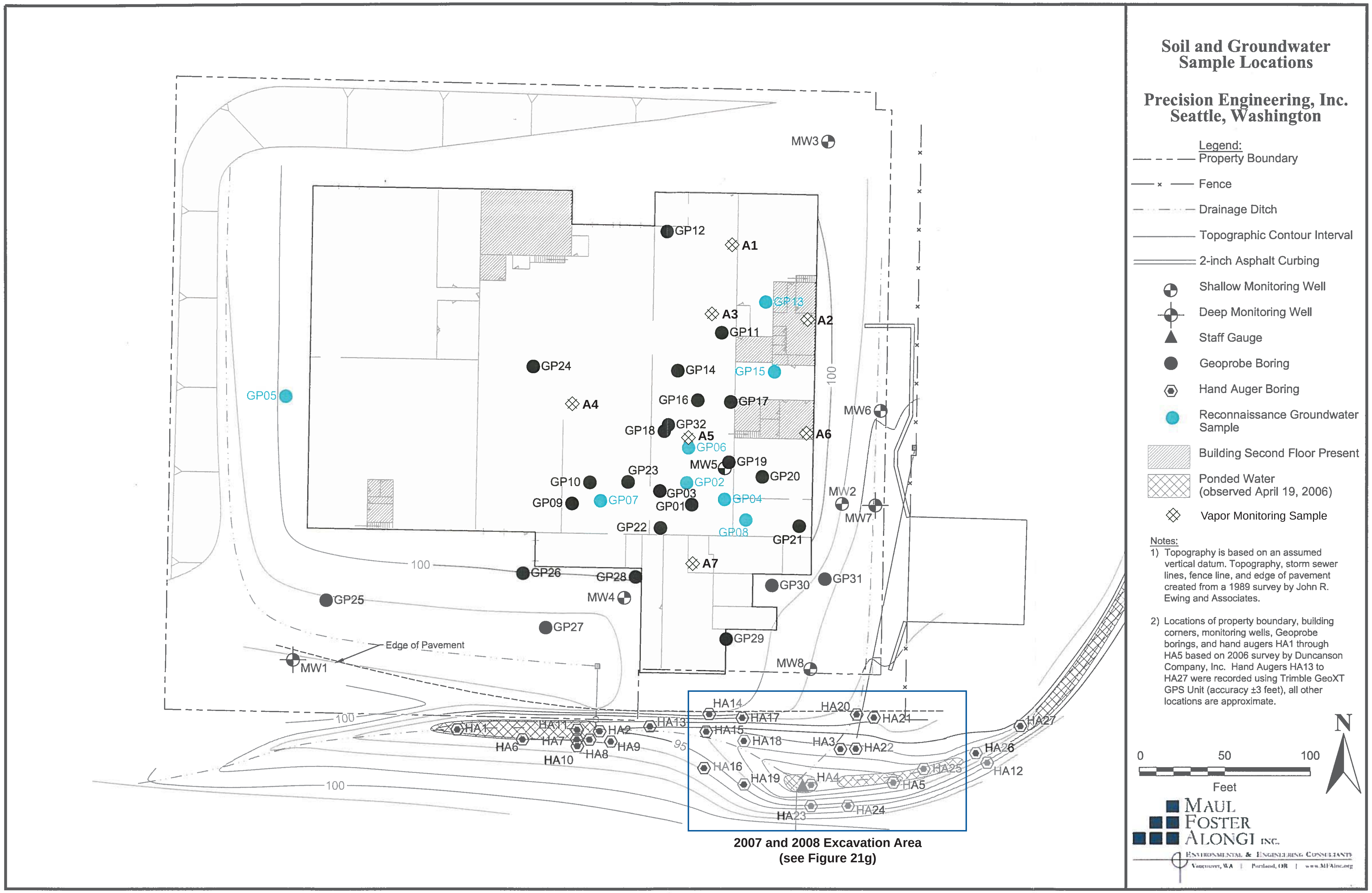
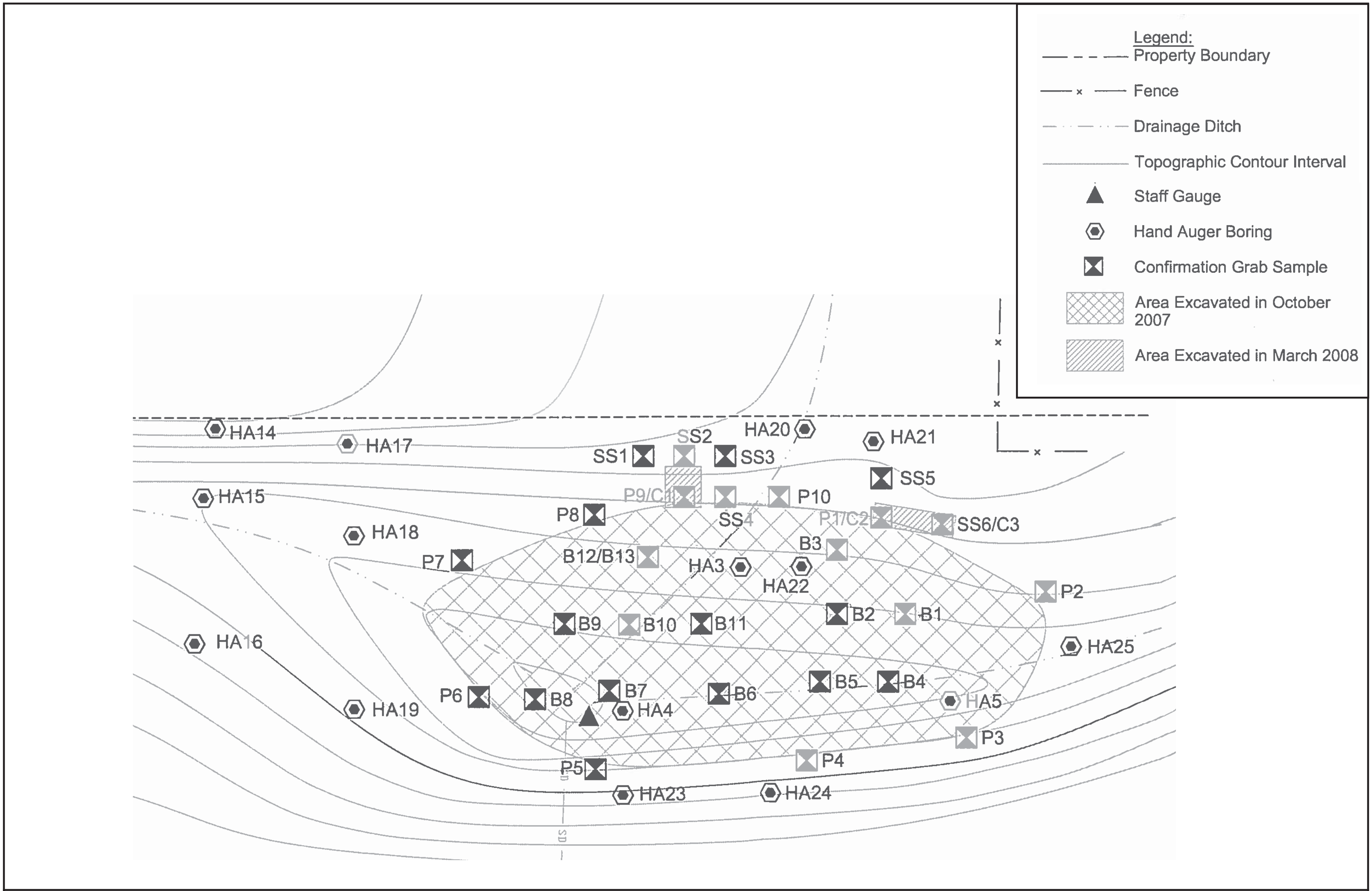


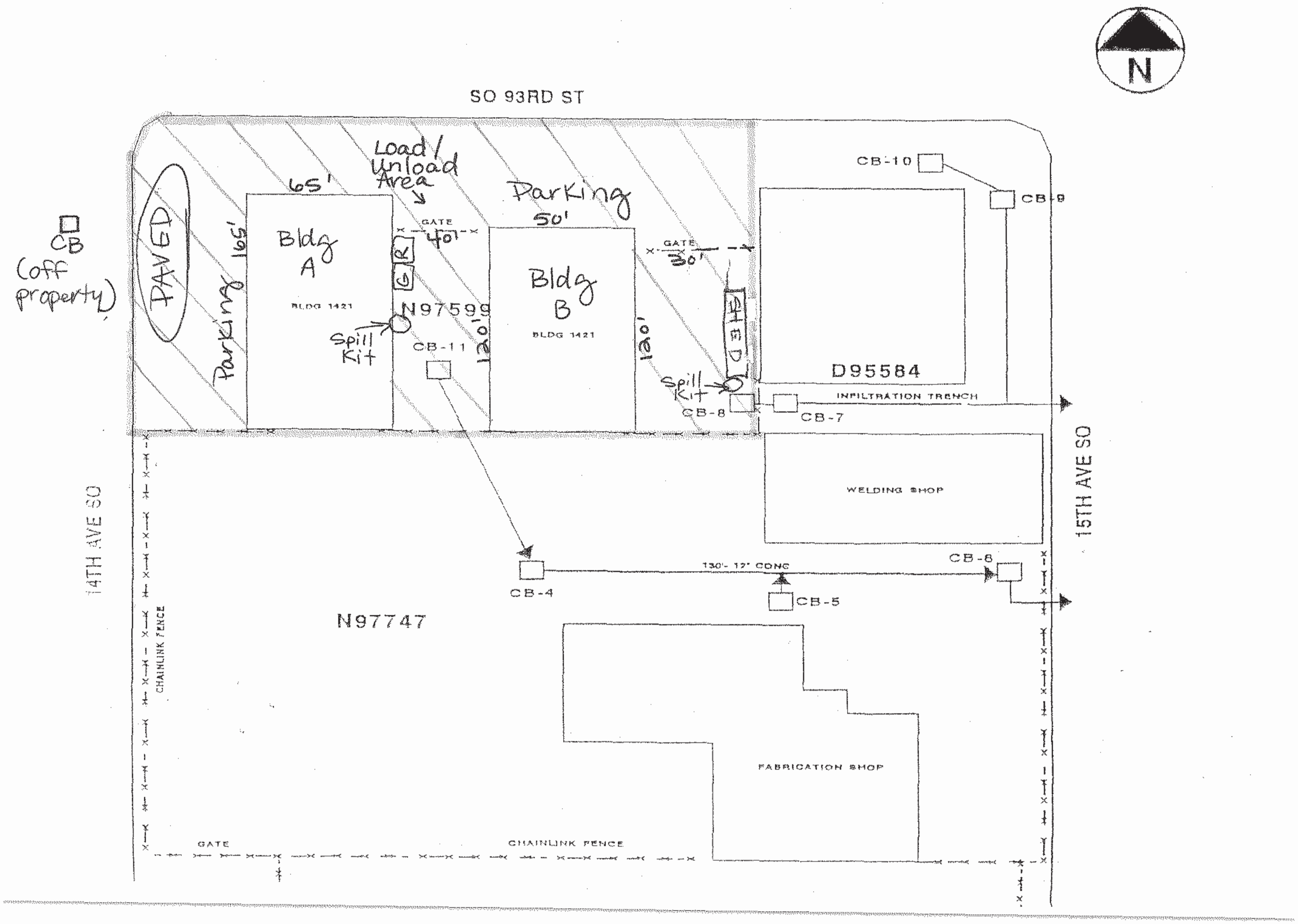
Source: MFA 2008

Figure 21f. Former Precision Engineering Remedial Investigations (2005 through 2008)



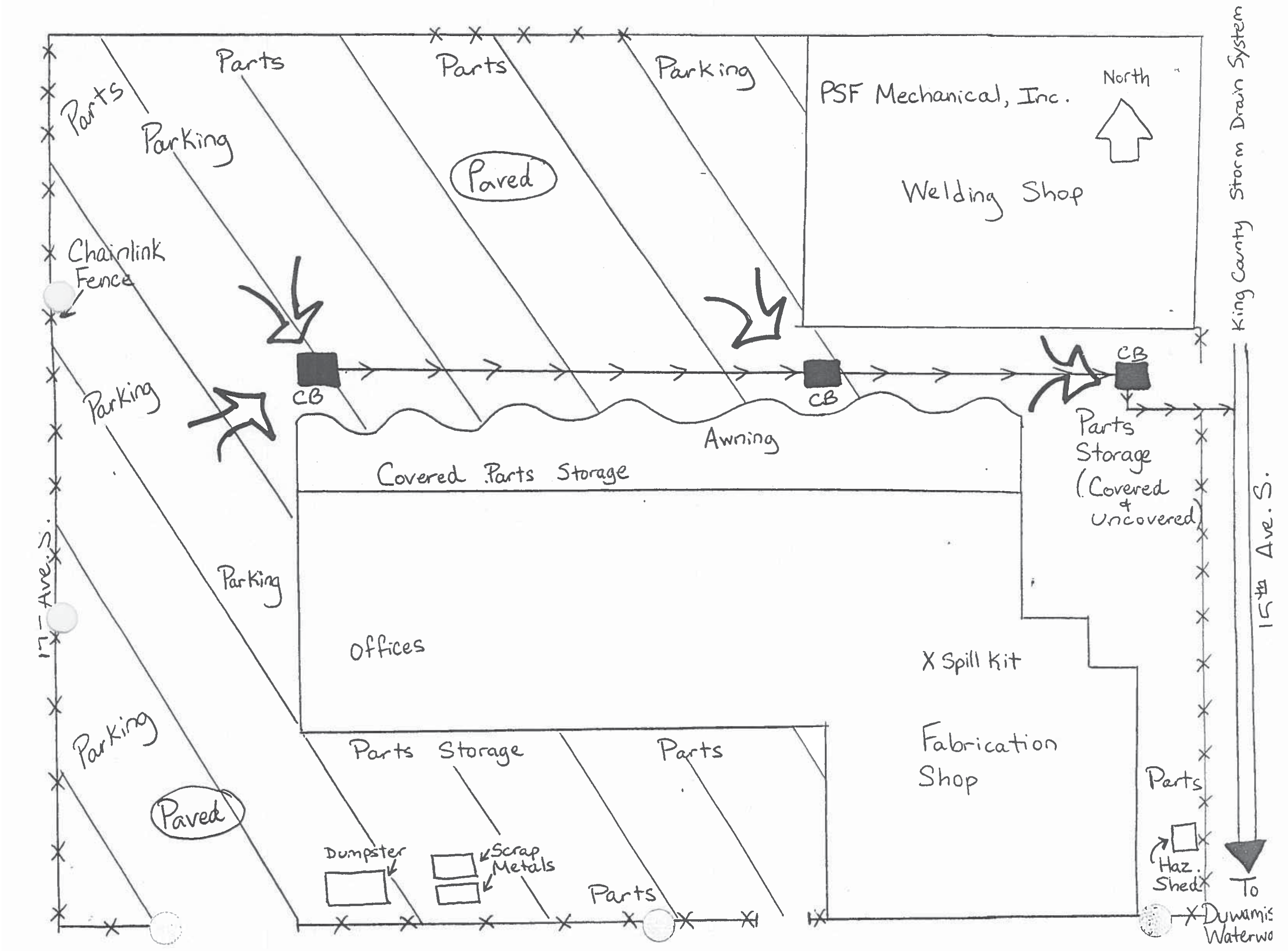
Source: MFA 2008

Figure 21g. Former Precision Engineering 2007 and 2008 Drainage Ditch Excavation



Source: Industrial Automation 2012a

Figure 22. Industrial Automation Facility Drainage Map



Source: PSF Mechanical 2001

Figure 23. PSF Mechanical Facility Drainage Map

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State of Washington

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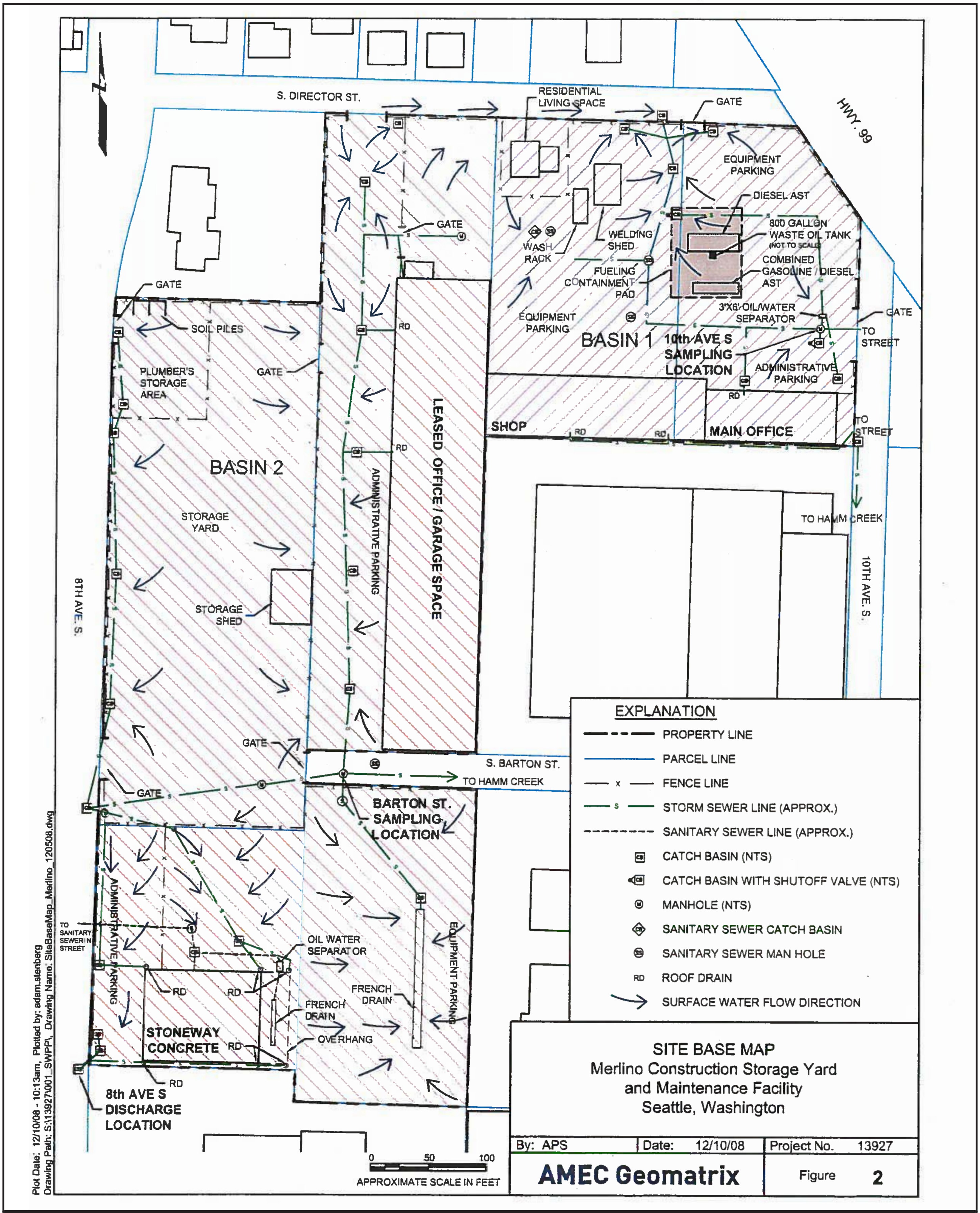

Source: AMEC 2008

DEPARTMENT OF ECOLOGY State of Washington

Figure 24a. Gary Merlino Construction Facility Drainage Map

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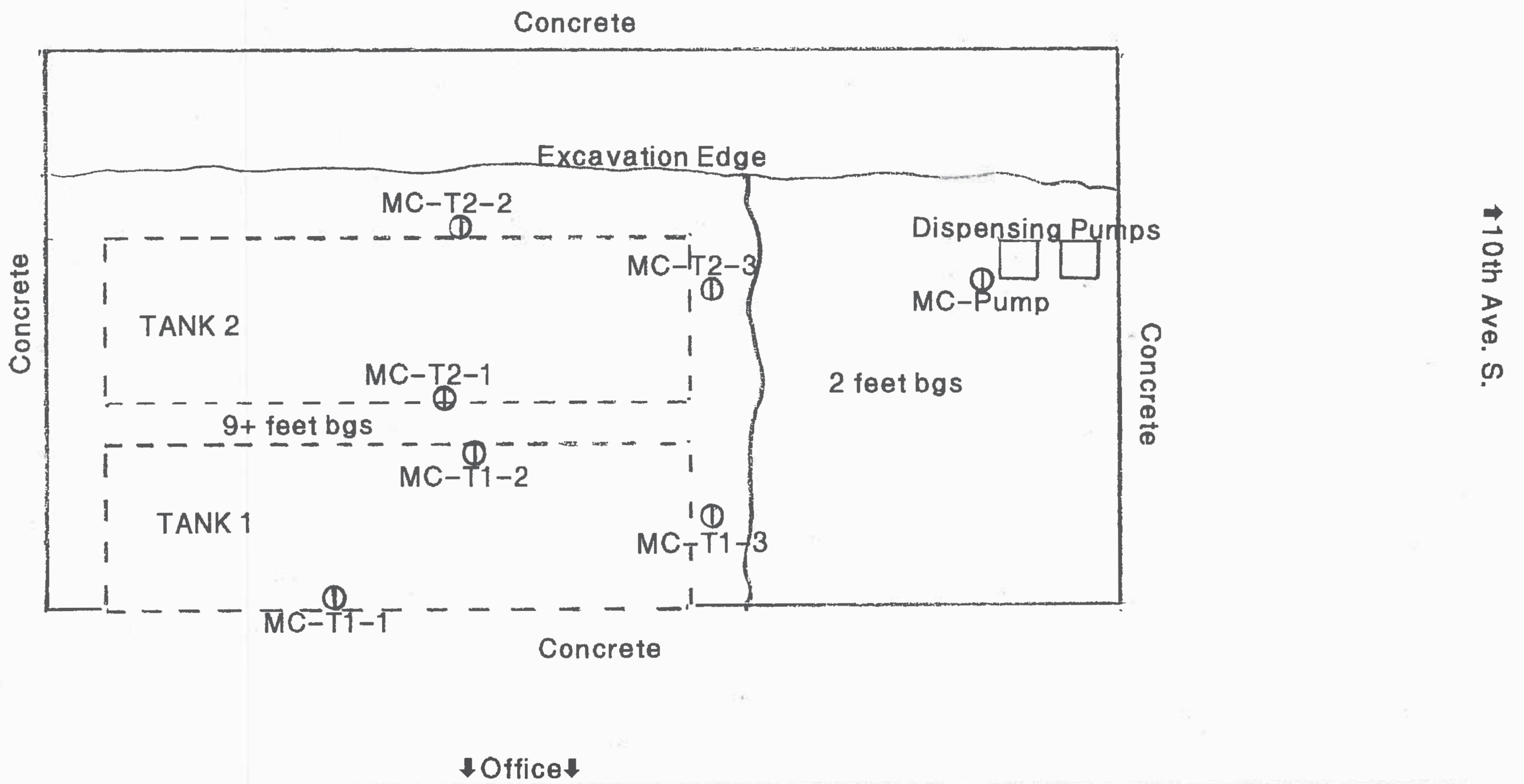


BLUE SAGE
ENVIRONMENTAL, INC.
KENNEWICK, WA

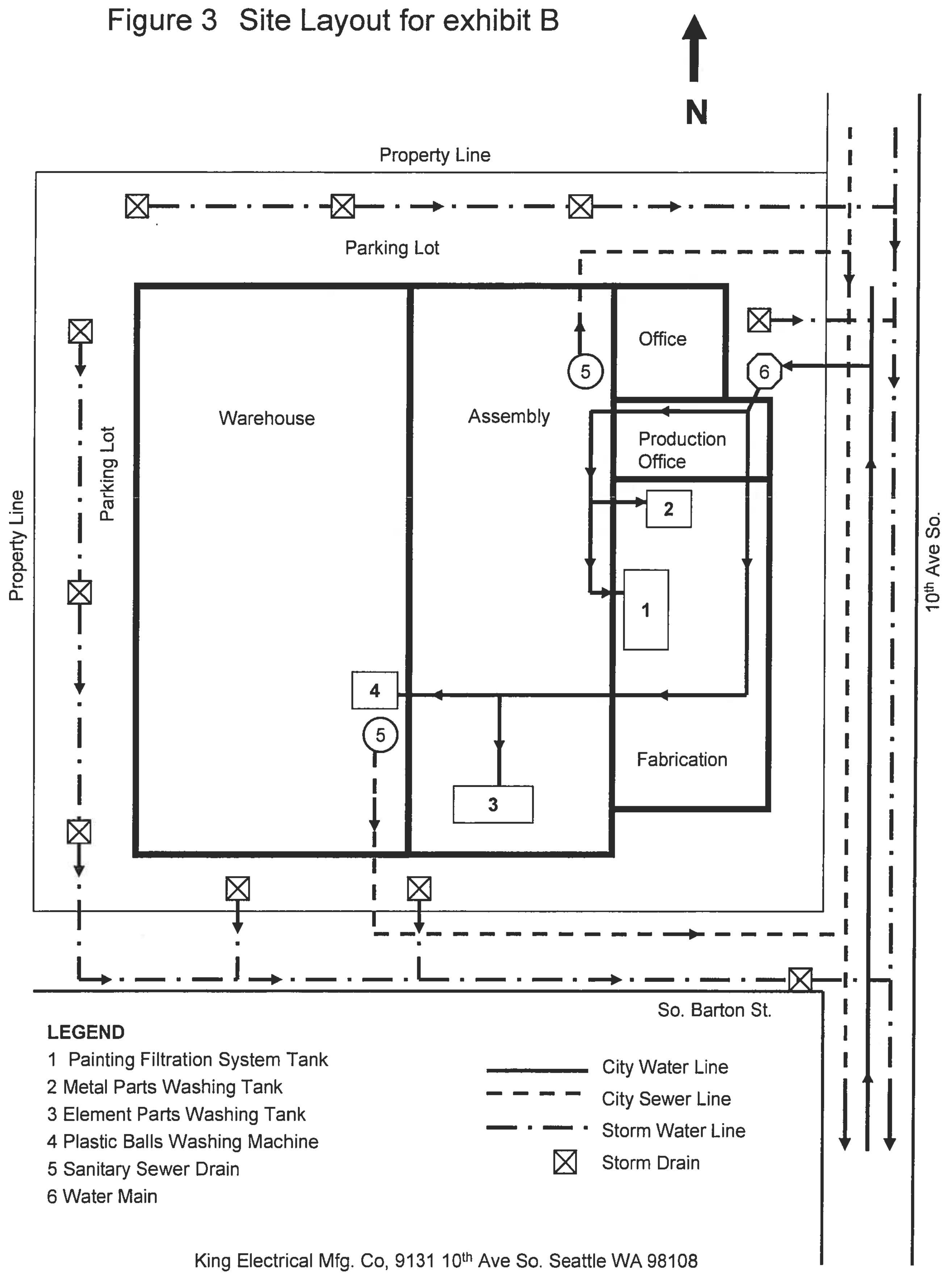
TITLE **GARY MERLINO CONSTRUCTION COMPANY**
SOIL SAMPLE LOCATIONS
JULY 23, 1999

SCALE 1"= 8ft.
DRAWN A. KOCH
DATE 8/30/99

DWG. NO.
Figure 6

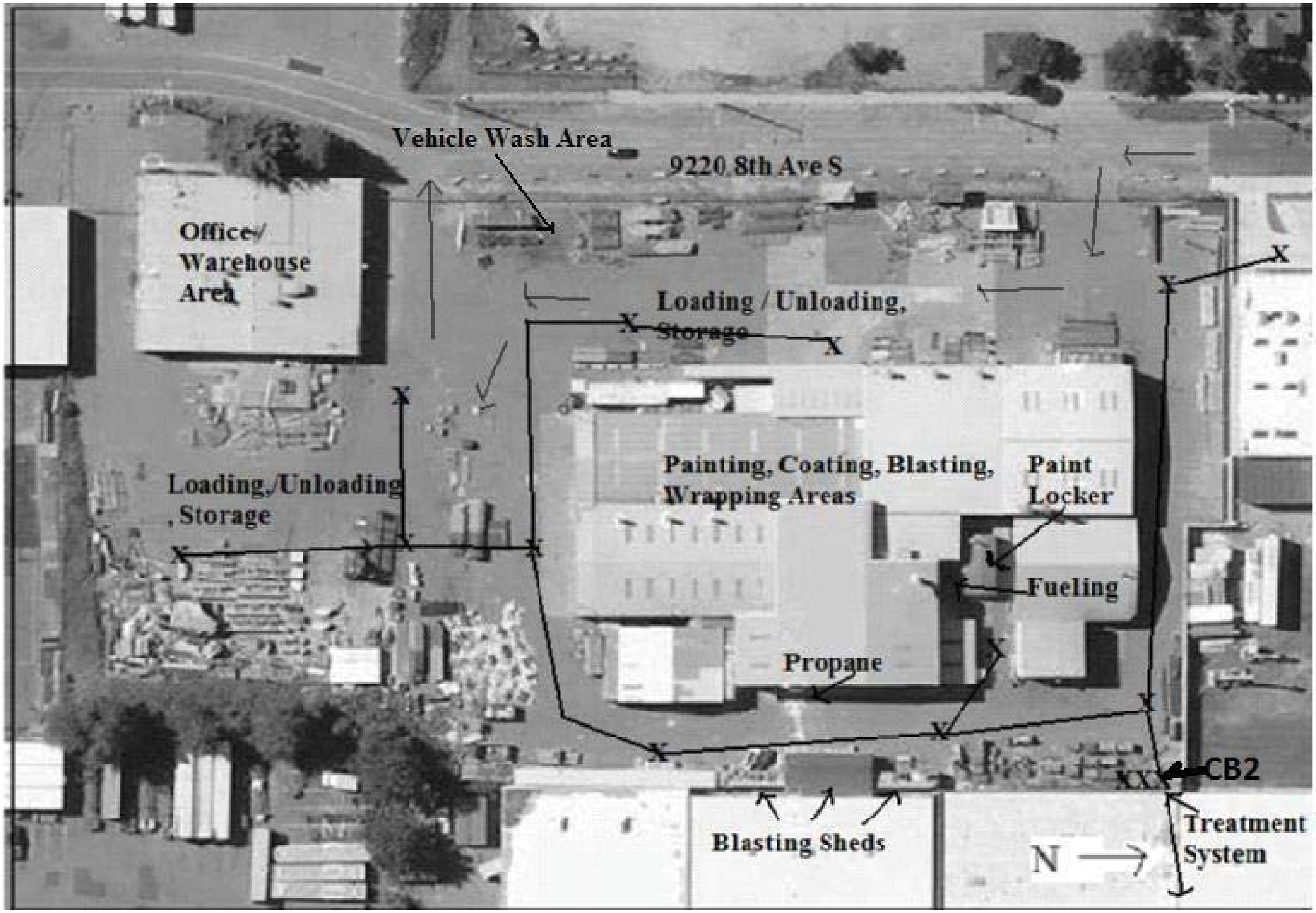
Source: *Blue Sage Environmental 1999*

Figure 24b. Gary Merlino Construction UST Investigation Map



Source: King Electrical 2011a

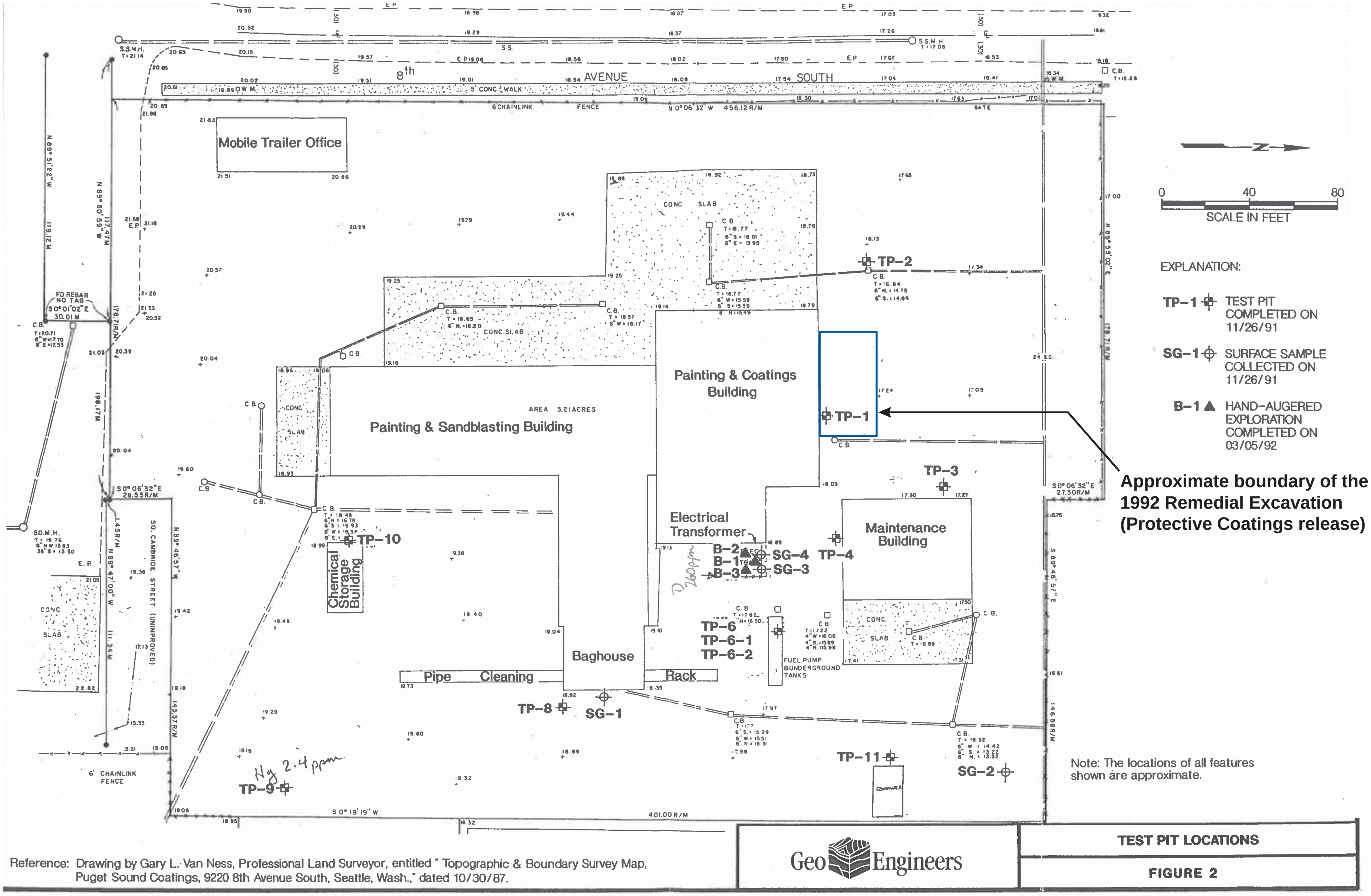
Figure 25. King Electrical Facility Drainage Map



Discharge is to the Seattle storm water system, eventually to the Duwamish River
Trucks enter and leave as indicated by the small font arrows
Storm water from the site is collected and passes through the treatment system before discharge per the WWSWM calculations.

Source: Puget Sound Coatings 2012b

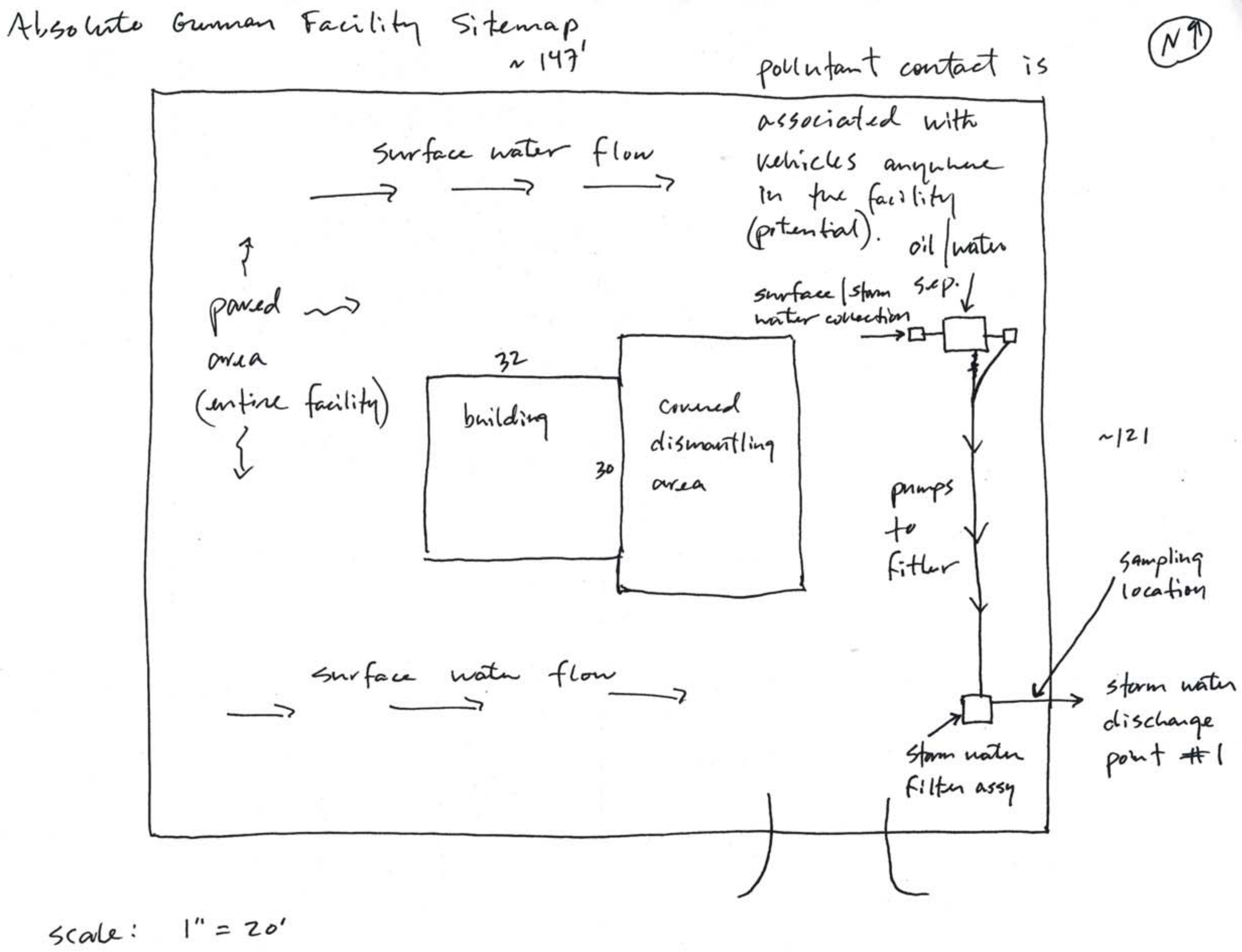
Figure 26a. Puget Sound Coatings Facility Drainage Map



Reference: Drawing by Gary L. Van Ness, Professional Land Surveyor, entitled " Topographic & Boundary Survey Map, Puget Sound Coatings, 9220 8th Avenue South, Seattle, Wash.," dated 10/30/87.

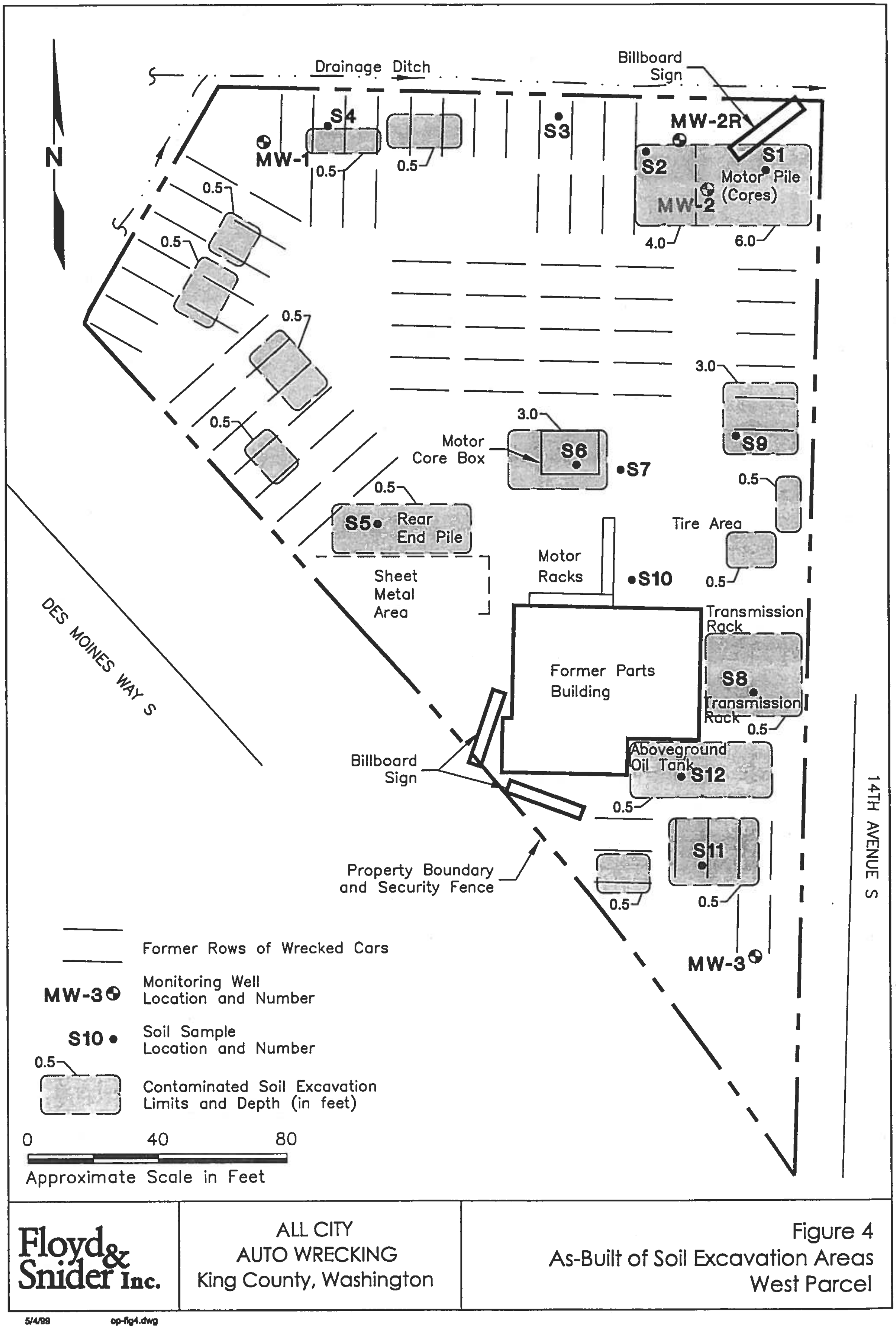
Source: GeoEngineers 1993a, 1993b

Figure 26b. Puget Sound Coatings Environmental Investigation Map



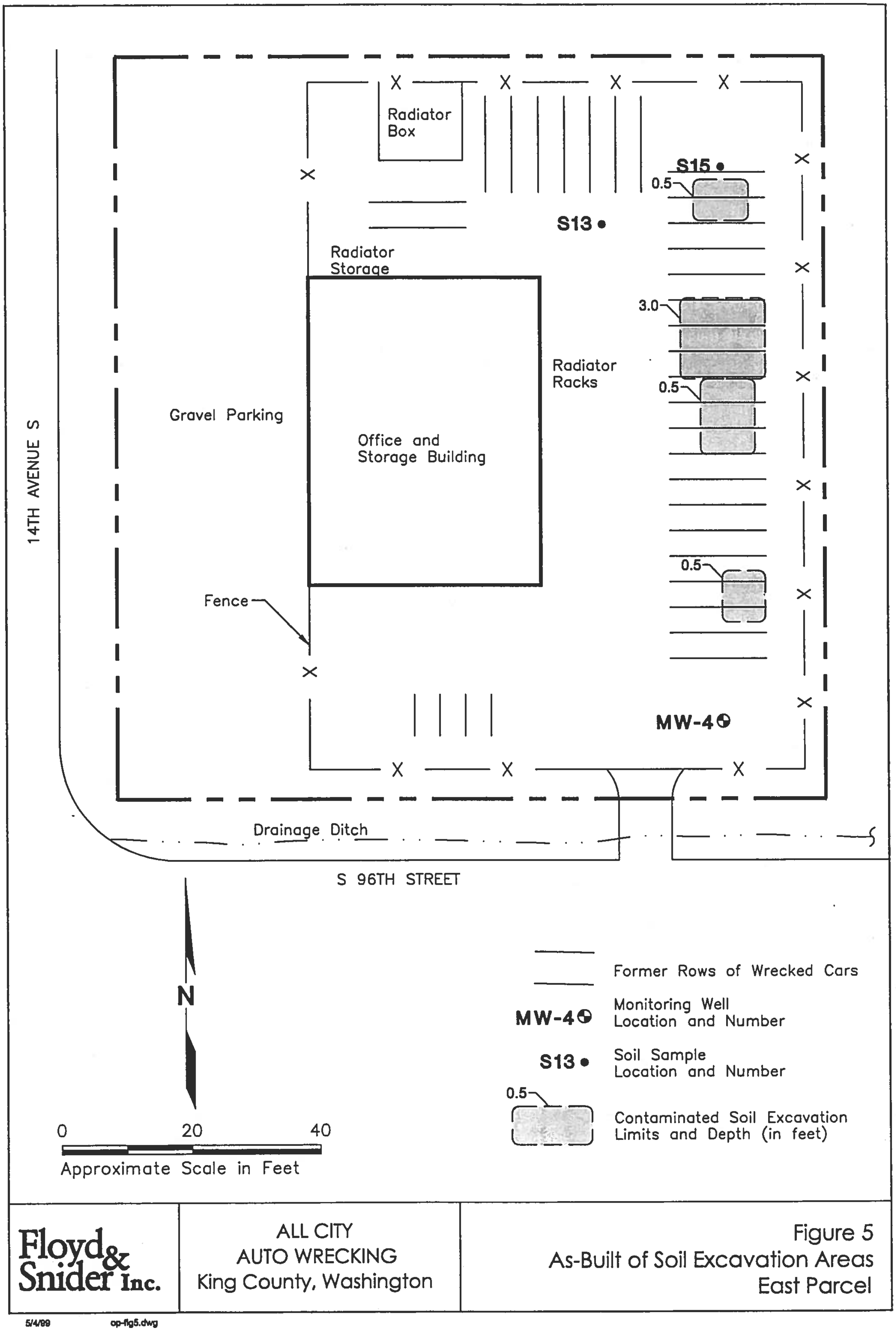
Sources: Absolute German 2010

Figure 27a. Absolute German Facility Drainage Map



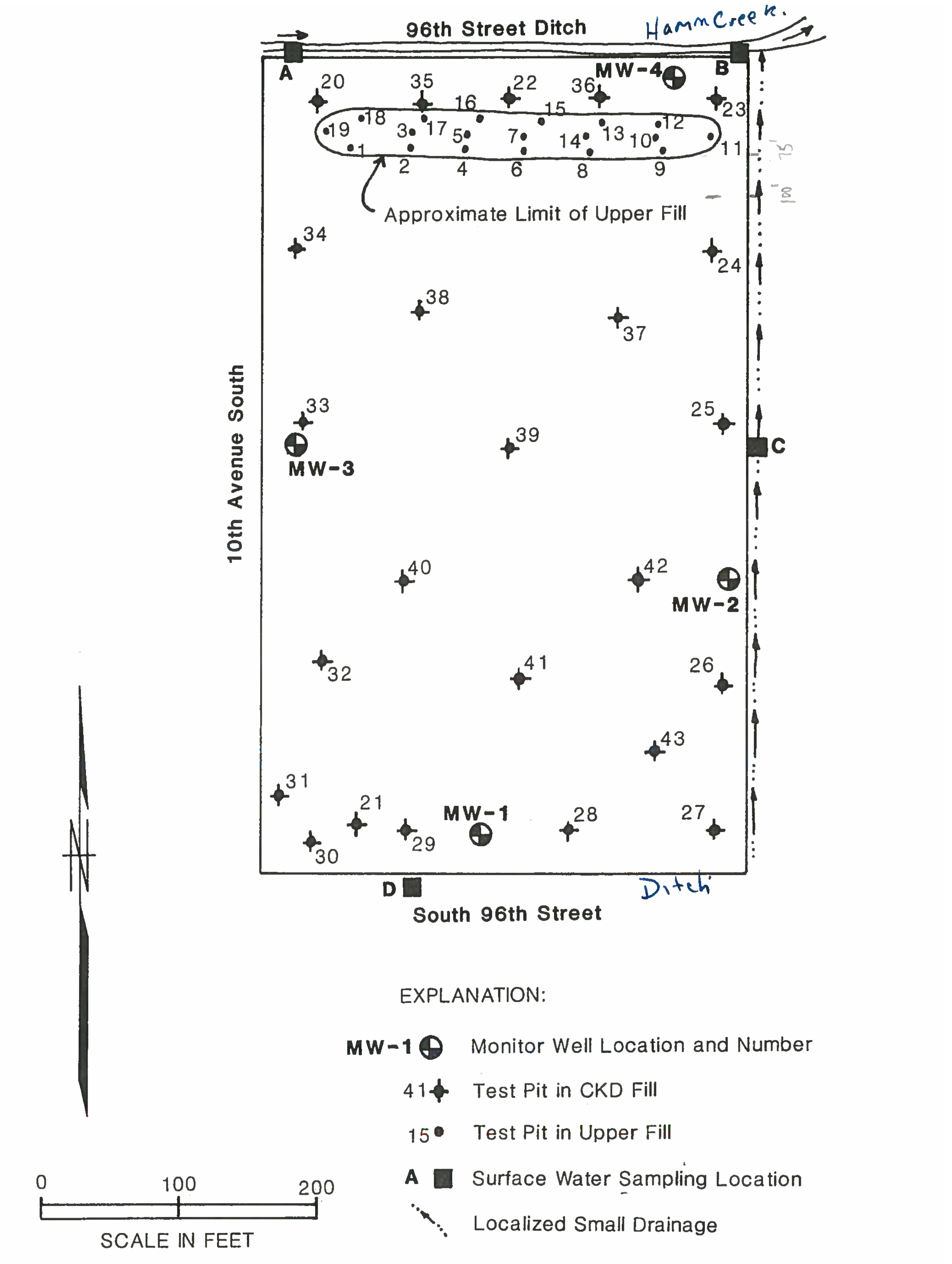
Source: Floyd Snyder 1999b

Figure 27b. Absolute German
(Former All City Auto Wrecking)
Environmental Investigation Map, West Parcel



Source: Floyd Snyder 1999b

Figure 27c. Absolute German (Former All City Auto Wrecking) Environmental Investigation Map, East Parcel



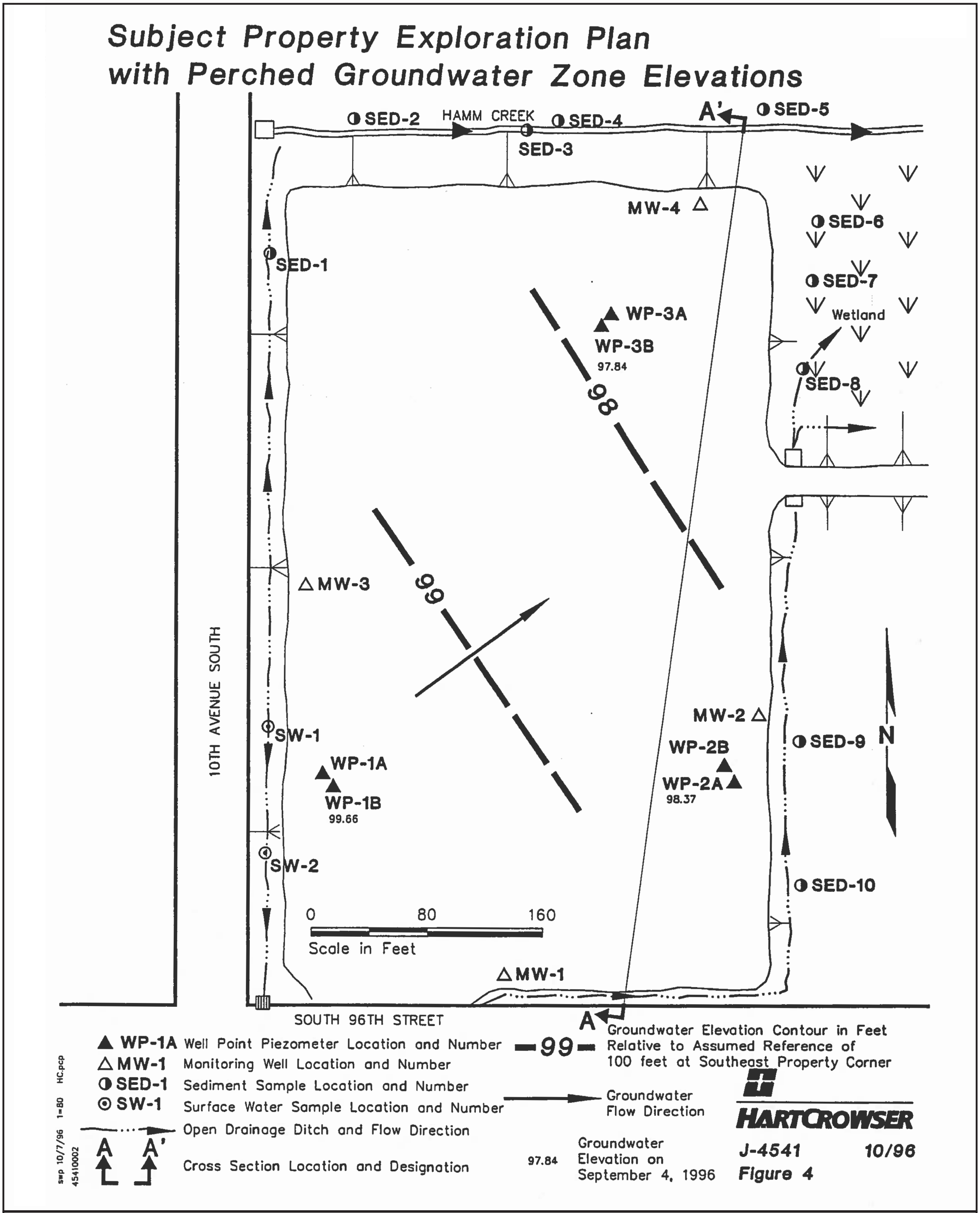
GeoEngineers

SITE PLAN AND SAMPLING LOCATIONS

FIGURE 2

Source: GeoEngineers 1989a

Figure 28a. Simplex Grinnell/Sherwin Williams/NRCES (Former Markey Property) Environmental Investigation Map (1989)



Source: GeoEngineers 1989a

Figure 28b. Simplex Grinnell/Sherwin Williams/NRCES (Former Markey Property) Environmental Investigation Map (1996)

Source: ATC 1999

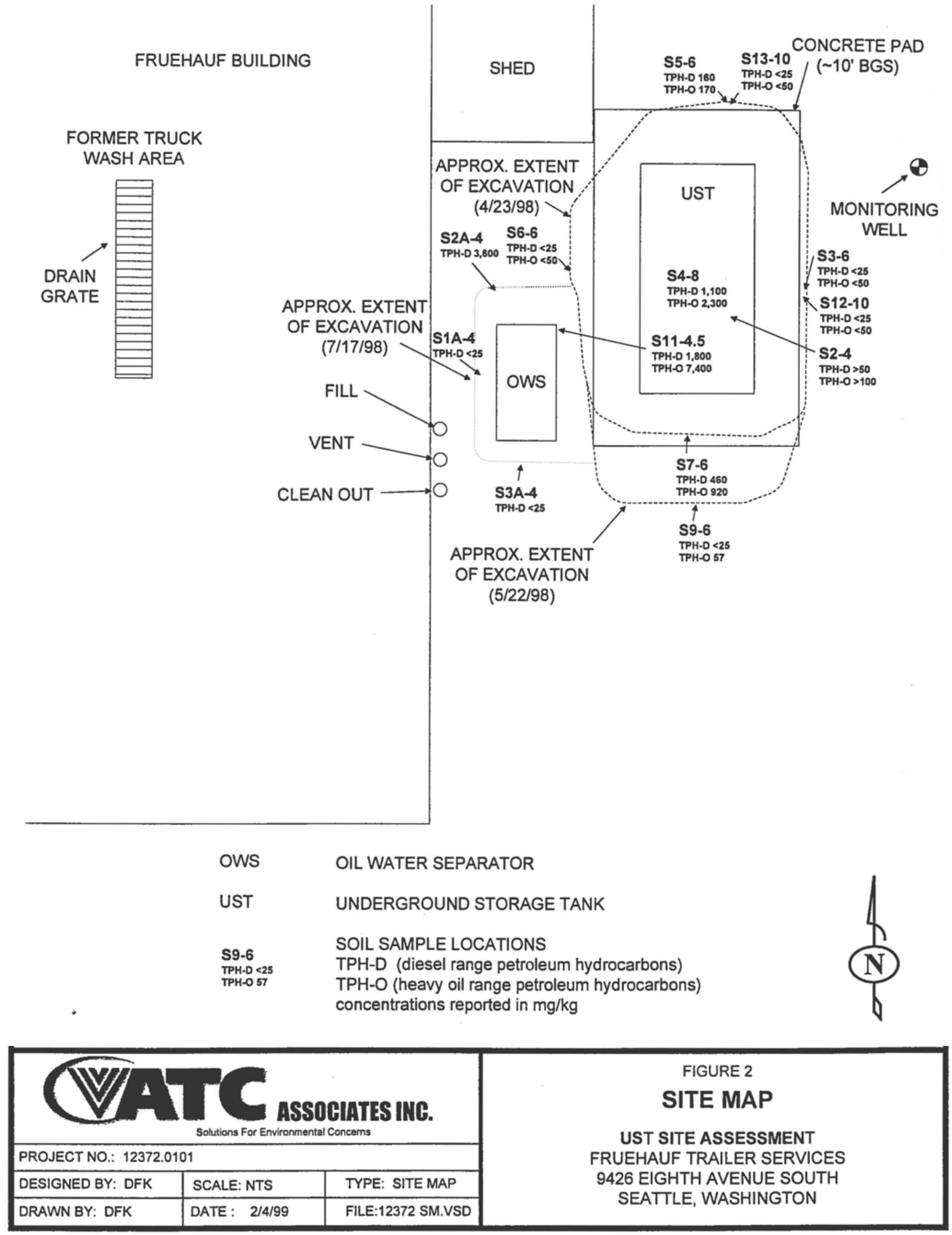
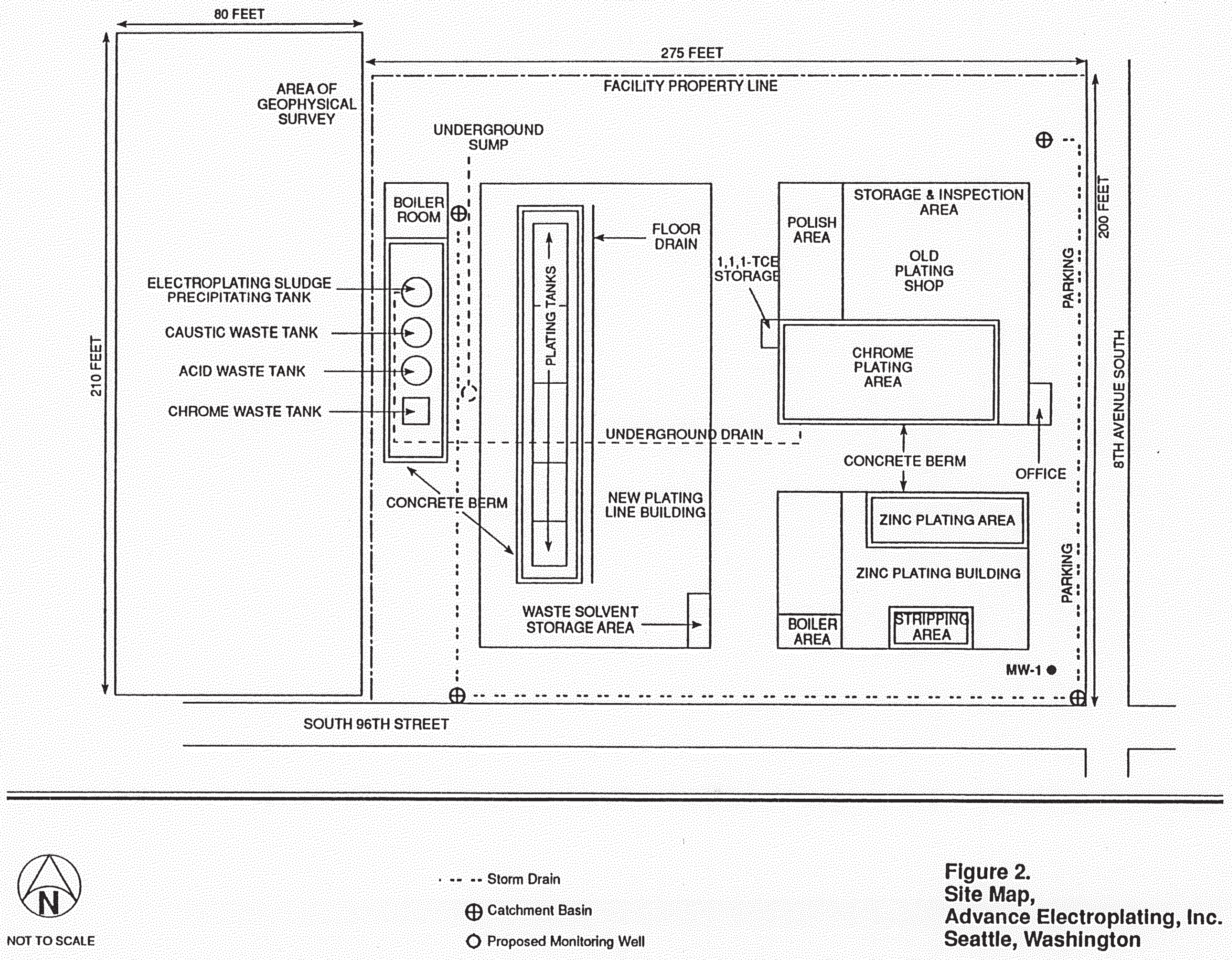
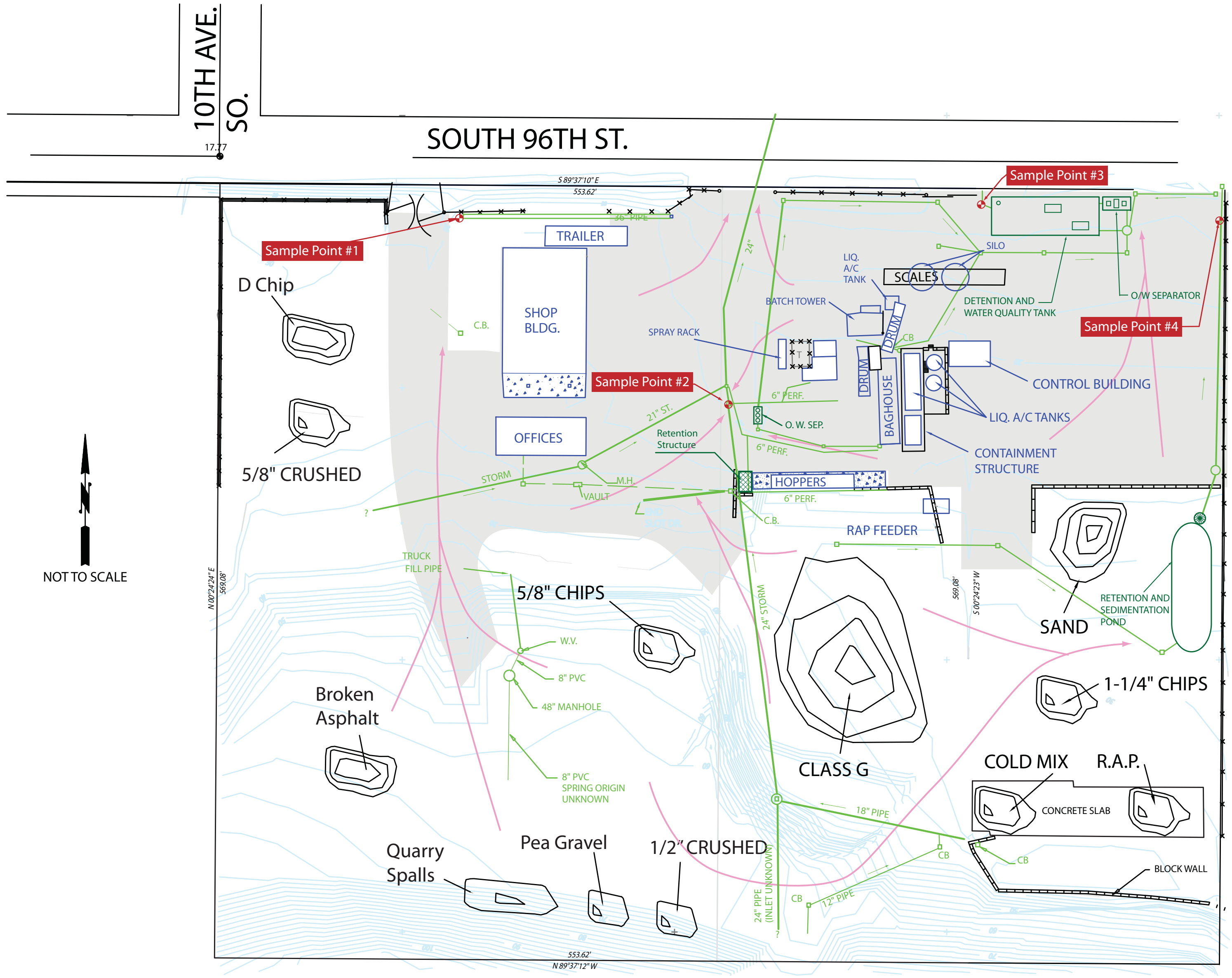


Figure 29. Terex Utilities (Former Fruehauf Trailer) UST Site Assessment Map



Source: Parametrix and SAIC 1991b

Figure 30. Former Advance Electroplating Site Map



Source: ICON Materials 2010

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Figure 31a. ICON Materials Facility Drainage Map

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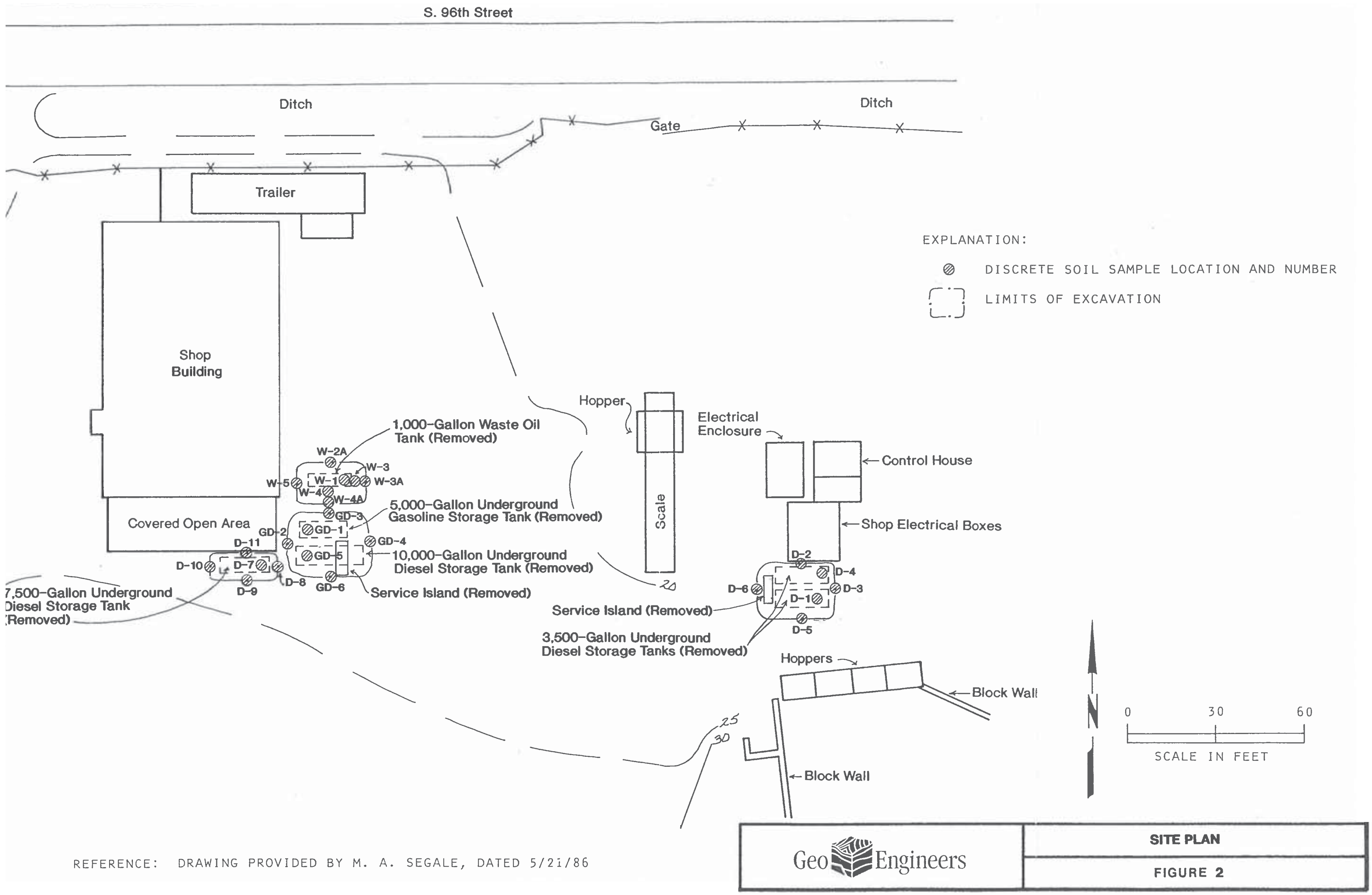
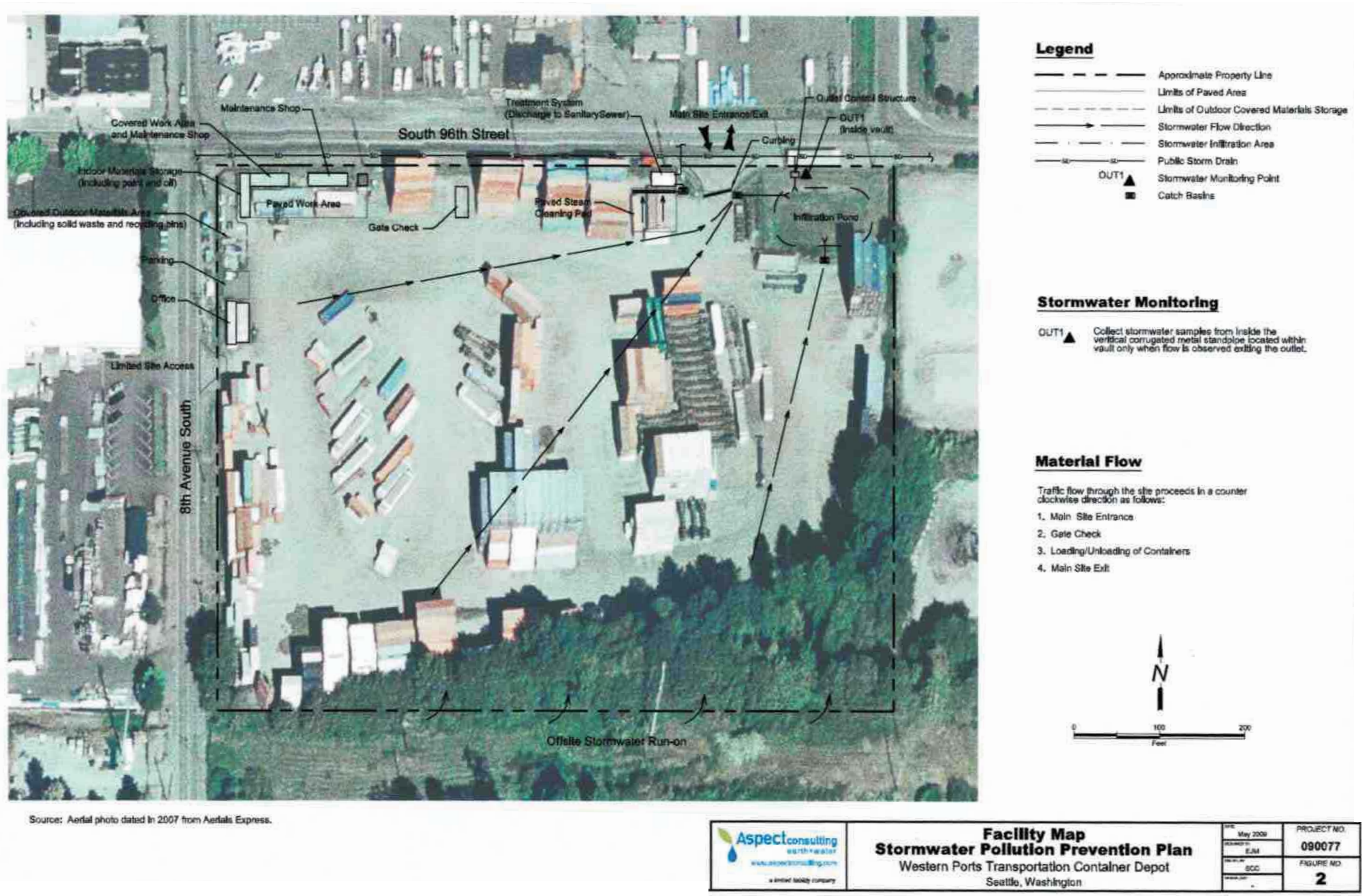


Source: GeoEngineers 1991

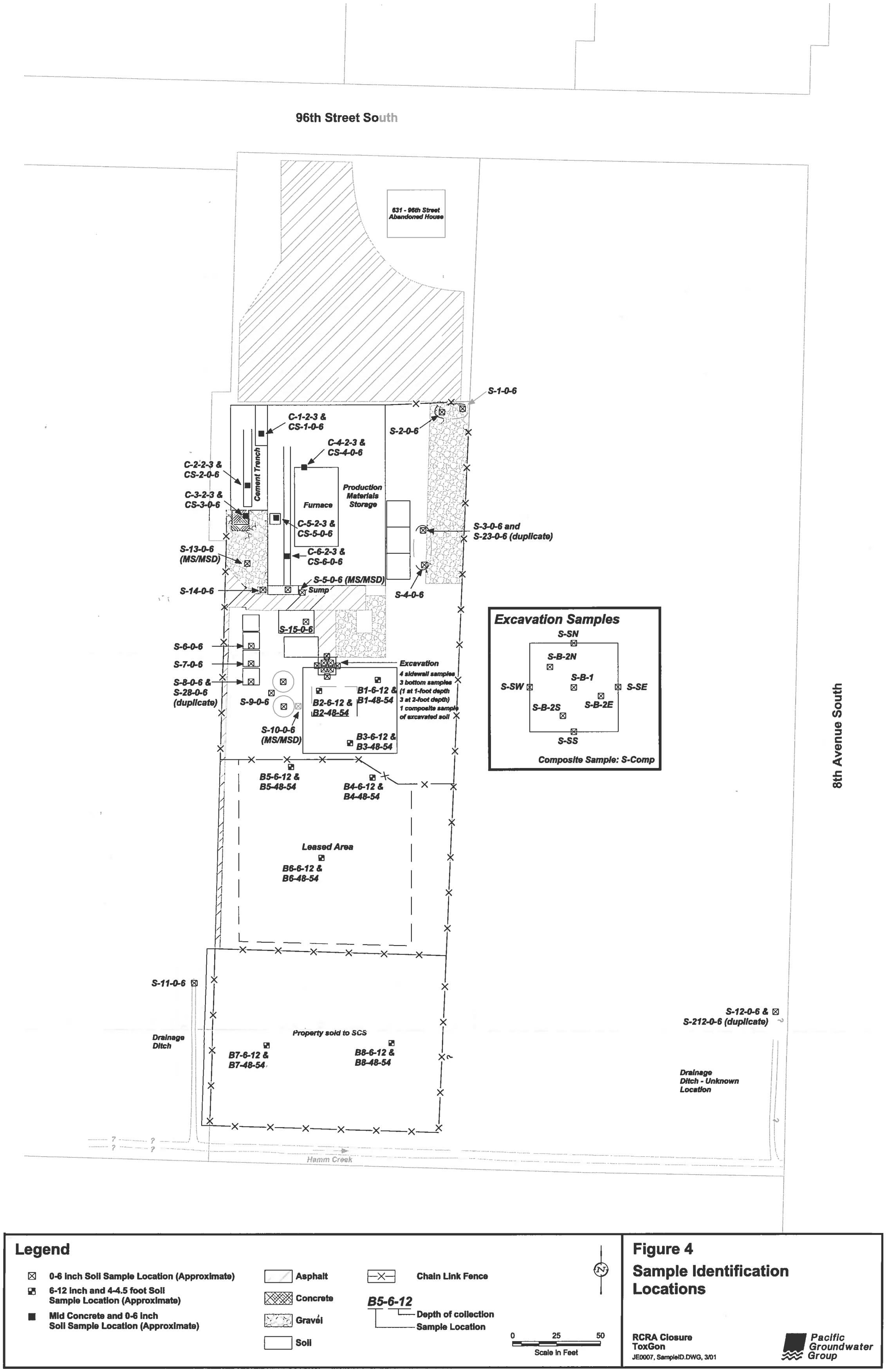
Figure 31b. ICON Materials (Former M.A. Segale Asphalt)
UST Removal Investigation Map



Source: Blue Environmental 2012

Figure 32. Western Ports Transportation Facility Drainage Map

Source: PGG 2001b



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ECOLOGY
State of Washington

Figure 33a. Former Penberthy Electromelt/ToxGon Environmental Investigation Map

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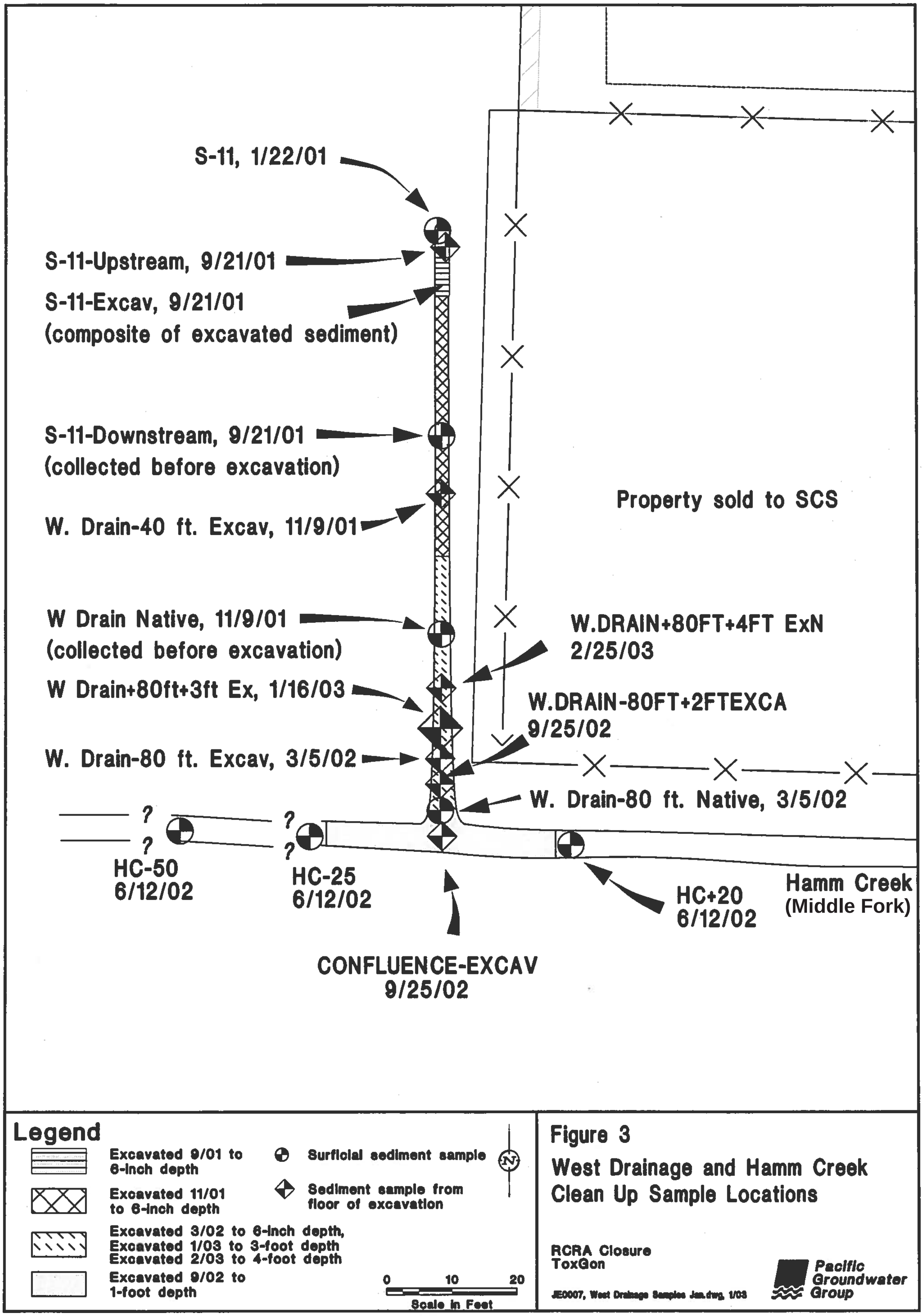
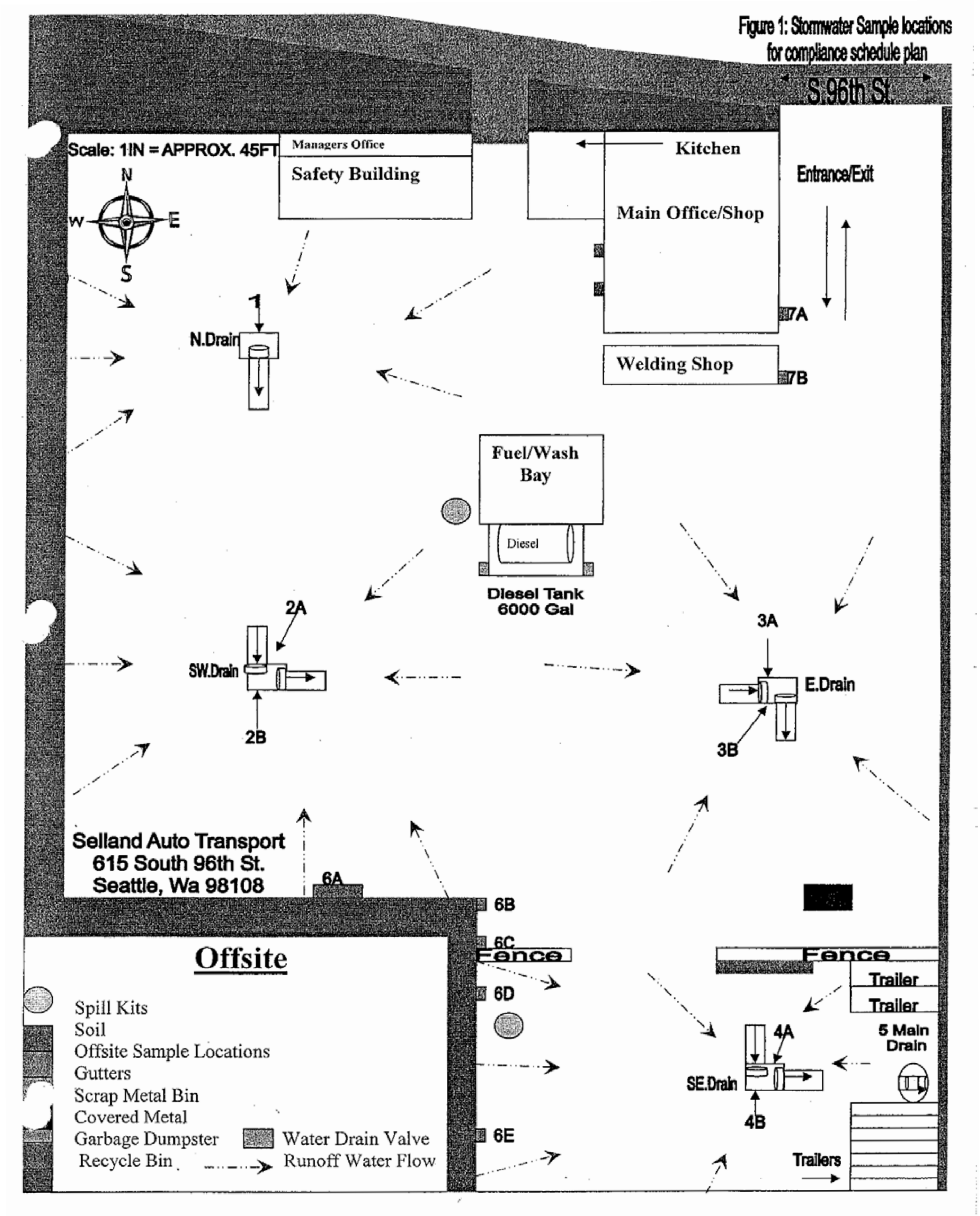
From Science to Solutions



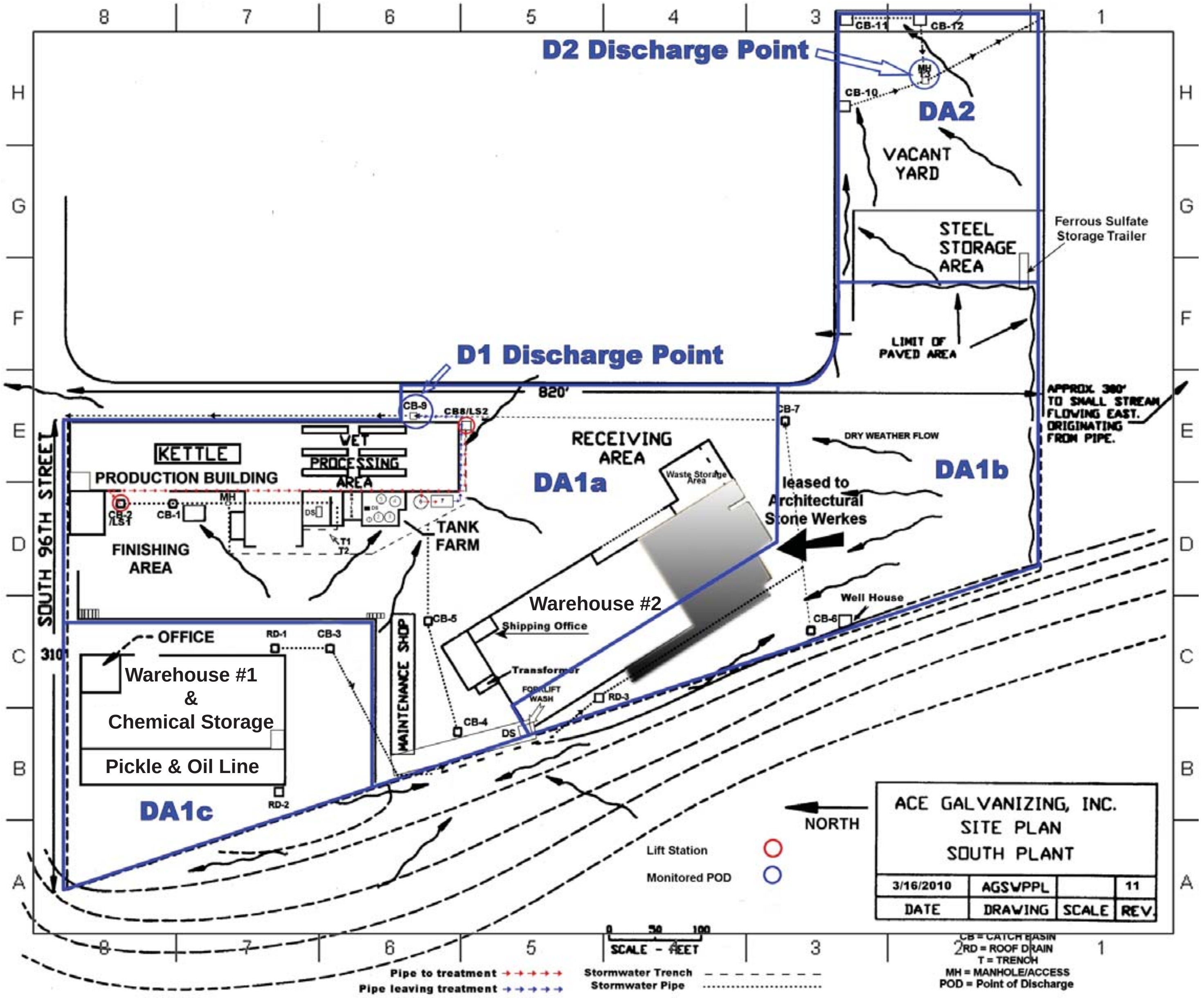
Source: PGG 2003

Figure 33b. Former Penberthy Electromelt/ToxGon West Drainage and Hamm Creek Cleanup Sample Locations



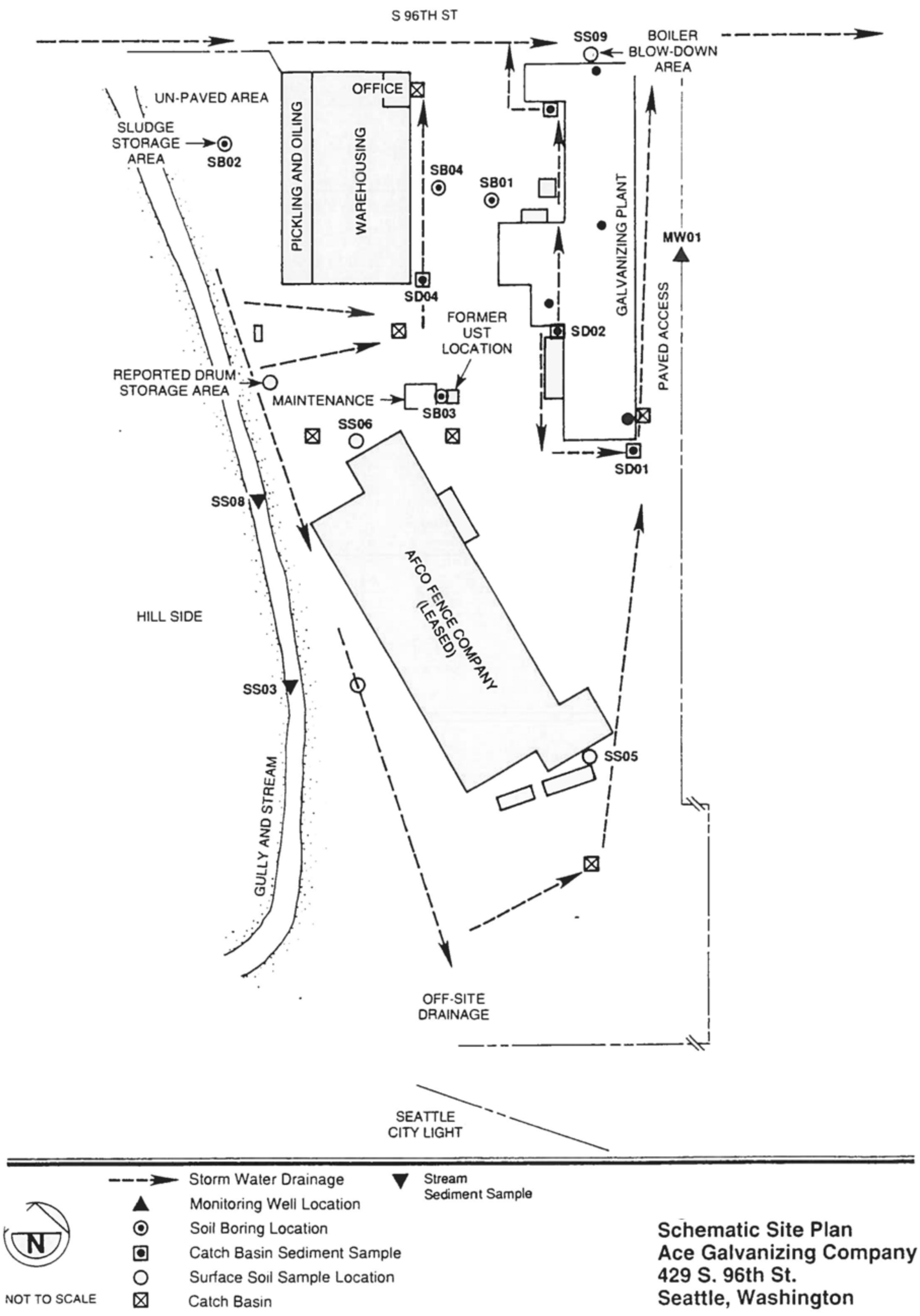
Source: Selland Auto 2012a

Figure 34. Selland Auto Transport Facility Drainage Map



Source: *Ace Galvanizing 2012c*

Figure 35a. Ace Galvanizing Facility Plan and Stormwater Drainage Areas



Source: Parametrix and SAIC 1991a

Figure 35b. Ace Galvanizing Environmental Investigation Map

DATE: 03/23/12
DRAWN BY: NAC
CHECKED BY: LMK
CAD FILE: 0879-001_20120_EL

PROJECT NAME: RMC, INC.
PROJECT NUMBER: 0879-001
STREET ADDRESS: 10766 MYERS WAY SOUTH
CITY, STATE: SEATTLE, WASHINGTON

FIGURE 1
PROPERTY PLAN

Source: SoundEarth 2012

Figure 36. RMC Inc. Facility Drainage Map

Tables

Table 1
Facilities within the Sea King Industrial Park Source Control Area

Ecology Facility/ Site ID	Facility Name	Alternate Name(s)	Facility Address	Zip	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization	Ecology UST List	Ecology LUST List	VCP	Ecology NFA Determination	EPA CERCLA Section 104(e) Request for Information	Parcel
Adjacent Facilities														
60381981	Boeing South Park	Boeing Scientific	1420 S Trenton Street	98108	●		●						●	8601, 8603
6915930	Delta Marine Industries	None	1608 S 96th Street	98108								●		0021, 0005
22978975	Delta Marine Industries Inc.	None	1608 S 96th Street	98108	●							●		0021, 0005
21209	Diamond Painting	Sea King Industrial Park	1601 S 92nd Place, Ste B	98108										0000
2544945	Diamond Painting LLC 1601	Sea King Industrial Park	1601 S 92nd Place, Ste B	98108										0000
None	Duwamish Yacht Club	None	1801 S 93rd Street	98108										0061
86343865	Global Intermodal Systems	Delta Marine, ITEL Terminals	1818 S 93rd Street	98108	●		●							0029, 0062
4154808	International Paint LLC	Sea King Industrial Park	1541 S 92nd Place, Ste C	98108	●									0000
42882451	International Paint Warehouse	Sea King Industrial Park	1601 S 92nd Place, Bldg H Ste C	98108	●									0000
90355185	KRS Marine	Sea King Industrial Park	1621 S 92nd Place	98108							●			0060
67478551	Progressive Medical Corp	Sea King Industrial Park	1600 S 92nd Place, Ste H	98108	●									0000
4210684	Protective Coating Consultants Inc.	Sea King Industrial Park	1501 S 92nd Place, Ste A	98108	●									0000
5776	Sound Propeller Systems Inc.	Sea King Industrial Park	9130 15th Place S	98108										0000
4401006	Ultrapak Printing Inc Former Tenant	Colographics, Colorgraphics Inc. 92nd Place, Colorgraphics Seattle South Park, Sea King Industrial Park	1600 S 92nd Place	98108	●									0000
9037205	USEPA Warehouse	Sea King Industrial Park	1620 S 92nd Place, Unit B	98108	●									0060
S 96th Street Storm Drain Facilities														
92548826	4th Ave Paint	South 96th Street Industrial Park	4th Avenue S & S 96th Street	98108										9071
75249294	7 Eleven 232214460	None	9618 4th Avenue SW	98106					●					9351
41533396	AAAA Mini Storage	None	1421 S 96th Street	98108	●									0390
10207	Absolute German	All City Auto Wrecking & Sales, Inc., MKT Southpark LLC, Pac West Seattle, South Park Chevron	9510 14th Avenue S	98108			●							0091, 0097
2077	Ace Galvanizing Inc	Architectural Stone Werkes	429 S 96th Street	98108	●	●	●		●				●	9008
2079	Advance Electroplating	Advance Co Inc., CB Finishing Inc., Concrete Restoration, CRJ Construction Co, Pro Weld, Show Quality Metal Finishing, South Park Industrial Properties LLC	9585 8th Avenue S	98108	●	●	●		●					0208
82395194	Aero-Lac Inc.	South 96th Street Industrial Park	420 S 96th Street, Ste 11	98108										9071
25327412	Ahrenius Manufacturing Inc.	Frog Hollow Corp	1425 S 93rd Street	98108	●									0042
22342251	All City Auto Wrecking & Sales Inc.	Absolute German, MKT Southpark LLC, Pac West Seattle, South Park Chevron	9438 Des Moines Memorial Drive	98108	●						1/20/1999-6/24/1999			0091, 0097
5469634	Allied Body Works Inc.	None	625 S 96th Street	98108	●		●							0232
21995	Architectural Stone Werkes	Ace Galvanizing	429 S 96th Street	98108			●							9008
73914265	ARCO Service Station 4375	None	11215 8th Avenue S	98168							1/20/1999			0006
2882470	AT&T Wireless South Park	None	9128 10th Avenue S	98108										
17553	Atacs Products Inc. Seattle	PNP Properties LLC	860 S Cambridge Street	98108										0074
16677	Atomic Fabrications	South 93rd Business Park	1605 S 93rd Street, Bldg E Unit R	98108			●							0050
21231	Avidex Industries	Proline/Avidex, PNP Properties LLC	860 S Cambridge Street	98108										0074
19959367	Bayside Automotive Storage Inc	Holnam Markey, Markey Property Parcel 4, Sea Con Property, NRC Environmental Services, Teris LLC DBA Division Transport	NE Corner of 96th Street & 10th Avenue S	98108	●									0150
11358859	Boulevard Park Chevron	None	805 S 112th Street	98168					●					0006
92792171	Bus & Air Parcel Service Inc.	None	9004 14th Avenue S	98108					●	●				8578, 8594

Table 1
Facilities within the Sea King Industrial Park Source Control Area

Ecology Facility/ Site ID	Facility Name	Alternate Name(s)	Facility Address	Zip	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization	Ecology UST List	Ecology LUST List	VCP	Ecology NFA Determination	EPA CERCLA Section 104(e) Request for Information	Parcel
4914795	CB Finishing	Advance Eletroplating, Advance Co Inc., Concrete Restoration, CRJ Construction Co, Pro Weld, Show Quality Metal Finishing, South Park Industrial Properties LLC	9587 8th Avenue S	98108			●	●						0208
11972772	Centimark Corp Seattle Office	South 96th Street Industrial Park	430 S 96th Street	98108	●									9071
3479178	Cliff Housers Automotive	509 Auto Repair, James Shilling, Strickland Property	806 S 112th Street	98168	●	●			●	●				0181
67814731	Container Care Puget Sound	Western Ports Containers, Western Ports Transportation	9600 8th Avenue S	98108	●		●							0270, 0291, 0290
12865	Custom Metal Spinning LLC	South 93rd Business Park	9330 15th Avenue S, Unit C	98108										0050
89923232	DEOX	South 93rd Business Park	1605 S 93rd Street, Bldg E Unit C	98108	●									0050
91322212	Desimone Trust	None	9365 7th Avenue S	98168							●			0050
75318226	Duwamish Manor	Duwamish Manor Industrial Park, South 93rd Business Park	9320 15th Avenue S	98108	●									0050
41379359	Duwamish Manor Industrial Park	Duwamish Manor, South 93rd Business Park	9320 15th Avenue S	98108	●									0050
95735434	Ecolights Northwest LLC	Western United Fish Company	9411 8th Avenue S, Ste 3	98108	●									0210
15029	Emerald City Machine	None	160 S 108th Street	98168										1795, 1800,
47625361	Federal Express Corp BFI	South 93rd Business Park	9320 15th Avenue S	98108	●									0050
23352	Filterfresh Coffee Service Inc	None	9243 10th Avenue S	98108										0075
24384	Frog Hollow Corp	Ahrenius Manufacturing Inc.	1425 S 93rd Street	98108										0042
27446996	Fruehauf Trailer Inc Seattle	Terex Utilities	9426 8th Avenue S	98108	●	●			●	●				0191, 0170
7727938	Gary Merlino Construction Company	Gary Merlino Construction Office BD, former Thomas Equipment Rental	9125 10th Avenue S	98108			●		●	●			●	0015, 0055, 0095
18369741	Glen Acres Home Association	None	1000 S 112th Street	98168						●				9022, 0120,
1557860	Halfon Candy Co.	None	9229 10th Avenue S	98108		●								0076
93252843	ICON Materials Seattle Asphalt	MA Sagale Inc. Seattle Plant, MA Segale Inc. Seattle Asphalt Plant, Sunnydale Construction Company	1115 S 96th Street	98108	●		●			●				0335, 0310, 0330, 0311
74236527	Industrial Automation Inc	None	1421 S 93rd Street	98108	●		●							0037, 0042
11797661	Karawis Inc.	Top Hat Mini Mart	10723 1st Avenue S	98168					●					1935
2489	Kaspac Chiyoda Property	Carey Limousine, Cascade Transmission Company, Chiyoda International Corp, Kaspac Corp Seattle, Kaspac Corporation, Tukwila Roofing Co	1237 S Director Street	98108	●				●					0016
1502	King County Housing Authority	None	9606 4th Avenue SW	98106	●									9352, 9387,
45994892	King County Radio Shop UST 455634	None	112th Street & 3rd Avenue SW	98181					●					9375
2404488	King Electrical Mfg Co	None	9131 10th Avenue S	98108	●		●						●	0105, 0068
12901	Koepping & Koepping	South 93rd Business Park	1705 S 93rd Street, Bldg F7	98108										0050
2263	Markey Property Parcel 4	Bayside Automotive Storage, Holnam Markey, NRC Environmental Services, Sea Con Property, Sherwin Williams, Simplex Grinnell, Teris LLC dba Division Transport	9520 10th Avenue S	98108		●					●	●		0150
3546421	Mason Dixon Intermodal Inc.	None	9515 10th Avenue S	98108	●									0170
36919863	McKinstry Co S Barton St	None	855 S Barton Street	98108	●				●					0070
41534652	Merchants Metals Inc	None	429 1/2 S 96th Street	98108	●									9008
231954	MKT Southpark LLC	Absolute German, All City Auto Wrecking & Sales, Inc., Pac West Seattle, South Park Chevron	9525 14th Avenue S	98108										0097

Table 1
Facilities within the Sea King Industrial Park Source Control Area

Ecology Facility/ Site ID	Facility Name	Alternate Name(s)	Facility Address	Zip	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization	Ecology UST List	Ecology LUST List	VCP	Ecology NFA Determination	EPA CERCLA Section 104(e) Request for Information	Parcel
42665774	Morgan Trucking Inc Seattle	MacMillan Piper	9228 10th Avenue S	98108	●				●					0165
2347	Norman Property	BMW of Seattle, Highland Park, Norman Enterprises Inc.	11603 10th Avenue S	98168		●	●					●		2095
14839	Northwest Connecting Rod	South 93rd Business Park	1705 S 93rd Street, Unit F7	98108										0050
19871	NRC Environmental Services	Bayside Automotive Storage, Holnam Markey, Markey Property Parcel 4, Sea Con Property, Sherwin Williams, Simplex Grinnell, Teris LLC dba Division Transport	9520 10th Avenue S, Ste 150	98108	●									0150
1143511	Pacific Industrial Supply	Precision Engineering	1231 S Director Street	98108			●							0055
86136757	Pacific Utility Equipment Co	Wooldridge Boats Inc.	1303 S 96th Street	98108	●		●							0360
1992812	Petrocard Systems Inc., 14th Avenue S	None	9014 14th Avenue S	98108					●					8580, 8593
2056	Precision Engineering	Pacific Industrial Supply	1231 S Director Street	98108							●			0055
37593895	Professional Coating, Inc.	South 93rd Business Park	1705 S 93rd Street, Unit F22	98108										0015
9246491	Progressive Fastening Inc	None	837 Director Street	98108	●									0015
75934919	Property Abandoned Centers DOT	None	Corner of S 96th Street & 4th Avenue S	98108	●									
29834194	Propulsion Controls Engineering	South 93rd Business Park	1705 S 93rd Street, Unit F10	98108	●									0050
76299717	PSF Industries Inc. Field Yard	None	9332 14th Avenue S	98108	●									0046
18451551	PSF Mechanical Inc.	None	9322 14th Avenue S	98108	●		●							0046
13397378	Puget Sound Coatings Inc.	Puget Sound Coatings Machinists Inc.	9400 8th Avenue S	98108	●						●			0190
97263627	Puget Sound Coatings Machinists Inc.	Puget Sound Coatings Inc.	9220 8th Avenue S	98108	●		●		●	●			●	0215
12462	Qual Fab Inc	South 93rd Business Park	1705 S 93rd Street, Bldg F Unit 11	98108										0050
96526349	R&J Autobody Inc.	The T&H Autobody	10832 Myers Way S	98168	●									0035
2080	Repair Technology Inc.	Advance Hard Chrome Inc., South 96th Street Industrial Park	400 S 96th Street	98108	●	●		●				●	●	9071
18925	RMC Inc.	RMC Powder Coating	10766 Myers Way S	98168			●							1560
2058	S 96th Street Ditch	None	S 96th Street & Duwamish River	98108		●								
16779	Security Contractor Services, Inc.	Penberthy Electromelt, Remedco, ToxGon, Warp Corp	9619 8th Avenue S	98108			●							0253
37752719	Selland Auto Transport	None	615 S 96th Street	98108-	●	●	●		●	●	●			0230
39258864	Sherwin Williams Store 4317	Bayside Automotive, Holnam Markey, Markey Property Parcel 4, NRC Environmental Services, Sea Con Property, Simplex Grinnell, Teris LLC dba Division Transport	9530 10th Avenue S	98108	●		●							0150
2236438	Simplex Grinnell	Bayside Automotive, Holnam Markey, Markey Property Parcel 4, NRC Environmental Services, Sea Con Property, Sherwin Williams, Teris LLC dba Division Transport	9520 10th Avenue S, Ste 100	98108										0150
21077	SKBA Buddhist Temple	None	9910 8th Avenue S	98168			●							0573
26432659	Sound Delivery Service	None	9999 8th Avenue S	98138	●									9010
27778576	South Park Chevron	Absolute German, All City Auto Wrecking & Sales, Inc., MKT Southpark LLC, Pac West Seattle	9525 14th Avenue S	98108					●					0097
48248356	Sunnydale Construction Co. Inc.	ICON Materials Asphalt Plant	1119 S 96th Street	98108					●	●				0290
3291	Terex Utilities	Fruehauf Trailer Services	9426 8th Avenue S	98108			●							0191

Table 1
Facilities within the Sea King Industrial Park Source Control Area

Ecology Facility/ Site ID	Facility Name	Alternate Name(s)	Facility Address	Zip	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization	Ecology UST List	Ecology LUST List	VCP	Ecology NFA Determination	EPA CERCLA Section 104(e) Request for Information	Parcel
79578412	Teris LLC	NRC Environmental Services, Teris LLC dba Division Transport	9520 10th Avenue S, Ste 150	98108	●									0150
74799553	Terrel Sommers Inc	None	9508 8th Avenue S	98108	●									
69951382	Thomas Equipment Rental	Gary Merlino Construction Company	827 S Director Street	98108	●									0015, 0055,
2329	ToxGon Corp Seattle	Penberthy Electromelt, Remedco, Security Contractor Services, Warp Corp	631 S 96th Street	98108	●	●						●		0253
7327447	United States Seafoods	South 93rd Business Park	1605 S 93rd Street, Unit EH	98108	●									0050
21141463	USEPA Technical Assistance Team Warehouse	South 93rd Business Park	1605 S 93rd Street, Bldg E Unit R	98108	●									0050
17115	WA DOT SR 99 ITS Project	None	SR599 SR99 & SR509	98168			●							
24029	Warp Corp	Penberthy Electromelt, Remedco, Security Contractor Services, ToxGon	631 S 96th Street	98108			●							0253
2463219	Western United Fish Company	Ecolights Northwest LLC	9411 8th Avenue S	98108				●						0210
18788836	YRC Inc. Seattle	Desimone Trust Property, Old Dominion Freight Line Inc., Roadway Express Inc. 96th, Roadway Express Inc. T8870	600 S 96th Street	98108	●		●							9034, 0212, 0213, 0211

Table 2
Sediment Samples Collected Near the Sea King Industrial Park Source Control Area

EventName	Location Name	Date Collected	Collection Depth (feet)	Metals	SVOCs[a]	PCBs	Dioxins/ Furans	Organo-metals	VOCs	Pesticides	Source
S 96th Street Water Quality Engineering Report	96-8	4/27/1993	Surface	●	●						Herrera 1994
Boeing Site Characterization	R20	10/10/1997	Surface	●	●	●					Windward 2003
	R25	10/9/1997		●	●	●					
	R28	10/10/1997		●	●	●					
	R29	10/9/1997		●	●	●					
	R32	10/10/1997		●	●	●					
	R33	10/9/1997		●	●	●					
	R36	10/10/1997		●	●	●					
	R37	10/9/1997		●	●	●					
NOAA Site Characterization	WIT258	10/1/1997	Surface			●[b]					Windward 2003
	WIT259	10/1/1997				●[b]					
	WIT262	10/16/1997				●[b]					
	WIT263	10/16/1997				●[b]					
	WIT264	10/2/1997				●[b]					
	WIT268	10/14/1997				●[b]					
	WST308	10/1/1997				●[b]					
	WST309	10/1/1997				●[b]					
	WST311	11/13/1997				●[b]					
	WST312	10/23/1997				●[b]					
	WST314	10/1/1997				●[b]					
	WST315	11/12/1997				●[b]					
EPA Site Investigation	DR209	8/27/1998	Surface	●	●	●					Weston 1999
	DR210	8/25/1998		●	●	●		●			
	DR211	8/25/1998		●	●	●					
	DR258	8/25/1998		●	●	●		●	●	●	
	DR259	8/25/1998		●	●	●					
	DR262	9/1/1998		●	●	●		●			
	DR263	8/25/1998		●	●	●					
	DR264	8/26/1998		●	●	●	●	●			
	DR284	8/25/1998		●	●	●	●	●	●	●	
	DR285	8/25/1998		●	●	●					

Table 2
Sediment Samples Collected Near the Sea King Industrial Park Source Control Area

EventName	Location Name	Date Collected	Collection Depth (feet)	Metals	SVOCs[a]	PCBs	Dioxins/ Furans	Organo- metals	VOCs	Pesticides	Source
Dredge Material Characterization - Duwamish Yacht Club	C1	3/4/1999	>0.5	●	●	●		●		●	Windward 2003
	C2	3/4/1999	>0.5	●	●	●		●		●	
	C3	3/4/1999	>0.5	●	●	●		●		●	
	C4	3/4/1999	>0.5	●	●	●		●		●	
	C5	3/4/1999	>0.5	●	●	●		●		●	
	C6	3/4/1999	>0.5	●	●	●		●		●	
LDWRI Benthic	B10b	8/19/2004	Surface	●	●	●		●		●	Windward 2005a
LDWRI Phase 2 Round 1	LDW-SS113b	1/20/2005	Surface	●	●	●				●	Windward 2005b, 2005c, 2007b
	LDW-SS117	1/20/2005		●	●	●					
	LDW-SS134	1/24/2005		●	●	●				●	
LDWRI Phase 2 Round 2	LDW-SS122	3/8/2005	Surface	●	●	●					Windward 2005b, 2005c, 2007b
	LDW-SS124	3/15/2005		●	●	●		●			
	LDW-SS131	3/8/2005		●	●	●		●		●	
	LDW-SS133	3/9/2005		●	●	●		●		●	
	LDW-SS135	3/15/2005		●	●	●					
	LDW-SS136	3/15/2005		●	●	●					
LDW Subsurface Sediment 2006	LDW-SC54	2/23/2006	0 - 2	●	●	●				●	Windward 2007a
		2/23/2006	2 - 4	●	●	●				●	
LDW Dioxin Sampling	LDW-SS542	12/17/2009	Surface				●				Windward 2010a
	LDW-SS544-	1/12/2010		●	●	●	●				
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Surface	●	●	●					SAIC 2011
	LDW-SSSP1-D	3/24/2011		●	●	●					
	LDW-SSSP1-U	3/24/2011		●	●	●					
	LDW-SSSP2-A	3/24/2011		●	●	●					
	LDW-SSSP2-D	3/24/2011		●	●	●					
	LDW-SSSP2-U	3/24/2011		●	●	●					
	LDW-SSSP3-A	3/24/2011		●	●	●					
	LDW-SSSP3-D	3/24/2011		●	●	●	●				
	LDW-SSSP3-U	3/24/2011		●	●	●					

SVOCs- semi-volatile organic compounds

PCBs - polychlorinated biphenyls

VOCs - volatile organic compounds

PAHs - polycyclic aromatic hydrocarbons

a - SVOCs includes PAHs and phthalates

b - Samples also analyzed for polychlorinated terphenyls

Table 3
Chemicals Detected Above Screening Levels in Surface Sediment Samples
Near the Sea King Industrial Park Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Metals											
EPA Site Investigation	DR210	8/25/1998	Mercury	4.60E-01	1.45		0.41	0.59	mg/kg DW	1.1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Zinc	1.44E+03 J	1.56		410	960	mg/kg DW	3.5	1.5
S 96th Street WQ Engineering Report	96-8	4/27/1993	Zinc	5.00E+02	2.17		410	960	mg/kg DW	1.2	<1
PAHs											
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(g,h,i)perylene	8.20E-01 M	2.17	3.78E+01	31	78	mg/kg OC	1.2	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Dibenzo(a,h)anthracene	6.80E-01	2.17	3.13E+01	12	33	mg/kg OC	2.6	<1
Phthalates											
EPA Site Investigation	DR258	8/25/1998	Butyl benzyl phthalate	1.00E-01	1.55	6.50E+00	4.9	64	mg/kg OC	1.3	<1
Other SVOCs											
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzyl alcohol	1.80E-01	1.56		0.057	0.073	mg/kg DW	3.2	2.5
PCBs											
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	PCBs (total calc'd)	2.00E-01	0.553	3.60E+01	12	65	mg/kg OC	3	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	PCBs (total calc'd)	3.70E-01	1.35	2.70E+01	12	65	mg/kg OC	2.3	<1
EPA Site Investigation	DR210	8/25/1998	PCBs (total calc'd)	3.80E-01	1.45	2.60E+01	12	65	mg/kg OC	2.2	<1
NOAA Site Characterization	WIT258	10/1/1997	PCBs (total-calc'd)	3.40E-01	1.59	2.14E+01	12	65	mg/kg OC	1.8	<1
Boeing Site Characterization	R20	10/10/1997	PCBs (total calc'd)	1.70E-01	0.82	2.07E+01	12	65	mg/kg OC	1.7	<1

mg/kg - milligram per kilogram
ug/kg - microgram per kilogram
ng/kg - nanogram per kilogram
DW - dry weight
TOC - total organic carbon
OC - organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level

SMS - Sediment Management Standard (Washington Administrative Code 173-204)
PAHs - polycyclic aromatic hydrocarbons
SVOCs - semi-volatile organic compounds
PCB - polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
LDW - Lower Duwamish Waterway
TEQ - toxic equivalency

Table presents detected chemicals only.

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

Sampling events are listed in Table 1.

Table 4
CSO/EOF Discharges to the Lower Duwamish Waterway

Outfall	Type (Owner)	Discharge Serial Number	Location	Average Overflow Frequency (events/year) 2000 to 2007	Annual Average Volume (mgy) 2000 to 2007
Diagonal Avenue S.[a]	CSO (SPU) SD (SPU)	NA	RM 0.5 E	20.1	15.8[b]
Hanford No. 1[c]	CSO (King County)	031	RM 0.5 E	9	18.75
Duwamish pump station East	CSO (King County)	035	RM 0.5 E	<1.0	0.51
Duwamish pump station West	CSO (King County)	034	RM 0.5 W	<1.0	0.60
S. Brandon Street	CSO (King County)	041	RM 1.1 E	23	31.63
Terminal 115	CSO (King County)	038	RM 1.9 W	3	3.52
S. Brighton Street	CSO (SPU) SD (SPU)	NA	RM 2.1 E	NA[g]	NA
King County Airport SD#3/PS44 EOF[d]	SD (King County) EOF (SPU)	NA	RM 2.8 E	NA	NA
E. Marginal Way S. pump station	EOF (King County)	043	RM 2.8 E	None recorded	NA
8th Avenue S.	CSO (King County)	040	RM 2.8 W	0	0
King County Airport SD#2/PS78 EOF[e]	SD (King County) EOF (SPU)	NA	RM 3.8 E	NA	NA
Michigan Street	CSO (King County)	039	RM 1.9 E	11	17.58
W. Michigan	CSO (King County)	042	RM 2.0 W	4	1.23
Norfolk	CSO (King County) SD (King County) EOF (SPU)[f]	044	RM 4.8 E	4	0.28

Source: King County 2008b

a - The Diagonal Avenue S. SD outfall is shared by stormwater and seven separate overflow points, including the City's Diagonal CSOs and the County's Hanford No. 1 CSO. The overflow frequency and volume listed are for the Diagonal CSOs only.

b - This average volume does not include the contribution from King County's Hanford No. 1 CSO, but does include the remaining seven overflow points that discharge through the Diagonal Avenue S. CSO/SD.

c - Hanford No. 1 discharges to the LDW through the Diagonal Avenue S. SD.

d – SPU Pump Station 44 discharges via EOF No. 117 to King County Airport SD#3 at Slip 4.

e – SPU Pump Station 78 discharges via EOF No. 156 to King County Airport SD#2, near Boeing Isaacson.

f – SPU Pump Station 17 discharges to the Norfolk CSO/SD.

g – Has not overflowed since monitoring began in March 2000.

mgy – million gallons per year

NA – Not available

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
S 96th Street Drain									
Herrera 1994	4/6/1993	96-19	0	Acenaphthene	0.3	4,800	0.06	<1	5.0
E&E 1987a	11/13/86	PF5		Aroclor 1254	0.26	0.5	0.065	<1	4.0
E&E 1987b	6/12/87	K-1		Aroclor 1254	0.22	0.5	0.065	<1	3.4
Hong West 1995	Dec-93	DSG-9		Arsenic	70	0.67	590	104	<1
Hong West 1995	Nov-93	DS-24		Arsenic	50	0.67	590	75	<1
Hong West 1995	Nov-93	DS-10		Arsenic	38	0.67	590	57	<1
Hong West 1995	Dec-93	DSG-12		Arsenic	32	0.67	590	48	<1
Hong West 1995	Nov-93	DS-25		Arsenic	30	0.67	590	45	<1
Herrera 1994	4/6/1993	96-16	0	Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-6		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-12		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-32		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-26		Arsenic	17	0.67	590	25	<1
Hong West 1995	Nov-93	DS-30		Arsenic	16	0.67	590	24	<1
Hong West 1995	Nov-93	DS-33		Arsenic	16	0.67	590	24	<1
Hong West 1995	Nov-93	DS-1		Arsenic	15	0.67	590	22	<1
Hong West 1995	Nov-93	DS-2		Arsenic	15	0.67	590	22	<1
Hong West 1995	Nov-93	DS-3		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-8		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-11		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-29		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-31		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-5		Arsenic	13	0.67	590	19	<1
Hong West 1995	Nov-93	DS-20		Arsenic	12	0.67	590	18	<1
Hong West 1995	Nov-93	DS-21		Arsenic	12	0.67	590	18	<1
Hong West 1995	Dec-93	DSG-18		Arsenic	12	0.67	590	18	<1
Hong West 1995	Nov-93	DS-4		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-28		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-34		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-27		Arsenic	10	0.67	590	15	<1
Hong West 1995	Nov-93	DS-22		Arsenic	9.3	0.67	590	14	<1
Hong West 1995	Dec-93	DSG-22		Arsenic	9.3	0.67	590	14	<1
Hong West 1995	Nov-93	DS-14		Arsenic	9.2	0.67	590	14	<1
Hong West 1995	Nov-93	DS-19		Arsenic	9.0	0.67	590	13	<1
E&E 1987a	11/13/86	PF1		Arsenic	8.47	0.67	590	13	<1
Hong West 1995	Nov-93	DS-13		Arsenic	8.3	0.67	590	12	<1

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-16		Arsenic	8	0.67	590	12	<1
Hong West 1995	Nov-93	DS-9		Arsenic	7.8	0.67	590	12	<1
E&E 1987a	11/13/86	PF5		Arsenic	7.74	0.67	590	12	<1
E&E 1987a	11/13/86	PF4		Arsenic	6.98	0.67	590	10	<1
Hong West 1995	Nov-93	DS-17		Arsenic	6.5	0.67	590	9.7	<1
E&E 1987a	11/13/86	PF6		Arsenic	6	0.67	590	9.1	<1
E&E 1987a	11/13/86	PF2		Arsenic	5.85	0.67	590	8.7	<1
Herrera 1994	4/6/1993	96-19	0	Arsenic	5.1	0.67	590	7.6	<1
Hong West 1995	Dec-93	DSG-9		Benzene	0.12	0.03		4.0	
E&E 1987b	6/12/87	K-1		Benzo(a)anthracene	21	1.37	0.27	15	78
E&E 1987b	6/12/87	K-1		Benzo(a)pyrene	880	0.137	0.21	6,423	4,190
E&E 1987a	11/13/86	PF1		Bis(2-ethylhexyl)phthalate	3.9	71	0.078	<1	50
E&E 1987a	11/13/86	PF3		Bis(2-ethylhexyl)phthalate	1.6	71	0.078	<1	21
E&E 1987a	11/13/86	PF4		Bis(2-ethylhexyl)phthalate	0.63	71	0.078	<1	8.1
Herrera 1994	4/6/1993	96-16	0	Cadmium	8.5	2	1.7	4.3	5.0
Hong West 1995	Dec-93	DSG-9		Cadmium	5.6	2	1.7	2.8	3.3
Hong West 1995	Nov-93	DS-21		Cadmium	5.4	2	1.7	2.7	3.2
Hong West 1995	Nov-93	DS-20		Cadmium	4.9	2	1.7	2.5	2.9
Hong West 1995	Nov-93	DS-6		Cadmium	4.5	2	1.7	2.3	2.6
Hong West 1995	Nov-93	DS-23		Cadmium	4.5	2	1.7	2.3	2.6
Hong West 1995	Nov-93	DS-5		Cadmium	4.2	2	1.7	2.1	2.5
Hong West 1995	Nov-93	DS-22		Cadmium	4	2	1.7	2.0	2.4
Hong West 1995	Nov-93	DS-24		Cadmium	3.9	2	1.7	2.0	2.3
Hong West 1995	Nov-93	DS-8		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-12		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-19		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-10		Cadmium	3.5	2	1.7	1.8	2.1
Hong West 1995	Nov-93	DS-27		Cadmium	3.3	2	1.7	1.7	1.9
Hong West 1995	Nov-93	DS-14		Cadmium	3.1	2	1.7	1.6	1.8
Hong West 1995	Nov-93	DS-34		Cadmium	2.8	2	1.7	1.4	1.6
Hong West 1995	Nov-93	DS-33		Cadmium	2.7	2	1.7	1.4	1.6
Hong West 1995	Nov-93	DS-4		Cadmium	2.6	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-1		Cadmium	2.5	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-11		Cadmium	2.5	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-3		Cadmium	2.4	2	1.7	1.2	1.4
Hong West 1995	Nov-93	DS-18		Cadmium	2.3	2	1.7	1.2	1.4
Hong West 1995	Dec-93	DSG-18		Cadmium	2.3	2	1.7	1.2	1.4

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-7		Cadmium	2.2	2	1.7	1.1	1.3
Hong West 1995	Nov-93	DS-13		Cadmium	2.2	2	1.7	1.1	1.3
Hong West 1995	Nov-93	DS-15		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Dec-93	DSG-12		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Dec-93	DSG-22		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Nov-93	DS-26		Cadmium	2.0	2	1.7	1.0	1.2
Hong West 1995	Nov-93	DS-32		Cadmium	2.0	2	1.7	1.0	1.2
Hong West 1995	Nov-93	DS-17		Cadmium	1.9	2	1.7	<1	1.1
Hong West 1995	Nov-93	DS-25		Cadmium	1.9	2	1.7	<1	1.1
Hong West 1995	Nov-93	DS-2		Cadmium	1.8	2	1.7	<1	1.1
E&E 1987b	6/12/87	K-1		Chrysene	52	137	0.46	<1	113
Herrera 1994	4/6/1993	96-16	0	Copper	168	3,200	39	<1	4.3
Hong West 1995	Nov-93	DS-6		Copper	150	3,200	39	<1	3.8
Hong West 1995	Nov-93	DS-5		Copper	140	3,200	39	<1	3.6
Hong West 1995	Nov-93	DS-3		Copper	130	3,200	39	<1	3.3
Hong West 1995	Nov-93	DS-8		Copper	130	3,200	39	<1	3.3
Hong West 1995	Nov-93	DS-10		Copper	100	3,200	39	<1	2.6
Hong West 1995	Nov-93	DS-20		Copper	100	3,200	39	<1	2.6
Hong West 1995	Dec-93	DSG-9		Copper	100	3,200	39	<1	2.6
Hong West 1995	Nov-93	DS-21		Copper	97	3,200	39	<1	2.5
Hong West 1995	Nov-93	DS-11		Copper	93	3,200	39	<1	2.4
Hong West 1995	Nov-93	DS-1		Copper	90	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-19		Copper	90	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-7		Copper	89	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-23		Copper	86	3,200	39	<1	2.2
Hong West 1995	Nov-93	DS-24		Copper	86	3,200	39	<1	2.2
Hong West 1995	Nov-93	DS-2		Copper	80	3,200	39	<1	2.1
Hong West 1995	Nov-93	DS-4		Copper	72	3,200	39	<1	1.8
Hong West 1995	Nov-93	DS-12		Copper	72	3,200	39	<1	1.8
Hong West 1995	Nov-93	DS-22		Copper	66	3,200	39	<1	1.7
Hong West 1995	Nov-93	DS-28		Copper	65	3,200	39	<1	1.7
Hong West 1995	Dec-93	DSG-22		Copper	63	3,200	39	<1	1.6
Hong West 1995	Dec-93	DSG-18		Copper	60	3,200	39	<1	1.5
Hong West 1995	Nov-93	DS-30		Copper	59	3,200	39	<1	1.5
Hong West 1995	Nov-93	DS-15		Copper	55	3,200	39	<1	1.4
E&E 1987a	11/13/86	PF3		Copper	54.2	3,200	39	<1	1.4
Hong West 1995	Nov-93	DS-25		Copper	53	3,200	39	<1	1.4

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-14		Copper	52	3,200	39	<1	1.3
Hong West 1995	Nov-93	DS-26		Copper	51	3,200	39	<1	1.3
Hong West 1995	Nov-93	DS-13		Copper	48	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-17		Copper	48	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-34		Copper	46	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-16		Copper	42	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-18		Copper	42	3,200	39	<1	1.1
E&E 1987a	11/13/86	PF1		Copper	41.3	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-33		Copper	41	3,200	39	<1	1.1
Hong West 1995	Dec-93	DSG-12		Diesel-range hydrocarbons	8,000	2,000		4.0	
Hong West 1995	Dec-93	DSG-9		Diesel-range hydrocarbons	3,000	2,000		1.5	
Hong West 1995	Dec-93	DSG-12		Gasoline-range hydrocarbons	760	30		25	
Hong West 1995	Dec-93	DSG-9		Gasoline-range hydrocarbons	68	30		2.3	
Hong West 1995	Dec-93	DSG-9		Heavy-oil range hydrocarbons	46,000	2,000		23	
Hong West 1995	Dec-93	DSG-12		Heavy-oil range hydrocarbons	27,000	2,000		14	
Hong West 1995	Dec-93	DSG-18		Heavy-oil range hydrocarbons	6,200	2,000		3.1	
Hong West 1995	Dec-93	DSG-22		Heavy-oil range hydrocarbons	4,500	2,000		2.3	
E&E 1987b	6/12/87	K-1		Indeno(1,2,3-cd)pyrene	5	1.37	0.088	3.6	57
Hong West 1995	Nov-93	DS-24		Lead	320	250	67	1.3	4.8
Hong West 1995	Nov-93	DS-34		Lead	320	250	67	1.3	4.8
Hong West 1995	Dec-93	DSG-9		Lead	260	250	67	1.0	3.9
Hong West 1995	Nov-93	DS-33		Lead	240	250	67	<1	3.6
Hong West 1995	Nov-93	DS-23		Lead	190	250	67	<1	2.8
Hong West 1995	Nov-93	DS-20		Lead	140	250	67	<1	2.1
Hong West 1995	Nov-93	DS-26		Lead	140	250	67	<1	2.1
Hong West 1995	Nov-93	DS-28		Lead	140	250	67	<1	2.1
E&E 1987a	11/13/86	PF1		Lead	131	250	67	<1	2.0
Hong West 1995	Nov-93	DS-8		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-10		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-19		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-3		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-21		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-27		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-1		Lead	100	250	67	<1	1.5
Hong West 1995	Nov-93	DS-22		Lead	100	250	67	<1	1.5
Hong West 1995	Nov-93	DS-30		Lead	96	250	67	<1	1.4
Hong West 1995	Nov-93	DS-29		Lead	95	250	67	<1	1.4

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Dec-93	DSG-22		Lead	87	250	67	<1	1.3
Hong West 1995	Nov-93	DS-11		Lead	81	250	67	<1	1.2
Hong West 1995	Nov-93	DS-12		Lead	81	250	67	<1	1.2
Hong West 1995	Nov-93	DS-5		Lead	77	250	67	<1	1.1
Hong West 1995	Nov-93	DS-25		Lead	74	250	67	<1	1.1
Hong West 1995	Nov-93	DS-6		Lead	71	250	67	<1	1.1
Hong West 1995	Nov-93	DS-19		Mercury	9.9	2	0.03	5.0	330
Hong West 1995	Nov-93	DS-33		Mercury	0.54	2	0.03	<1	18
Hong West 1995	Nov-93	DS-23		Mercury	0.22	2	0.03	<1	7.3
Herrera 1994	4/6/1993	96-16	0	Mercury	0.2	2	0.03	<1	6.7
Hong West 1995	Dec-93	DSG-9		Mercury	0.18	2	0.03	<1	6.0
Hong West 1995	Nov-93	DS-3		Mercury	0.15	2	0.03	<1	5.0
Hong West 1995	Nov-93	DS-10		Mercury	0.15	2	0.03	<1	5.0
Hong West 1995	Nov-93	DS-34		Mercury	0.14	2	0.03	<1	4.7
Hong West 1995	Dec-93	PCB-2A		PCBs, total	0.5	0.5	0.065	1.0	7.7
Hong West 1995	Dec-93	PCB-1B		PCBs, total	0.3	0.5	0.065	<1	4.6
Hong West 1995	Dec-93	DSG-9		Phenanthrene	1.2 J		0.49		2.4
E&E 1987b	6/12/87	K-1		Pyrene	27	2,400	1.4	<1	19
Hong West 1995	Nov-93	DS-28		Silver	2.5	400	0.61	<1	4.1
Hong West 1995	Nov-93	DS-29		Silver	2.5	400	0.61	<1	4.1
Herrera 1994	4/6/1993	96-16	0	Silver	1	400	0.61	<1	1.6
Hong West 1995	Nov-93	DS-30		Silver	1	400	0.61	<1	1.6
Hong West 1995	Nov-93	DS-27		Silver	0.67	400	0.61	<1	1.1
Herrera 1994	4/6/1993	96-16	0	Total petroleum hydrocarbons	24,000	2,000		12	
Hong West 1995	Nov-93	DS-12		Total petroleum hydrocarbons	13,000	2,000		6.5	
Hong West 1995	Nov-93	DS-23		Total petroleum hydrocarbons	9,400	2,000		4.7	
Hong West 1995	Nov-93	DS-14		Total petroleum hydrocarbons	5,900	2,000		3.0	
Hong West 1995	Nov-93	DS-18		Total petroleum hydrocarbons	4,400	2,000		2.2	
Hong West 1995	Nov-93	DS-22		Total petroleum hydrocarbons	3,500	2,000		1.8	
Hong West 1995	Nov-93	DS-21		Total petroleum hydrocarbons	2,900	2,000		1.5	
Hong West 1995	Nov-93	DS-3		Zinc	1,100	24,000	38	<1	29
Hong West 1995	Nov-93	DS-11		Zinc	950	24,000	38	<1	25
Hong West 1995	Nov-93	DS-8		Zinc	880	24,000	38	<1	23
Hong West 1995	Nov-93	DS-1		Zinc	700	24,000	38	<1	18
Herrera 1994	4/6/1993	96-16	0	Zinc	676	24,000	38	<1	18
Hong West 1995	Nov-93	DS-2		Zinc	610	24,000	38	<1	16
Hong West 1995	Nov-93	DS-20		Zinc	590	24,000	38	<1	16

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-10		Zinc	570	24,000	38	<1	15
Hong West 1995	Nov-93	DS-5		Zinc	560	24,000	38	<1	15
Hong West 1995	Nov-93	DS-19		Zinc	560	24,000	38	<1	15
Hong West 1995	Nov-93	DS-12		Zinc	550	24,000	38	<1	14
Hong West 1995	Nov-93	DS-27		Zinc	550	24,000	38	<1	14
Hong West 1995	Nov-93	DS-6		Zinc	500	24,000	38	<1	13
Hong West 1995	Nov-93	DS-17		Zinc	470	24,000	38	<1	12
Hong West 1995	Nov-93	DS-21		Zinc	460	24,000	38	<1	12
Hong West 1995	Dec-93	DSG-9		Zinc	440	24,000	38	<1	12
Hong West 1995	Nov-93	DS-24		Zinc	430	24,000	38	<1	11
Hong West 1995	Nov-93	DS-22		Zinc	400	24,000	38	<1	11
Hong West 1995	Nov-93	DS-25		Zinc	400	24,000	38	<1	11
Hong West 1995	Nov-93	DS-4		Zinc	360	24,000	38	<1	9.5
Hong West 1995	Nov-93	DS-13		Zinc	350	24,000	38	<1	9.2
Hong West 1995	Nov-93	DS-30		Zinc	330	24,000	38	<1	8.7
Hong West 1995	Nov-93	DS-26		Zinc	320	24,000	38	<1	8.4
Hong West 1995	Nov-93	DS-23		Zinc	310	24,000	38	<1	8.2
Hong West 1995	Nov-93	DS-9		Zinc	300	24,000	38	<1	7.9
Hong West 1995	Nov-93	DS-15		Zinc	300	24,000	38	<1	7.9
Hong West 1995	Nov-93	DS-34		Zinc	290	24,000	38	<1	7.6
Hong West 1995	Nov-93	DS-16		Zinc	280	24,000	38	<1	7.4
Hong West 1995	Nov-93	DS-28		Zinc	280	24,000	38	<1	7.4
Hong West 1995	Nov-93	DS-14		Zinc	270	24,000	38	<1	7.1
Hong West 1995	Nov-93	DS-7		Zinc	260	24,000	38	<1	6.8
Hong West 1995	Nov-93	DS-18		Zinc	260	24,000	38	<1	6.8
Hong West 1995	Nov-93	DS-33		Zinc	220	24,000	38	<1	5.8
Hong West 1995	Dec-93	DSG-22		Zinc	210	24,000	38	<1	5.5
Hong West 1995	Dec-93	DSG-18		Zinc	190	24,000	38	<1	5.0
Hong West 1995	Dec-93	DSG-12		Zinc	170	24,000	38	<1	4.5
E&E 1987a	11/13/86	PF1		Zinc	159	24,000	38	<1	4.2
E&E 1987a	11/13/86	PF3		Zinc	123	24,000	38	<1	3.2
Hong West 1995	Nov-93	DS-29		Zinc	110	24,000	38	<1	2.9
E&E 1987a	11/13/86	PF5		Zinc	86.6	24,000	38	<1	2.3
E&E 1987a	11/13/86	PF2		Zinc	64.5	24,000	38	<1	1.7
Herrera 1994	4/6/1993	96-19	0	Zinc	63.6	24,000	38	<1	1.7
Hong West 1995	Nov-93	DS-32		Zinc	63	24,000	38	<1	1.7
E&E 1987a	11/13/86	PF4		Zinc	52.5	24,000	38	<1	1.4

Table 5
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-31		Zinc	51	24,000	38	<1	1.3
Hamm Creek North Fork									
Herrera 1994	4/6/1993	96-3	0	Acenaphthene	0.26	4,800	0.06	<1	4.3
Herrera 1994	4/6/1993	96-3	0	Arsenic	11.7	0.67	590	17	<1
Hamm Creek Middle Fork									
Herrera 1994	4/6/1993	96-14	0	Acenaphthene	2	4,800	0.06	<1	33
Herrera 1994	4/6/1993	96-14	0	Acenaphthylene	0.85		0.069		12
Herrera 1994	4/6/1993	96-14	0	Arsenic	6	0.67	590	9.0	<1
Herrera 1994	4/6/1993	96-14	0	Copper	44.7	3,200	39	<1	1.1
Herrera 1994	4/6/1993	96-14	0	cPAHs, total	0.564	0.137		4.1	
Herrera 1994	4/6/1993	96-14	0	Dibenzo(a,h)anthracene	0.06	0.137	0.033	<1	1.8
Herrera 1994	4/6/1993	96-14	0	Lead	190	250	67	<1	2.8
Herrera 1994	4/6/1993	96-14	0	Naphthalene	0.67	5	0.2	<1	3.4
Herrera 1994	4/6/1993	96-14	0	Zinc	240	24,000	38	<1	6.3

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

J - Estimated value

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level, whichever is lower.

Table 6
Chemicals Detected Above Screening Levels in Groundwater
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level^a (ug/L)	GW-to-Sediment Screening Level^b (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Herrera 1994	11/26/1991	MW-1	Arsenic	39	0.0583	370	669	<1
Herrera 1994	11/26/1991	MW-4	Arsenic	28	0.0583	370	480	<1
Herrera 1994	11/26/1991	MW-5	Arsenic	16	0.0583	370	274	<1
Herrera 1994	11/26/1991	MW-3	Arsenic	15	0.0583	370	257	<1
Herrera 1994	11/26/1991	MW-4	Cadmium	5	5.0	3.4	1.0	1.5
Hong West 1995	Jan-94	MW-1	Chromium	1400	50	320	28	4.4
Herrera 1994	11/26/1991	MW-1	Chromium	803	50	320	16	2.5
Herrera 1994	11/26/1991	MW-4	Chromium	72	50	320	1.4	<1
Hong West 1995	Nov-91	MW-1	Copper	526	640	120	<1	4.4
Hong West 1995	Nov-91	MW-4	Copper	215	640	120	<1	1.8
Herrera 1994	11/26/1991	MW-1	Lead	145	15	13	9.7	11
Herrera 1994	11/26/1991	MW-4	Lead	58	15	13	3.9	4.5
Herrera 1994	11/26/1991	MW-3	Lead	31	15	13	2.1	2.4
Herrera 1994	11/26/1991	MW-5	Lead	25	15	13	1.7	1.9
Herrera 1994	11/26/1991	MW-1	Mercury	2	2	0.0074	1.0	270
Hong West 1995	Jan-94	MW-4	Mercury	0.6	2	0.0074	<1	81
Herrera 1994	11/26/1991	MW-4	Mercury	0.5	2	0.0074	<1	68
Herrera 1994	11/26/1991	MW-5	Mercury	0.3	2	0.0074	<1	41
Herrera 1994	11/26/1991	MW-3	Mercury	0.1	2	0.0074	<1	14
Hong West 1995	Jan-94	MW-1	Tetrachloroethene	140	5		28	
Herrera 1994	11/26/1991	MW-1	Tetrachloroethene	36	5		7.2	
Hong West 1995	Jan-94	MW-1	Trichloroethene	3,900 D	5		780	
Hong West 1995	Nov-91	MW-1	Trichloroethene	2,800	5		560	
Hong West 1995	Jan-94	MW-106	Zinc	1,200	4,800	76	<1	16
Hong West 1995	Nov-91	MW-1	Zinc	930	4,800	76	<1	12
Hong West 1995	Nov-91	MW-4	Zinc	359	4,800	76	<1	4.7
Hong West 1995	Nov-91	MW-3	Zinc	119	4,800	76	<1	1.6
Hong West 1995	Nov-91	MW-5	Zinc	96	4,800	76	<1	1.3

Table 6
Chemicals Detected Above Screening Levels in Groundwater
S 96th Street Storm Drain Basin

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

D - Result from diluted sample

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 7
Chemicals Detected Above Screening Levels in Surface Water
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor	Notes
S 95th Street Drain									
Herrera 1994	4/8/1993	96-12	Copper	38.3	2,900	3.5	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-1	Copper	28.9	2,900	3.5	<1	8.3	Storm flow sample
Herrera 1994	4/8/1993	96-2	Copper	25.5	2,900	3.5	<1	7.3	Storm flow sample
Herrera 1994	4/20/1993	96-12	Copper	15	2,900	3.5	<1	4.3	Base flow sample
Herrera 1994	4/20/1993	96-2	Copper	11	2,900	3.5	<1	3	Base flow sample
Herrera 1994	4/20/1993	96-1	Copper	5	2,900	3.5	<1	1.4	Base flow sample
Herrera 1994	4/8/1993	96-2	Lead	47.8		0.54		89	Storm flow sample
Herrera 1994	4/8/1993	96-12	Lead	46.9		0.54		87	Storm flow sample
Herrera 1994	4/8/1993	96-1	Lead	27.9		0.54		52	Storm flow sample
Herrera 1994	4/20/1993	96-12	Lead	3.2		0.54		5.9	Base flow sample
Herrera 1994	4/20/1993	96-1	Lead	2.6		0.54		4.8	Base flow sample
Herrera 1994	4/20/1993	96-2	Lead	1.7		0.54		3.1	Base flow sample
Herrera 1994	4/8/1993	96-2	Zinc	365	17,000	32	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-12	Zinc	246	17,000	32	<1	7.7	Storm flow sample
Herrera 1994	4/8/1993	96-1	Zinc	172	17,000	32	<1	5.4	Storm flow sample
Herrera 1994	4/20/1993	96-12	Zinc	85	17,000	32	<1	2.7	Base flow sample
Herrera 1994	4/20/1993	96-2	Zinc	45	17,000	32	<1	1.4	Base flow sample
Herrera 1994	4/20/1993	96-1	Zinc	42	17,000	32	<1	1.3	Base flow sample
S 96th Street Drain									
Herrera 1994	4/8/1993	96-5	Cadmium	4	41	0.37	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-5	Copper	12.8	2,900	3.5	<1	4	Storm flow sample
Herrera 1994	4/20/1993	96-5	Copper	9	2,900	3.5	<1	2.6	Base flow sample
Herrera 1994	4/8/1993	96-5	Lead	11.4		0.54		21	Storm flow sample
Herrera 1994	4/20/1993	96-5	Lead	3.3		0.54		6.1	Base flow sample
Herrera 1994	4/8/1993	96-5	Zinc	45	17,000	32	<1	1.4	Storm flow sample
Hamm Creek North Fork									
Herrera 1994	4/20/1993	96-3	Cadmium	8	41	0.37	<1	22	Base flow sample
Herrera 1994	4/20/1993	96-3	Copper	11	2,900	3.5	<1	3.1	Base flow sample
Herrera 1994	4/8/1993	96-3	Copper	4.3	2,900	3.5	<1	1.2	Storm flow sample
Herrera 1994	4/8/1993	96-3	Lead	8.5		0.54		16	Storm flow sample
Herrera 1994	4/20/1993	96-3	Lead	0.9		0.54		1.7	Base flow sample

Table 7
Chemicals Detected Above Screening Levels in Surface Water
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor	Notes
Hamm Creek Middle Fork									
Herrera 1994	4/8/1993	96-4	Copper	18.9	2,900	3.5	<1	5.4	Storm flow sample
Herrera 1994	4/20/1993	96-4	Copper	5	2,900	3.5	<1	1.4	Base flow sample
Herrera 1994	4/8/1993	96-4	Lead	41.2		0.54		76	Storm flow sample
Herrera 1994	4/20/1993	96-4	Lead	1.9		0.54		3.5	Base flow sample
Herrera 1994	4/8/1993	96-4	Zinc	82	17,000	32	<1	2.6	Storm flow sample

GW - groundwater

ug/L - micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Chronic Surface Fresh Water Quality Standard.

Table 8
Chemicals Detected Above Screening Levels in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
S 95th Street Drain									
Herrera 1994	4/5/1993	96-11	Acenaphthene	3.7 J	410 J	16	57	26	7.2
Herrera 1994	4/5/1993	96-12	Acenaphthene	1.5	207	16	57	13	3.6
Herrera 1994	4/5/1993	96-10	Acenaphthene	0.6	22.1	16	57	1.4	<1
Herrera 1994	4/5/1993	96-11	Benzo(a)pyrene	1.45	161	99	210	1.6	<1
Herrera 1994	4/5/1993	96-11	Benzo(g,h,i)perylene	0.795	88	31	78	2.8	1.1
Herrera 1994	4/5/1993	96-12	Benzo(g,h,i)perylene	0.42	58	31	78	1.9	<1
Herrera 1994	4/5/1993	96-9	Cadmium	14.3		5.1	6.7	2.8	2.1
Herrera 1994	4/5/1993	96-11	Chrysene	1.35	150	110	460	1.4	<1
Herrera 1994	4/5/1993	96-9	Copper	1,370		390	390	3.5	3.5
Herrera 1994	4/5/1993	96-18	Dibenzo(a,h)anthracene	0.7		0.23	0.54	3.0	1.3
Herrera 1994	4/5/1993	96-11	Dibenzo(a,h)anthracene	0.475 J	53 J	12	33	4.4	1.6
Herrera 1994	4/5/1993	96-12	Dibenzo(a,h)anthracene	0.34	47	12	33	3.9	1.4
Herrera 1994	4/5/1993	96-11	Fluoranthene	6.85	759	160	1,200	4.7	<1
Herrera 1994	4/5/1993	96-12	Fluoranthene	2.3	317	160	1,200	2.0	<1
Herrera 1994	4/5/1993	96-11	Fluorene	1.2 J	133 J	23	79	5.8	1.7
Herrera 1994	4/5/1993	96-11	HPAHs, total	17.315	1,920	960	5,300	2.0	<1
Herrera 1994	4/5/1993	96-11	Indeno(1,2,3-cd)pyrene	0.89	99	34	88	2.9	1.1
Herrera 1994	4/5/1993	96-12	Indeno(1,2,3-cd)pyrene	0.54	74	34	88	2.2	<1
Herrera 1994	4/5/1993	96-18	Lead	500		450	530	1.1	<1
Herrera 1994	4/5/1993	96-11	LPAHs, total	19.875 L	2,203 L	370	780	6.0	2.8
Herrera 1994	4/5/1993	96-18	LPAHs, total	8.505 L		5.2	13	1.6	<1
Herrera 1994	4/5/1993	96-12	LPAHs, total	4.568 L	630 L	370	780	1.7	<1
Herrera 1994	4/5/1993	96-11	Phenanthrene	4.85	538	100	480	5.4	1.1
Herrera 1994	4/5/1993	96-12	Phenanthrene	1.2	166	100	480	1.7	<1
Herrera 1994	4/5/1993	96-9	Total petroleum hydrocarbons	19,000		2,000		9.5	
Herrera 1994	4/5/1993	96-11	Zinc	1,660		410	960	4.0	1.7
Herrera 1994	4/5/1993	96-9	Zinc	1,060		410	960	2.6	1.1
Herrera 1994	4/5/1993	96-10	Zinc	840		410	960	2.0	<1
Herrera 1994	4/5/1993	96-18	Zinc	493		410	960	1.2	<1
Herrera 1994	4/5/1993	96-12	Zinc	454		410	960	1.1	<1
S 96th Street Drain									
Herrera 1994	4/5/1993	96-15	Benzo(a)anthracene	1.7		1.3	1.6	1.3	1.1
Herrera 1994	4/5/1993	96-15	Fluoranthene	4.2		1.7	2.5	2.5	1.7
Herrera 1994	4/5/1993	96-15	Total petroleum hydrocarbons	9,600		2,000		4.8	

Table 8
Chemicals Detected Above Screening Levels in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor

mg/kg - milligrams per kilogram
DW - dry weight
SQS - SMS Sediment Quality Standard
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

J - Estimated value
L - Undetected values (added as analytical detection limits) included in sum.

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentrations to the SQS or CSL. Petroleum hydrocarbons are compared to the MTCA Method A cleanup level.

Results were compared to the Lowest Apparent Effects Threshold (LAET) or the second LAET (2LAET) value rather than the SQS and/or CSL due to the TOC content in the following samples: 96-9, 96-15, and 96-18. The LAET is functionally equivalent to the SQS and the 2LAET is functionally equivalent to the CSL. OC-normalization is not considered to be appropriate for when TOC concentrations are less than or equal to 0.5 percent or greater than or equal to 4.0 percent.

Table 9
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
Metals											
KC-05	4/4/2012	Inline	Copper	3,610	24.0%		390	390	mg/kg DW	9.3	9.3
KCS96C2	11/7/2011	Inline	Copper	1,460	14.9%		390	390	mg/kg DW	3.7	3.7
KCS96A1	11/7/2011	Inline	Lead	660	5.5%		450	530	mg/kg DW	1.5	1.2
KCS96A1	11/7/2011	Inline	Zinc	99,200	5.5%		410	960	mg/kg DW	242	103
KCS96B	11/7/2011	Inline	Zinc	12,100	31.5%		410	960	mg/kg DW	30	13
KCS96C2	11/7/2011	Inline	Zinc	3,270	14.9%		410	960	mg/kg DW	8.0	3.4
MH239	6/3/2009	Inline	Zinc	2,530 J	6.7%		410	960	mg/kg DW	6.2	2.6
CB129	10/10/2008	CB	Zinc	1,760	4.6%		410	960	mg/kg DW	4.3	1.8
KC-04	4/4/2012	Inline	Zinc	1,140 J	18.4%		410	960	mg/kg DW	2.8	1.2
96-ST3	12/3/2010	Trap	Zinc	1,110 J	2.9%		410	960	mg/kg DW	2.7	1.2
KC-05	4/4/2012	Inline	Zinc	942 J	24.0%		410	960	mg/kg DW	2.3	<1
96-ST2	12/1/2010	Inline	Zinc	746	4.6%		410	960	mg/kg DW	1.8	<1
KCS96B1	11/7/2011	Inline	Zinc	728	8.9%		410	960	mg/kg DW	1.8	<1
96-ST2	12/1/2010	Trap	Zinc	669	9.1%		410	960	mg/kg DW	1.6	<1
KC-06	4/4/2012	Inline	Zinc	610 J	6.8%		410	960	mg/kg DW	1.5	<1
96-ST1	12/1/2010	Trap	Zinc	593	5.9%		410	960	mg/kg DW	1.4	<1
KCS96D1	11/7/2011	Inline	Zinc	551	1.6%		410	960	mg/kg DW	1.3	<1
CB114	3/25/2008	CB	Zinc	504	0.4%		410	960	mg/kg DW	1.2	<1
RCB154	10/10/2008	RCB	Zinc	489	5.0%		410	960	mg/kg DW	1.2	<1
KC-09	4/4/2012	Inline	Zinc	469 J	2.9%		410	960	mg/kg DW	1.1	<1
96-ST2	4/24/2009	Trap	Zinc	458	8.9%		410	960	mg/kg DW	1.1	<1
PAHs											
96-ST2	12/1/2010	Trap	Benzo(g,h,i)perylene	1.50	9.1%		0.67	0.72	mg/kg DW	2.2	2.1
96-ST2	12/1/2010	Inline	Benzo(g,h,i)perylene	1.00	4.6%		0.67	0.72	mg/kg DW	1.5	1.4
KC-09	4/4/2012	Inline	Benzo(g,h,i)perylene	1.20	2.9%	42	31	78	mg/kg OC	1.3	<1
RCB267	5/13/2011	RCB	Benzo(g,h,i)perylene	0.71	7.8%		0.67	0.72	mg/kg DW	1.1	<1
KCS96C2	11/7/2011	Inline	Benzo(g,h,i)perylene	0.70	14.9%		0.67	0.72	mg/kg DW	1.0	<1
KCS96C2	11/7/2011	Inline	Chrysene	1.80	14.9%		1.4	2.8	mg/kg DW	1.3	<1
KC-09	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.39	2.9%	14	12	33	mg/kg OC	1.1	<1
KC-05	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.24 J	24.0%		0.23	0.54	mg/kg DW	1.0	<1
96-ST1	4/24/2009	Trap	Fluoranthene	3.30	16.9%		1.7	2.5	mg/kg DW	1.9	1.3
96-ST2	12/1/2010	Trap	Fluoranthene	2.10	9.1%		1.7	2.5	mg/kg DW	1.2	<1

Table 9
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-09	4/4/2012	Inline	Fluoranthene	5.60	2.9%	194	160	1200	mg/kg OC	1.2	<1
KCS96C2	11/7/2011	Inline	Fluoranthene	1.90	14.9%		1.7	2.5	mg/kg DW	1.1	<1
KC-09	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	1.20	2.9%	42	34	88	mg/kg OC	1.2	<1
96-ST1	4/24/2009	Trap	Phenanthrene	2.40	16.9%		1.5	5.4	mg/kg DW	1.6	<1
96-ST1	4/24/2009	Trap	Pyrene	3.10	16.9%		2.6	3.3	mg/kg DW	1.2	<1
96-ST1	4/24/2009	Trap	Total HPAH	13.90	16.9%		12	17	mg/kg DW	1.2	<1
Phthalates											
CB129	10/10/2008	CB	BBP	25	4.6%		0.063	0.9	mg/kg DW	397	28
KC-04	4/4/2012	Inline	BBP	19	18.4%		0.063	0.9	mg/kg DW	302	21
RCB154	10/10/2008	RCB	BBP	8.2	5.0%		0.063	0.9	mg/kg DW	130	9.1
KC-05	4/4/2012	Inline	BBP	4.2	24.0%		0.063	0.9	mg/kg DW	67	4.7
KCS96C2	11/7/2011	Inline	BBP	4.2	14.9%		0.063	0.9	mg/kg DW	67	4.7
RCB154	4/13/2011	RCB	BBP	3.0	2.6%	117	4.9	64	mg/kg OC	24	1.8
MH239	6/3/2009	Inline	BBP	1.2	6.7%		0.063	0.9	mg/kg DW	19	1.3
KCS96C1	11/7/2011	Inline	BBP	2.9	3.3%	89	4.9	64	mg/kg OC	18	1.4
KCS96B1	11/7/2011	Inline	BBP	1.00	8.9%		0.063	0.9	mg/kg DW	16	1.1
KCS96E1	11/7/2011	Inline	BBP	0.80	1.1%	73	4.9	64	mg/kg OC	15	1.1
KCS96B	11/7/2011	Inline	BBP	0.70	31.5%		0.063	0.9	mg/kg DW	11	<1
96-ST2	12/1/2010	Trap	BBP	0.55	9.1%		0.063	0.9	mg/kg DW	8.7	<1
RCB267	5/13/2011	RCB	BBP	0.28	7.8%		0.063	0.9	mg/kg DW	4.4	<1
KC-01	4/4/2012	Inline	BBP	0.74	3.9%	19	4.9	64	mg/kg OC	3.8	<1
KCS96A1	11/7/2011	Inline	BBP	0.22	5.5%		0.063	0.9	mg/kg DW	3.5	<1
KCS96D1	11/7/2011	Inline	BBP	0.25	1.6%	15	4.9	64	mg/kg OC	3.1	<1
KC-09	4/4/2012	Inline	BBP	0.39	2.9%	14	4.9	64	mg/kg OC	2.8	<1
KC-06	4/4/2012	Inline	BBP	0.17	6.8%		0.063	0.9	mg/kg DW	2.7	<1
RCB268	5/13/2011	RCB	BBP	0.45	3.9%	11	4.9	64	mg/kg OC	2.3	<1
KC-02	4/4/2012	Inline	BBP	0.19	1.7%	11	4.9	64	mg/kg OC	2.3	<1
96-ST1	4/24/2009	Trap	BBP	0.13	16.9%		0.063	0.9	mg/kg DW	2.1	<1
96-ST2	4/24/2009	Trap	BBP	0.11	8.9%		0.063	0.9	mg/kg DW	1.7	<1
96-ST2	12/1/2010	Inline	BBP	0.10	4.6%		0.063	0.9	mg/kg DW	1.6	<1
CB114	3/25/2008	CB	BBP	0.09	0.4%		0.063	0.9	mg/kg DW	1.4	<1
96-ST1	12/1/2010	Trap	BBP	0.09 J	5.9%		0.063	0.9	mg/kg DW	1.3	<1
RCB223	6/3/2009	RCB	BBP	0.17	2.6%	6.6	4.9	64	mg/kg OC	1.3	<1

Table 9
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96H	11/7/2011	Inline	BBP	0.07	11.7%		0.063	0.9	mg/kg DW	1.2	<1
KC-03	4/4/2012	Inline	BBP	0.17	3.1%	5.4	4.9	64	mg/kg OC	1.1	<1
96-ST1	4/24/2009	Inline	BBP	0.14	2.8%	4.9	4.9	64	mg/kg OC	1.0	<1
KC-04	4/4/2012	Inline	BEHP	70 B	18.4%		1.3	1.9	mg/kg DW	54	37
KC-05	4/4/2012	Inline	BEHP	68	24.0%		1.3	1.9	mg/kg DW	52	36
KCS96C2	11/7/2011	Inline	BEHP	49 B	14.9%		1.3	1.9	mg/kg DW	38	26
KCS96B1	11/7/2011	Inline	BEHP	38 B	8.9%		1.3	1.9	mg/kg DW	29	20
MH239	6/3/2009	Inline	BEHP	20	6.7%		1.3	1.9	mg/kg DW	15	11
CB129	10/10/2008	CB	BEHP	8.7	4.6%		1.3	1.9	mg/kg DW	6.7	4.6
RCB154	10/10/2008	RCB	BEHP	5.1	5.0%		1.3	1.9	mg/kg DW	3.9	2.7
KC-06	4/4/2012	Inline	BEHP	4.7 B	6.8%		1.3	1.9	mg/kg DW	3.6	2.5
96-ST2	12/1/2010	Trap	BEHP	4.5 B	9.1%		1.3	1.9	mg/kg DW	3.5	2.4
KCS96H	11/7/2011	Inline	BEHP	3.5 B	11.7%		1.3	1.9	mg/kg DW	2.7	1.8
96-ST1	4/24/2009	Trap	BEHP	3.3	16.9%		1.3	1.9	mg/kg DW	2.5	1.7
KC-02	4/4/2012	Inline	BEHP	2.0 B	1.7%	117	47	78	mg/kg OC	2.5	1.5
KCS96B	11/7/2011	Inline	BEHP	2.8 B	31.5%		1.3	1.9	mg/kg DW	2.2	1.5
RCB154	4/13/2011	RCB	BEHP	2.4	2.6%	94	47	78	mg/kg OC	2.0	1.2
KCS96C1	11/7/2011	Inline	BEHP	2.7 B	3.3%	83	47	78	mg/kg OC	1.8	1.1
KC-09	4/4/2012	Inline	BEHP	2.3 B	2.9%	80	47	78	mg/kg OC	1.7	1.0
96-ST1	12/11/2008	Inline	BEHP	0.92	1.3%	71	47	78	mg/kg OC	1.5	<1
KCS96D1	11/7/2011	Inline	BEHP	1.1 B	1.6%	68	47	78	mg/kg OC	1.4	<1
KCS96E1	11/7/2011	Inline	BEHP	0.73 B	1.1%	67	47	78	mg/kg OC	1.4	<1
KC-01	4/4/2012	Inline	BEHP	2.4 B	3.9%	61	47	78	mg/kg OC	1.3	<1
96-ST2	4/24/2009	Trap	BEHP	1.5	8.9%		1.3	1.9	mg/kg DW	1.2	<1
RCB267	5/13/2011	RCB	BEHP	1.5	7.8%		1.3	1.9	mg/kg DW	1.2	<1
RCB222	6/3/2009	RCB	BEHP	0.30	0.6%	53	47	78	mg/kg OC	1.1	<1
KCS96A1	11/7/2011	Inline	BEHP	1.4 B	5.5%		1.3	1.9	mg/kg DW	1.1	<1
KC-05	4/4/2012	Inline	Dimethyl phthalate	3.8	24.0%		0.071	0.16	mg/kg DW	54	24
KCS96B1	11/7/2011	Inline	Dimethyl phthalate	0.25 J	8.9%		0.071	0.16	mg/kg DW	3.5	1.6
96-ST2	12/1/2010	Trap	Dimethyl phthalate	0.13 J	9.1%		0.071	0.16	mg/kg DW	1.8	<1
KC-06	4/4/2012	Inline	Dimethyl phthalate	0.11	6.8%		0.071	0.16	mg/kg DW	1.5	<1
Other SVOCs											
RCB271	5/13/2011	RCB	2-Methylphenol	0.07 J	8.5%		0.063	0.063	mg/kg DW	1.2	1.2

Table 9
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
MH239	6/3/2009	Inline	4-Methylphenol	2.8	6.7%		0.67	0.67	mg/kg DW	4.2	4.2
96-ST1	4/24/2009	Trap	4-Methylphenol	2.5	16.9%		0.67	0.67	mg/kg DW	3.7	3.7
KC-04	4/4/2012	Inline	4-Methylphenol	1.4	18.4%		0.67	0.67	mg/kg DW	2.1	2.1
KCS96C2	11/7/2011	Inline	4-Methylphenol	1.0	14.9%		0.67	0.67	mg/kg DW	1.5	1.5
CB129	10/10/2008	CB	4-Methylphenol	0.96 J	4.6%		0.67	0.67	mg/kg DW	1.4	1.4
KCS96B	11/7/2011	Inline	4-Methylphenol	0.90	31.5%		0.67	0.67	mg/kg DW	1.3	1.3
KC-05	4/4/2012	Inline	4-Methylphenol	0.72	24.0%		0.67	0.67	mg/kg DW	1.1	1.1
KCS96B	11/7/2011	Inline	Benzoic acid	6.8	31.5%		0.65	0.65	mg/kg DW	10	10
RCB271	5/13/2011	RCB	Benzoic acid	3.8	8.5%		0.65	0.65	mg/kg DW	5.8	5.8
KC-05	4/4/2012	Inline	Benzoic acid	2.2 J	24.0%		0.65	0.65	mg/kg DW	3.4	3.4
KCS96B	11/7/2011	Inline	Benzyl alcohol	9.5	31.5%		0.057	0.073	mg/kg DW	167	130
KCS96C2	11/7/2011	Inline	Benzyl alcohol	2.9	14.9%		0.057	0.073	mg/kg DW	51	40
KCS96D1	11/7/2011	Inline	Benzyl alcohol	1.8	1.6%		0.057	0.073	mg/kg DW	32	25
KCS96B1	11/7/2011	Inline	Benzyl alcohol	1.0	8.9%		0.057	0.073	mg/kg DW	18	14
KC-05	4/4/2012	Inline	Benzyl alcohol	0.93	24.0%		0.057	0.073	mg/kg DW	16	13
KCS96C1	11/7/2011	Inline	Benzyl alcohol	0.91 J	3.3%		0.057	0.073	mg/kg DW	16	12
MH239	6/3/2009	Inline	Benzyl alcohol	0.41	6.7%		0.057	0.073	mg/kg DW	7.2	5.6
RCB271	5/13/2011	RCB	Benzyl alcohol	0.27	8.5%		0.057	0.073	mg/kg DW	4.7	3.7
KC-06	4/4/2012	Inline	Benzyl alcohol	0.09	6.8%		0.057	0.073	mg/kg DW	1.6	1.3
96-ST2	4/24/2009	Inline	Benzyl alcohol	0.09	3.4%		0.057	0.073	mg/kg DW	1.6	1.3
96-ST2	4/24/2009	Trap	Benzyl alcohol	0.09	8.9%		0.057	0.073	mg/kg DW	1.6	1.3
KC-05	4/4/2012	Inline	N-Nitrosodiphenylamine	0.16 J	24.0%		0.028	0.04	mg/kg DW	5.7	4.0
KCS96B	11/7/2011	Inline	Pentachlorophenol	0.75 J	31.5%		0.36	0.69	mg/kg DW	2.1	1.1
KC-04	4/4/2012	Inline	Phenol	2.6	18.4%		0.42	1.2	mg/kg DW	6.2	2.2
KCS96C2	11/7/2011	Inline	Phenol	0.92 J	14.9%		0.42	1.2	mg/kg DW	2.2	<1
RCB271	5/13/2011	RCB	Phenol	0.91	8.5%		0.42	1.2	mg/kg DW	2.2	<1
KCS96B	11/7/2011	Inline	Phenol	0.61 J	31.5%		0.42	1.2	mg/kg DW	1.5	<1
KCS96B1	11/7/2011	Inline	Phenol	0.57 J	8.9%		0.42	1.2	mg/kg DW	1.4	<1
PCBs											
KCS96C2	11/7/2011	Inline	Total PCBs	1.6 J	14.9%		0.13	1.0	mg/kg DW	12	1.6
KCS96B1	11/7/2011	Inline	Total PCBs	0.18 J	8.9%		0.13	1.0	mg/kg DW	1.4	<1
MH239	6/3/2009	Inline	Total PCBs	0.17	6.7%		0.13	1.0	mg/kg DW	1.3	<1
KC-06	4/4/2012	Inline	Total PCBs	0.15	6.8%		0.13	1.0	mg/kg DW	1.2	<1

Table 9
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
Dioxins/Furans											
RCB271	5/13/2011	RCB	Dioxin/Furan TEQ	8.9	8.5%		1.6		ng/kg DW	5.5	
96-ST2	12/1/2010	Inline	Dioxin/Furan TEQ	2.4	4.6%		1.6		ng/kg DW	1.5	
RCB267	5/13/2011	RCB	Dioxin/Furan TEQ	1.8	7.8%		1.6		ng/kg DW	1.1	
Petroleum Hydrocarbons											
CB129	10/10/2008	CB	Diesel-range hydrocarbons	4,600	4.6%		2,000		mg/kg DW	2.3	
KC-05	4/4/2012	Inline	Diesel-range hydrocarbons	3,500	24.0%		2,000		mg/kg DW	1.8	
KCS96B1	11/7/2011	Inline	Diesel-range hydrocarbons	3,000	8.9%		2,000		mg/kg DW	1.5	
KCS96C2	11/7/2011	Inline	Diesel-range hydrocarbons	3,000	14.9%		2,000		mg/kg DW	1.5	
KCS96C2	11/7/2011	Inline	Heavy oil-range hydrocarbons	14,000	14.9%		2,000		mg/kg DW	7.0	
KCS96B1	11/7/2011	Inline	Heavy oil-range hydrocarbons	9,800	8.9%		2,000		mg/kg DW	4.9	
KC-05	4/4/2012	Inline	Heavy oil-range hydrocarbons	6,200	24.0%		2,000		mg/kg DW	3.1	
CB129	10/10/2008	CB	Heavy oil-range hydrocarbons	4,400	4.6%		2,000		mg/kg DW	2.2	
RCB154	10/10/2008	RCB	Heavy oil-range hydrocarbons	3,200	5.0%		2,000		mg/kg DW	1.6	
KC-06	4/4/2012	Inline	Heavy oil-range hydrocarbons	2,800	6.8%		2,000		mg/kg DW	1.4	
MH239	6/3/2009	Inline	Heavy oil-range hydrocarbons	2,400	6.7%		2,000		mg/kg DW	1.2	
96-ST2	12/1/2010	Trap	Heavy oil-range hydrocarbons	2,100	9.1%		2,000		mg/kg DW	1.1	

mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
DW - dry weight
TOC - total organic carbon
BEHP - bis(2-ethylhexyl)phthalate
BBP - butylbenzylphthalate
CB - catch basin

SQS - Sediment Quality Standard
CSL - Cleanup Screening Level
PCB - polychlorinated biphenyl
TPH - total petroleum hydrocarbons
PAH - polycyclic aromatic hydrocarbon
TEQ - toxic equivalency
RCB - right of way catch basin

J - Estimated value between the method detection limit and the laboratory reporting limit
B - Analyte was detected in the associated method blank
LAET - lowest apparent effects threshold
2LAET - second lowest apparent effects threshold

Table presents chemicals that exceed a screening level in at least one sample.

Exceedance factors are the ratio fo the detected concentration to the SQS or CSL; exceedance factors are shown only if they are greater than 1.

Screening level for petroleum hydrocarbons is the MTCA soil cleanup level.

Screening level for dioxins/furans is the LDW background concentration (2 ng TEQ/kg).

Table 10
Chemicals Detected Above Screeing Levels in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
EMCON 1996	6/6/1996	GB-4	1.5	Arsenic	3	0.67	12,000	4.5	<1
EMCON 1996	6/6/1996	GB-4	3	Arsenic	2	0.67	590	3.0	<1
EMCON 1997	1/2/1997	LD-SW2-1	1	Benzene	0.32	0.03		11	
EMCON 1996	6/6/1996	GB-8	4	Benzene	0.12	0.03		4.0	
GeoEngineers 1989b	9/19/1989	2		Benzene	0.079	0.03		2.6	
EMCON 1996	6/6/1996	GB-1	1.5	Benzene	0.074	0.03		2.5	
GeoEngineers 1989b	9/19/1989	3		Benzene	0.058	0.03		1.9	
Applied Consultants 1990b	8/27/1990	T3		Benzene	0.036	0.03		1.2	
EMCON 1996	6/6/1996	GB-8	4	Gasoline-range hydrocarbons	237	30		7.9	
EMCON 1997	1/2/1997	LD-SW2-1	1	Gasoline-range hydrocarbons	86	30		2.9	
EMCON 1996	6/6/1996	GB-1	1.5	Tetrachloroethene	1.9	0.1		38	
EMCON 1997	1/2/1997	LD-SW2-1	1	Toluene	6,000	7		857	
Applied Consultants 1990b	8/28/1990	B7	0.5	Toluene	4,700	7		671	
EMCON 1996	6/6/1996	GB-1	1.5	Toluene	980	7		140	
Applied Consultants 1990b	8/28/1990	B7	1.5	Toluene	820	7		117	
EMCON 1996	6/6/1996	GB-1	3	Toluene	9.2	7		1.3	
Applied Consultants 1990b	8/28/1990	B-7	0.5	Xylenes, total	30	9		3.3	
EMCON 1996	6/6/1996	GB-1	1.5	Xylenes, total	10	9		1.1	
EMCON 1996	6/6/1996	GB-4	1.5	Zinc	72	24,000	38	<1	1.9
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Zinc	45.9	24,000	38	<1	1.2
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Zinc	43.2	24,000	38	<1	1.1

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater was observed between 1.65 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 11
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Pacific Testing Labs 1995	12/2/1994	MW-7	Arsenic	273	0.0583	370	4,683	<1
EMCON 1995a	5/9/1995	MW-7	Arsenic	104	0.0583	370	1,784	<1
EMCON 1995a	5/9/1995	MW-11	Arsenic	52	0.0583	370	892	<1
EMCON 1995b	7/31/1995	MW-11	Arsenic	50	0.0583	370	858	<1
Pacific Testing Labs 1995	12/2/1994	MW-8	Arsenic	50	0.0583	370	858	<1
EMCON 1995b	7/31/1995	MW-8	Arsenic	45	0.0583	370	772	<1
EMCON 1995b	7/31/1995	MW-7	Arsenic	43	0.0583	370	738	<1
EMCON 1995a	5/9/1995	MW-12	Arsenic	42	0.0583	370	720	<1
Pacific Testing Labs 1995	12/2/1994	MW-6	Arsenic	41	0.0583	370	703	<1
EMCON 1995a	5/9/1995	MW-8	Arsenic	38	0.0583	370	652	<1
EMCON 1995b	7/31/1995	MW-12	Arsenic	29	0.0583	370	497	<1
Pacific Testing Labs 1995	12/2/1994	MW-9	Arsenic	27	0.0583	370	463	<1
EMCON 1995a	5/9/1995	MW-6	Arsenic	23	0.0583	370	395	<1
EMCON 1995b	7/31/1995	MW-6	Arsenic	23	0.0583	370	395	<1
EMCON 1995a	5/9/1995	MW-10	Arsenic	22	0.0583	370	377	<1
EMCON 1995b	8/16/1995	MW-4	Arsenic	22	0.0583	370	377	<1
EMCON 1995a	5/9/1995	MW-11	Arsenic	12	0.0583	370	206	<1
EMCON 1995a	5/9/1995	MW-9	Arsenic	9	0.0583	370	154	<1
EMCON 1995a	5/9/1995	MW-7	Arsenic	6	0.0583	370	103	<1
EMCON 1995a	5/9/1995	MW-8	Arsenic	6	0.0583	370	103	<1
EMCON 1995b	7/31/1995	MW-10	Arsenic	6	0.0583	370	103	<1
EMCON 1995b	8/16/1995	MW-4	Arsenic	6	0.0583	370	103	<1
EMCON 1995a	5/9/1995	MW-12	Arsenic	5	0.0583	370	86	<1
EMCON 1995a	5/9/1995	MW-6	Arsenic	5	0.0583	370	86	<1
Chiyoda 1992b	3/29/1990	MW-3	Benzene	75	0.8		94	
Pacific Testing Labs 1995	2/1/1990	MW-3	Benzene	46	0.8		58	
EMCON 1995b	7/31/1995	MW-6	Benzene	20	0.8		25	
Applied Consultants 1991	4/19/1991	OB1	Benzene	14.0	0.8		18	
EMCON 1995a	5/9/1995	MW-6	Benzene	13	0.8		16	
EMCON 1997	1/2/1997	MW-8	Benzene	9.9	0.8		12	
Pacific Testing Labs 1995	12/2/1994	MW-6	Benzene	9	0.8		11	
EMCON 1998	9/30/1997	MW-9	Benzene	8.9	0.8		11	
Pacific Testing Labs 1995	12/15/1994	MW-6	Benzene	8.1	0.8		10	
Applied Consultants 1990b	8/28/1990	MW-6	Benzene	7	0.8		8.8	
EMCON 1998	4/14/1997	MW-11	Benzene	6.0	0.8		7.5	
Pacific Testing Labs 1995	12/15/1994	MW-11	Benzene	5.1	0.8		6.4	
Applied Consultants 1991	4/19/1991	RW-1	Benzene	4.8	0.8		6.0	

Table 11
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1998	6/23/1997	MW-11	Benzene	4.3	0.8		5.4	
Applied Consultants 1990b	8/28/1990	RW-1	Benzene	1.9	0.8		2.4	
EMCON 1997	1/2/1997	MW-9	Benzene	1.8	0.8		2.3	
EMCON 1998	4/8/1997	MW-9	Benzene	1.8	0.8		2.3	
EMCON 1998	6/23/1997	MW-9	Benzene	1.0	0.8		1.3	
Pacific Testing Labs 1995	12/2/1994	MW-7	Cadmium	9.4	5	3.4	1.9	2.8
Pacific Testing Labs 1995	12/2/1994	MW-8	Cadmium	5.6	5	3.4	1.1	1.6
Pacific Testing Labs 1995	12/2/1994	MW-6	Cadmium	5.0	5	3.4	1.0	1.5
Pacific Testing Labs 1995	12/2/1994	MW-7	Chromium	345	50	320	6.9	1.1
Pacific Testing Labs 1995	12/2/1994	MW-8	Chromium	257	50	320	5.1	<1
Pacific Testing Labs 1995	12/2/1994	MW-6	Chromium	118	50	320	2.4	<1
Pacific Testing Labs 1995	12/2/1994	MW-9	Chromium	96	50	320	1.9	<1
EMCON 1995a	5/9/1995	MW-7	Chromium	94	50	320	1.9	<1
EMCON 1995a	5/9/1995	MW-10	Chromium	77	50	320	1.5	<1
EMCON 1995a	5/9/1995	MW-11	Chromium	70	50	320	1.4	<1
EMCON 1995a	5/9/1995	MW-8	Chromium	62	50	320	1.2	<1
Pacific Testing Labs 1995	12/2/1994	MW-7	Copper	936	640	120	1.5	7.8
Pacific Testing Labs 1995	12/2/1994	MW-8	Copper	574	640	120	<1	4.8
Pacific Testing Labs 1995	12/2/1994	MW-6	Copper	280	640	120	<1	2.3
Pacific Testing Labs 1995	12/2/1994	MW-9	Copper	276	640	120	<1	2.3
EMCON 1995a	5/9/1995	MW-7	Copper	168	640	120	<1	1.4
EMCON 1995a	5/9/1995	MW-10	Copper	142	640	120	<1	1.2
Applied Consultants 1990b	8/28/1990	MW-6	Gasoline-range hydrocarbons	26,000	800		33	
EMCON 1997	1/2/1997	MW-9	Gasoline-range hydrocarbons	3,930	800		4.9	
Applied Consultants 1990b	8/28/1990	RW-1	Gasoline-range hydrocarbons	3,000	800		3.8	
EMCON 1995a	5/9/1995	MW-6	Diesel-range hydrocarbons	2,080	500		4.2	
EMCON 1995a	5/9/1995	MW-9	Diesel-range hydrocarbons	1,470	500		2.9	
EMCON 1996	6/6/1996	GB-5-WS	Diesel-range hydrocarbons	990	500		2.0	
EMCON 1997	1/2/1997	MW-9	Diesel-range hydrocarbons	920	500		1.8	
EMCON 1995b	7/31/1995	MW-6	Diesel-range hydrocarbons	890	500		1.8	
EMCON 1995a	5/9/1995	MW-10	Diesel-range hydrocarbons	850	500		1.7	
EMCON 1995b	7/31/1995	MW-9	Diesel-range hydrocarbons	730	500		1.5	
EMCON 1995a	5/9/1995	MW-11	Diesel-range hydrocarbons	700	500		1.4	
EMCON 1996	6/6/1996	GB-4-WS	Diesel-range hydrocarbons	690	500		1.4	
EMCON 1995a	5/9/1995	MW-8	Diesel-range hydrocarbons	650	500		1.3	
EMCON 1995a	5/9/1995	MW-6	Heavy-oil range hydrocarbons	1,300	500		2.6	
EMCON 1995a	5/9/1995	MW-9	Heavy-oil range hydrocarbons	980	500		2.0	

Table 11
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1995a	5/9/1995	MW-10	Heavy-oil range hydrocarbons	940	500		1.9	
EMCON 1995a	5/9/1995	MW-8	Heavy-oil range hydrocarbons	840	500		1.7	
Pacific Testing Labs 1995	12/2/1994	MW-7	Lead	289	15	13	19	22
Pacific Testing Labs 1995	12/2/1994	MW-8	Lead	128	15	13	8.5	9.8
Pacific Testing Labs 1995	12/2/1994	MW-6	Lead	126	15	13	8.4	9.7
Pacific Testing Labs 1995	12/2/1994	MW-9	Lead	87	15	13	5.8	6.7
EMCON 1995a	5/9/1995	MW-7	Lead	76	15	13	5.1	5.8
EMCON 1995a	5/9/1995	MW-10	Lead	40	15	13	2.7	3.1
EMCON 1995a	5/9/1995	MW-11	Lead	32	15	13	2.1	2.5
EMCON 1995a	5/9/1995	MW-6	Lead	20	15	13	1.3	1.5
EMCON 1995a	5/9/1995	MW-8	Lead	14	15	13	<1	1.1
Pacific Testing Labs 1995	12/2/1994	MW-8	Silver	51	80	1.5	<1	34
Pacific Testing Labs 1995	12/2/1994	MW-6	Silver	9.5	80	1.5	<1	6.3
Pacific Testing Labs 1995	12/2/1994	MW-9	Silver	4.7	80	1.5	<1	3.1
Applied Consultants 1990b	8/28/1990	MW-6	Tetrachloroethene	10	5		2.0	
Applied Consultants 1991	4/19/1991	MW-6	Toluene	430,000	640		672	
EMCON 1998	4/8/1997	MW-9	Toluene	27,000	640		42	
Pacific Testing Labs 1995	12/2/1994	MW-6	Toluene	15,036	640		23	
Applied Consultants 1990b	8/28/1990	MW-6	Toulene	15,000	640		23	
EMCON 1997	1/2/1997	MW-9	Toluene	14,000	640		22	
Pacific Testing Labs 1995	12/15/1994	MW-6	Toluene	10,000	640		16	
EMCON 1995a	5/9/1995	MW-6	Toluene	4,400	640		6.9	
EMCON 1995a	5/9/1995	MW-6-Dup	Toluene	4,300	640		6.7	
EMCON 1998	6/23/1997	MW-9	Toluene	3,950	640		6.2	
Pacific Testing Labs 1995	12/2/1994	MW-6	Total recoverable petroleum hydrocarbons	6,900	500		14	
Pacific Testing Labs 1995	12/2/1994	MW-7	Total recoverable petroleum hydrocarbons	4,630	500		9.3	
Pacific Testing Labs 1995	12/2/1994	MW-8	Total recoverable petroleum hydrocarbons	3,180	500		6.4	
Pacific Testing Labs 1995	12/2/1994	MW-9	Total recoverable petroleum hydrocarbons	3,180	500		6.4	
Applied Consultants 1990a	2/1/1990	MW-3	Trichloroethene	6.2	5		1.2	
EMCON 1997	1/2/1997	MW-9	Xylenes, total	1,100	1,000		1.1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Zinc	10,000	4,800	76	2.1	132
EMCON 1995a	5/9/1995	MW-7	Zinc	1,240	4,800	76	<1	16
Pacific Testing Labs 1995	12/2/1994	MW-8	Zinc	602	4,800	76	<1	7.9
Pacific Testing Labs 1995	12/2/1994	MW-6	Zinc	450	4,800	76	<1	5.9
Pacific Testing Labs 1995	12/2/1994	MW-9	Zinc	350	4,800	76	<1	4.6
EMCON 1995a	5/9/1995	MW-10	Zinc	138	4,800	76	<1	1.8
EMCON 1995a	5/9/1995	MW-6	Zinc	116	4,800	76	<1	1.5

Table 11
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1995a	5/9/1995	MW-11	Zinc	108	4,800	76	<1	1.4
EMCON 1995a	5/9/1995	MW-8	Zinc	99	4,800	76	<1	1.3

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 12
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Former Precision Engineering Property									
MFA 2008	12/13/2005	GP13	1	Arsenic	9.45	0.7	590	14	<1
MFA 2008	12/13/2005	GP15	3	Arsenic	7.76	0.7	590	12	<1
MFA 2008	12/12/2005	GP29	1	Arsenic	5.91	0.7	590	8.9	<1
MFA 2008	12/12/2005	GP31	1	Arsenic	5.72	0.7	590	8.6	<1
MFA 2008	12/14/2005	GP20	1	Arsenic	5.47	0.7	590	8.2	<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Arsenic	3.64	0.7	590	5.5	<1
MFA 2008	12/13/2005	GP18	1	Arsenic	3.55	0.7	590	5.3	<1
MFA 2008	12/14/2005	GP24	3	Arsenic	3.06	0.7	590	4.6	<1
MFA 2008	12/13/2005	GP14	3	Arsenic	3	0.7	590	4.5	<1
MFA 2008	12/13/2005	GP12	3	Arsenic	2.79	0.7	590	4.2	<1
MFA 2008	12/12/2005	GP28	1	Arsenic	1.89	0.7	590	2.8	<1
Precision Engineering 1993	3/11/1993	WP-8		Chromium	7,470		270		28
MFA 2008	12/14/2005	GP32	1	Chromium	6,750		270		25
Precision Engineering 1993	3/12/1993	WP-13		Chromium	6,650		270		25
Precision Engineering 1993	3/12/1993	WP-9		Chromium	6,080		270		23
Precision Engineering 1993	3/12/1993	WP-10		Chromium	5,810		270		22
Precision Engineering 1993	3/12/1993	WP-11		Chromium	5,760		270		21
Precision Engineering 1993	3/11/1993	WP-7		Chromium	5,300		270		20
MFA 2008	12/13/2005	GP18	1	Chromium	4,430		270		16
Precision Engineering 1993	3/12/1993	WP-12		Chromium	4,180		270		15
MFA 2008	6/7/2005	GP2	1	Chromium	2,680		270		9.9
MFA 2008	12/13/2005	GP17	6	Chromium	1,660		270		6.1
MFA 2008	6/16/2005	GP4	1.5	Chromium	1,230		270		4.6
MFA 2008	6/9/2005	GP3	6	Chromium	1,100		270		4.1
MFA 2008	12/14/2005	GP23	10.5	Chromium	979		270		3.6
MFA 2008	6/9/2005	GP3	14	Chromium	941		270		3.5
MFA 2008	6/9/2005	GP3	2	Chromium	915		270		3.4
MFA 2008	6/16/2005	GP6	1	Chromium	584		270		2.2
MFA 2008	12/14/2005	GP32	1	Chromium (hexavalent)	3,500 J	19	270	184	13
MFA 2008	12/13/2005	GP18	1	Chromium (hexavalent)	2,300 J	19	270	121	8.5
MFA 2008	6/16/2005	GP6	1	Chromium (hexavalent)	627	19	270	33	2.3
MFA 2008	6/7/2005	GP2	1	Chromium (hexavalent)	523	19	270	28	1.9
MFA 2008	6/7/2005	GP1	1.5	Chromium (hexavalent)	152	19	270	8.0	<1
MFA 2008	12/13/2005	GP17	6	Chromium (hexavalent)	60 J	19	270	3.2	<1

Table 12
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	6/16/2005	GP4	1.5	Chromium (hexavalent)	53.4	19	270	2.8	<1
MFA 2008	6/9/2005	GP3	6	Chromium (hexavalent)	49.8	19	270	2.6	<1
MFA 2008	6/9/2005	GP3	14	Chromium (hexavalent)	34.4	19	270	1.8	<1
MFA 2008	6/7/2005	GP1	6	Chromium (hexavalent)	31.8	19	270	1.7	<1
MFA 2008	6/9/2005	GP3	2	Chromium (hexavalent)	27.7	19	270	1.5	<1
MFA 2008	12/14/2005	GP32	1	Chromium (trivalent)	3,250	2,000	270	1.6	12
MFA 2008	6/7/2005	GP2	1	Chromium (trivalent)	2,157	2,000	270	1.1	8.0
MFA 2008	12/13/2005	GP18	1	Chromium (trivalent)	2,130	2,000	270	1.1	7.9
MFA 2008	12/13/2005	GP17	6	Chromium (trivalent)	1,600	2,000	270	<1	5.9
MFA 2008	6/16/2005	GP4	1.5	Chromium (trivalent)	1,176.6	2,000	270	<1	4.4
MFA 2008	6/9/2005	GP3	6	Chromium (trivalent)	1,050.2	2,000	270	<1	3.9
MFA 2008	12/14/2005	GP23	10.5	Chromium (trivalent)	979	2,000	270	<1	3.6
MFA 2008	6/9/2005	GP3	14	Chromium (trivalent)	906.6	2,000	270	<1	3.4
MFA 2008	6/9/2005	GP3	2	Chromium (trivalent)	887.3	2,000	270	<1	3.3
MFA 2008	12/13/2005	GP18	1	Copper	113	3,200	39	<1	2.9
MFA 2008	12/12/2005	GP31	1	Copper	40.2	3,200	39	<1	1.0
MFA 2008	12/14/2005	GP21	6.5	Diesel-range hydrocarbons	5,270	2,000		2.6	
MFA 2008	12/14/2005	GP21	6.5	Heavy-oil range hydrocarbons	19,900	2,000		10	
MFA 2008	12/13/2005	GP18	1	Mercury	1.1	2	0.030	<1	37
MFA 2008	12/12/2005	GP29	1	Mercury	0.876	2	0.030	<1	29
MFA 2008	6/16/2005	GP6	14.5	Trichloroethene	1.16	0.03		39	
MFA 2008	6/17/2005	GP11	6.5	Trichloroethene	0.281	0.03		9.4	
MFA 2008	6/17/2005	GP11	2	Trichloroethene	0.0872	0.03		2.9	
MFA 2008	6/16/2005	GP6	1	Trichloroethene	0.0405	0.03		1.4	
MFA 2008	12/13/2005	GP13	1	Zinc	84.9	24,000	38	<1	2.2
MFA 2008	12/13/2005	GP15	3	Zinc	71.6	24,000	38	<1	1.9
MFA 2008	12/14/2005	GP24	3 (Dup)	Zinc	50.4	24,000	38	<1	1.3
MFA 2008	12/14/2005	GP20	1	Zinc	49.3	24,000	38	<1	1.3
MFA 2008	12/12/2005	GP31	1	Zinc	46.1	24,000	38	<1	1.2
MFA 2008	12/14/2005	GP24	3	Zinc	44.3	24,000	38	<1	1.2
MFA 2008	12/13/2005	GP18	1	Zinc	40.9	24,000	38	<1	1.1
Drainage Ditch									
MFA 2008	10/25/2007	P9	0.5	Arsenic	111	0.7	12,000	159	<1
MFA 2008	12/15/2005	HA3	0.5	Arsenic	53.9	0.7	12,000	77	<1
MFA 2008	1/10/2007	HA22	0.5	Arsenic	53.5	0.7	12,000	76	<1

Table 12
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA4	0.5	Arsenic	44.3	0.7	12,000	63	<1
Ecology 1989d	3/22/1989	S-1	0.5	Arsenic	44	0.7	12,000	63	<1
MFA 2008	11/19/2007	SS-3	1.5	Arsenic	37	0.7	590	53	<1
MFA 2008	12/15/2005	HA5	0.5	Arsenic	35.9	0.7	12,000	51	<1
MFA 2008	10/24/2007	B13	1.5	Arsenic	26.3	0.7	590	38	<1
MFA 2008	11/19/2007	SS-6	1.5	Arsenic	23.7	0.7	590	34	<1
MFA 2008	10/24/2007	P1	0.5	Arsenic	22	0.7	12,000	31	<1
MFA 2008	3/27/2008	C-2	1.5	Arsenic	21.6	0.7	590	31	<1
MFA 2008	10/24/2007	P7	0.5	Arsenic	19.9	0.7	12,000	28	<1
MFA 2008	11/19/2007	SS-6	0.5	Arsenic	16.8	0.7	12,000	24	<1
MFA 2008	10/24/2007	B1	1.5	Arsenic	16.2	0.7	590	23	<1
MFA 2008	10/24/2007	B10	1.5	Arsenic	16.1	0.7	590	23	<1
MFA 2008	10/24/2007	P2	0.5	Arsenic	15.7	0.7	12,000	22	<1
MFA 2008	10/25/2007	P10	0.5	Arsenic	15.6	0.7	12,000	22	<1
MFA 2008	10/24/2007	B2	1.5	Arsenic	13.9	0.7	590	20	<1
MFA 2008	10/24/2007	P8	0.5	Arsenic	13.8	0.7	12,000	20	<1
MFA 2008	10/24/2007	P3	0.5	Arsenic	13.3	0.7	12,000	19	<1
MFA 2008	3/27/2008	C-3	1.5	Arsenic	13.2	0.7	590	19	<1
MFA 2008	1/9/2007	HA19	0.5	Arsenic	12.7	0.7	12,000	18	<1
MFA 2008	12/15/2005	HA5	1.5	Arsenic	12.5	0.7	590	18	<1
MFA 2008	1/10/2007	HA25	1.5	Arsenic	11.8	0.7	590	17	<1
MFA 2008	1/10/2007	HA25	0.5	Arsenic	11.6	0.7	12,000	17	<1
MFA 2008	10/24/2007	P4	0.5	Arsenic	11.6	0.7	12,000	17	<1
MFA 2008	10/24/2007	B12	1.5	Arsenic	11.3	0.7	590	16	<1
MFA 2008	10/24/2007	B3	1.5	Arsenic	10.7	0.7	590	15	<1
MFA 2008	1/10/2007	HA22	1.5	Arsenic	10.3	0.7	590	15	<1
MFA 2008	10/24/2007	B8	1.5	Arsenic	10	0.7	590	14	<1
MFA 2008	3/27/2008	C-1	2	Arsenic	9.91	0.7	590	14	<1
MFA 2008	10/24/2007	P5	0.5	Arsenic	9.54	0.7	12,000	14	<1
MFA 2008	10/24/2007	P6	0.5	Arsenic	9.05	0.7	12,000	13	<1
MFA 2008	4/19/2006	HA12	0.5	Arsenic	9	0.7	12,000	13	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Arsenic	8.35 J	0.7	590	12	<1
MFA 2008	10/24/2007	B11	1.5	Arsenic	8.26	0.7	590	12	<1
MFA 2008	10/24/2007	B9	1.5	Arsenic	8	0.7	590	11	<1
MFA 2008	10/24/2007	B7	1.5	Arsenic	7.21	0.7	590	10	<1

Table 12
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA3	1.5	Arsenic	6.96	0.7	590	10	<1
MFA 2008	11/19/2007	SS-3	0.5	Arsenic	6.79	0.7	12,000	9.7	<1
MFA 2008	1/9/2007	HA17	0.5	Arsenic	6.61	0.7	12,000	9.4	<1
MFA 2008	1/10/2007	HA21	1.5	Arsenic	5.83	0.7	590	8.3	<1
MFA 2008	1/10/2007	HA21	0.5	Arsenic	5.72	0.7	12,000	8.2	<1
MFA 2008	1/9/2007	HA17	1.5	Arsenic	5.3	0.7	590	7.6	<1
MFA 2008	12/15/2005	HA4	1.5	Arsenic	5.25	0.7	590	7.5	<1
MFA 2008	1/10/2007	HA24	1.5	Arsenic	5.23	0.7	590	7.5	<1
MFA 2008	1/9/2007	HA18	0.5	Arsenic	5.03	0.7	12,000	7.2	<1
MFA 2008	1/10/2007	HA23	1.5	Arsenic	4.91	0.7	590	7.0	<1
MFA 2008	1/10/2007	HA24	0.5	Arsenic	4.9	0.7	12,000	7.0	<1
MFA 2008	11/19/2007	SS-2	0.5	Arsenic	4.82	0.7	12,000	6.9	<1
MFA 2008	1/10/2007	HA23	0.5	Arsenic	4.44	0.7	12,000	6.3	<1
MFA 2008	11/19/2007	SS-5	0.5	Arsenic	4.43	0.7	12,000	6.3	<1
MFA 2008	1/9/2007	HA19	1.5	Arsenic	4.02	0.7	590	5.7	<1
MFA 2008	12/15/2005	HA2	0.5	Arsenic	3.94	0.7	12,000	5.6	<1
MFA 2008	12/15/2005	HA1	0.5	Arsenic	3.81	0.7	12,000	5.4	<1
MFA 2008	10/24/2007	B4	1.5	Arsenic	3.79	0.7	590	5.4	<1
MFA 2008	11/19/2007	SS-4	0.5	Arsenic	3.58	0.7	12,000	5.1	<1
MFA 2008	10/24/2007	B5	1.5	Arsenic	3.07	0.7	590	4.4	<1
MFA 2008	12/15/2005	HA1	1.5	Arsenic	2.88 J	0.7	590	4.1	<1
MFA 2008	10/24/2007	B6	1.5	Arsenic	2.76	0.7	590	3.9	<1
MFA 2008	12/15/2005	HA2	1.5	Arsenic	2.71	0.7	590	3.9	<1
MFA 2008	11/19/2007	SS-1	0.5	Arsenic	2.64	0.7	12,000	3.8	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(a)pyrene	1.45	0.14	4.2	10	<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(a)pyrene	0.694	0.14	4.2	5.0	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(b)fluoranthene	1.62	1.37	9.0	1.2	<1
MFA 2008	12/15/2005	HA4	0.5	Cadmium	28.7	2	34	14	<1
MFA 2008	12/15/2005	HA5	0.5	Cadmium	3.13	2	34	1.6	<1
MFA 2008	12/15/2005	HA3	0.5	Cadmium	2.53	2	34	1.3	<1
MFA 2008	12/15/2005	HA4	0.5	Chromium	8,480		5,400		1.6
MFA 2008	12/15/2005	HA2	0.5	Chromium (hexavalent)	89 J	19	5,400	4.7	<1
MFA 2008	12/15/2005	HA4	0.5	Chromium (trivalent)	8,480	2,000	5,400	4.2	1.6
MFA 2008	12/15/2005	HA4	0.5	Copper	978	3,200	780	<1	1.3
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Copper	68.4 J	3,200	39	<1	1.8
MFA 2008	12/15/2005	HA4	1.5	Copper	48.8	3,200	39	<1	1.3
MFA 2008	12/15/2005	HA5	0.5	Dibenzo(a,h)anthracene	0.435	0.137	0.66	3.2	<1

Table 12
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA4	0.5	Diesel-range hydrocarbons	35,900	2,000		18	
MFA 2008	12/15/2005	HA4	0.5	Heavy-oil range hydrocarbons	106,000	2,000		53	
MFA 2008	12/15/2005	HA5	0.5	Heavy-oil range hydrocarbons	7,330	2,000		3.7	
MFA 2008	12/15/2005	HA4	1.5	Heavy-oil range hydrocarbons	3,550	2,000		1.8	
MFA 2008	12/15/2005	HA2	0.5	Heavy-oil range hydrocarbons	3,170	2,000		1.6	
MFA 2008	12/15/2005	HA3	0.5	Heavy-oil range hydrocarbons	2,470	2,000		1.2	
MFA 2008	10/25/2007	P9	0.5	Lead	2,410	250	1,300	9.6	1.9
MFA 2008	12/15/2005	HA4	0.5	Lead	1,710	250	1,300	6.8	1.3
MFA 2008	12/15/2005	HA5	0.5	Lead	1,440	250	1,300	5.8	1.1
Ecology 1989d	3/22/1989	S-1	0.5	Lead	1,310	250	1,300	5.2	1.0
MFA 2008	3/27/2008	C-2	1.5	Lead	1,020	250	67	4.1	15
MFA 2008	1/10/2007	HA22	0.5	Lead	986	250	1,300	3.9	<1
MFA 2008	11/19/2007	SS-6	0.5	Lead	838	250	1,300	3.4	<1
MFA 2008	11/19/2007	SS-3	1.5	Lead	668	250	67	2.7	10
MFA 2008	10/24/2007	P1	0.5	Lead	653	250	1,300	2.6	<1
MFA 2008	12/15/2005	HA3	0.5	Lead	545	250	1,300	2.2	<1
MFA 2008	11/19/2007	SS-6	1.5	Lead	526	250	67	2.1	7.9
MFA 2008	3/27/2008	C-1	2	Lead	470	250	67	1.9	7.0
MFA 2008	1/10/2007	HA21	0.5	Lead	398	250	1,300	1.6	<1
MFA 2008	10/25/2007	P10	0.5	Lead	365	250	1,300	1.5	<1
MFA 2008	1/10/2007	HA25	0.5	Lead	302	250	1,300	1.2	<1
MFA 2008	1/9/2007	HA17	0.5	Lead	278	250	1,300	1.1	<1
MFA 2008	3/27/2008	C-3	1.5	Lead	213	250	67	<1	3.2
MFA 2008	12/15/2005	HA5	1.5	Lead	209	250	67	<1	3.1
MFA 2008	1/10/2007	HA21	1.5	Lead	121	250	67	<1	1.8
MFA 2008	10/24/2007	B12	1.5	Lead	108	250	67	<1	1.6
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Lead	95.3 J	250	67	<1	1.4
MFA 2008	12/15/2005	HA3	0.5	Mercury	2.65	2	0.59	1.3	4.5
MFA 2008	12/15/2005	HA4	0.5	Mercury	2.28	2	0.59	1.1	3.9
Ecology 1989d	3/22/1989	S-1	0.5	Mercury	2.08	2	0.59	1.0	3.5
MFA 2008	12/15/2005	HA5	0.5	Mercury	0.918	2	0.59	<1	1.6
MFA 2008	12/15/2005	HA1	1.5	Mercury	0.328	2	0.030	<1	11
MFA 2008	12/15/2005	HA2	1.5	Mercury	0.232	2	0.030	<1	7.7
MFA 2008	12/15/2005	HA4	0.5	Zinc	2,620	24,000	770	<1	3.4
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Zinc	293 J	24,000	38	<1	7.7
MFA 2008	12/15/2005	HA2	1.5	Zinc	134	24,000	38	<1	3.5
MFA 2008	12/15/2005	HA5	1.5	Zinc	110	24,000	38	<1	2.9

Table 12
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA4	1.5	Zinc	86.3	24,000	38	<1	2.3
MFA 2008	12/15/2005	HA1	1.5	Zinc	70.8 J	24,000	38	<1	1.9
MFA 2008	12/15/2005	HA3	1.5	Zinc	46.2	24,000	38	<1	1.2

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

J - Estimated value
🟩 Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is tidally influenced at this property, and was observed between 3 and 7 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 13
Chemicals Detected Above Screening Levels in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2011	7/16/2010	MW6	Arsenic	35.7	0.0583	370	612	<1
MFA 2008	4/18/2006	MW1	Arsenic	33	0.0583	370	566	<1
MFA 2008	12/27/2005	MW1	Arsenic	32.3	0.0583	370	554	<1
MFA 2011	7/15/2010	MW1	Arsenic	28.1	0.0583	370	482	<1
MFA 2008	4/19/2006	MW6	Arsenic	24	0.0583	370	412	<1
MFA 2008	12/29/2005	MW3	Arsenic	15.3	0.0583	370	262	<1
MFA 2008	12/27/2005	MW4	Arsenic	15.1	0.0583	370	259	<1
MFA 2008	4/18/2006	MW4	Arsenic	15	0.0583	370	257	<1
MFA 2011	7/13/2010	MW3	Arsenic	14.5	0.0583	370	249	<1
MFA 2008	12/29/2005	MW6	Arsenic	11.9	0.0583	370	204	<1
MFA 2011	7/15/2010	MW4	Arsenic	11.2	0.0583	370	192	<1
MFA 2008	12/28/2005	MW8 (Dup)	Arsenic	7.85	0.0583	370	135	<1
MFA 2008	4/18/2006	MW7 (Dup)	Arsenic	7.3	0.0583	370	125	<1
MFA 2008	4/18/2006	MW7	Arsenic	7.1	0.0583	370	122	<1
MFA 2008	12/28/2005	MW7	Arsenic	6.62	0.0583	370	114	<1
MFA 2008	12/28/2005	MW8	Arsenic	6.41	0.0583	370	110	<1
MFA 2011	7/15/2010	MW8	Arsenic	6.3	0.0583	370	108	<1
MFA 2008	12/28/2005	MW2	Arsenic	5.63	0.0583	370	97	<1
MFA 2011	7/13/2010	MW7	Arsenic	5.6	0.0583	370	96	<1
MFA 2011	7/13/2010	MW7 (Dup)	Arsenic	5.4	0.0583	370	93	<1
MFA 2008	4/19/2006	MW5	Arsenic	4.9	0.0583	370	84	<1
MFA 2008	4/18/2006	MW8	Arsenic	4.8	0.0583	370	82	<1
MFA 2008	12/28/2005	MW5	Arsenic	4.59	0.0583	370	79	<1
MFA 2008	4/19/2006	MW2	Arsenic	3.8	0.0583	370	65	<1
MFA 2011	7/15/2010	MW2	Arsenic	2.3	0.0583	370	39	<1
MFA 2008	12/28/2005	MW5	Chromium	497,000	50	320	9,940	1,553
MFA 2008	6/16/2005	GP8	Chromium	355,000	50	320	7,100	1,109
MFA 2008	6/16/2005	GP6	Chromium	343,000	50	320	6,860	1,072
MFA 2008	6/16/2005	GP4	Chromium	267,000	50	320	5,340	834
MFA 2008	6/9/2005	GP2	Chromium	37,100	50	320	742	116
MFA 2008	4/19/2006	MW5	Chromium	32,000	50	320	640	100
Precision Engineering 1993	6/22/1988	MW3	Chromium	923	50	320	18	2.9
Precision Engineering 1993	3/8/1990	MW1	Chromium	332	50	320	6.6	1.0
Precision Engineering 1993	6/22/1988	MW2	Chromium	278	50	320	5.6	<1

Table 13
Chemicals Detected Above Screening Levels in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Precision Engineering 1993	3/8/1990	MW4	Chromium	239	50	320	4.8	<1
Precision Engineering 1993	3/8/1990	MW3	Chromium	57	50	320	1.1	<1
MFA 2008	12/28/2005	MW5	Chromium (hexavalent)	450,000	48		9,375	
MFA 2008	4/19/2006	MW5	Chromium (hexavalent)	350,000	48		7,292	
MFA 2008	6/16/2005	GP6	Chromium (hexavalent)	300,000	48		6,250	
MFA 2008	6/16/2005	GP8	Chromium (hexavalent)	294,000	48		6,125	
MFA 2008	6/16/2005	GP4	Chromium (hexavalent)	236,000	48		4,917	
MFA 2008	6/9/2005	GP2	Chromium (hexavalent)	4,720	48		98	
MFA 2008	6/16/2005	MW1	Chromium (hexavalent)	269	48		5.6	
MFA 2008	6/16/2005	GP7	Chromium (hexavalent)	101	48		2.1	
MFA 2008	6/16/2005	GP5	Chromium (hexavalent)	89.7	48		1.9	
MFA 2011	7/16/2010	MW5	Chromium (hexavalent)	81.6	48		1.7	
MFA 2008	6/16/2005	GP8	Chromium (trivalent)	61,000	24,000		2.5	
MFA 2008	12/28/2005	MW5	Chromium (trivalent)	47,000	24,000		2.0	
MFA 2008	6/16/2005	GP6	Chromium (trivalent)	43,000	24,000		1.8	
MFA 2008	6/9/2005	GP2	Chromium (trivalent)	32,380	24,000		1.3	
MFA 2008	6/16/2005	GP4	Chromium (trivalent)	31,000	24,000		1.3	
MFA 2008	6/16/2005	GP6	cis-1,2-Dichloroethene	144	16		9.0	
Precision Engineering 1993	3/8/1990	MW1	Copper	240	640	120	<1	2.0
Precision Engineering 1993	3/8/1990	MW4	Copper	150	640	120	<1	1.3
MFA 2008	4/18/2006	MW7	Dibenzo(a,h)anthracene	0.038 J	0.012	0.013	3.2	2.9
MFA 2008	12/29/2005	MW6	Diesel-range hydrocarbons	2,640	500		5.3	
MFA 2008	12/28/2005	MW8 (Dup)	Diesel-range hydrocarbons	1,790	500		3.6	
MFA 2008	12/28/2005	MW8	Diesel-range hydrocarbons	1,710	500		3.4	
MFA 2008	12/28/2005	MW2	Diesel-range hydrocarbons	1,190	500		2.4	
MFA 2008	12/28/2005	MW5	Diesel-range hydrocarbons	831	500		1.7	
MFA 2008	6/16/2005	GP8	Diesel-range hydrocarbons	814	500		1.6	
MFA 2008	4/19/2006	MW6	Diesel-range hydrocarbons	760	500		1.5	
MFA 2011	7/16/2010	MW6	Diesel-range hydrocarbons	730	500		1.5	
MFA 2008	12/29/2005	MW6	Heavy-oil range hydrocarbons	1,320	500		2.6	
MFA 2008	12/28/2005	MW8 (Dup)	Heavy-oil range hydrocarbons	1,210	500		2.4	
MFA 2008	4/19/2006	MW6	Heavy-oil range hydrocarbons	1,200	500		2.4	
MFA 2008	12/28/2005	MW2	Heavy-oil range hydrocarbons	1,040	500		2.1	
MFA 2008	12/28/2005	MW8	Heavy-oil range hydrocarbons	1,000	500		2.0	

Table 13
Chemicals Detected Above Screening Levels in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2011	7/16/2010	MW6	Heavy-oil range hydrocarbons	930	500		1.9	
MFA 2008	6/17/2005	MW2	Heavy-oil range hydrocarbons	512	500		1.0	
MFA 2008	4/18/2006	MW7	Indeno(1,2,3-cd)pyrene	0.039 J	0.12	0.033	<1	1.2
MFA 2008	4/18/2006	MW1	Indeno(1,2,3-cd)pyrene	0.034 J	0.12	0.033	<1	1.0
Precision Engineering 1993	3/8/1990	MW1	Lead	57	15	13	3.8	4.4
Precision Engineering 1993	3/8/1990	MW4	Lead	35	15	13	2.3	2.7
Precision Engineering 1993	3/8/1990	MW1	Mercury	0.5	2	0.0074	<1	68
Precision Engineering 1993	3/8/1990	MW1	Methylene chloride	12	5		2.4	
MFA 2008	6/16/2005	GP6	Trichloroethene	1,130	5		226	
MFA 2008	12/28/2005	MW5	Trichloroethene	22.1	5		4.4	
MFA 2008	6/16/2005	GP8	Trichloroethene	16.8	5		3.4	
MFA 2008	4/19/2006	MW5	Trichloroethene	7.9	5		1.6	
MFA 2008	12/14/2005	GP13	Vinyl chloride	16.5	0.2		83	
MFA 2008	4/18/2006	MW8	Vinyl chloride	0.8 J	0.2		4.0	
MFA 2008	12/28/2005	MW8	Vinyl chloride	0.56	0.2		2.8	
MFA 2008	12/28/2005	MW8 (Dup)	Vinyl chloride	0.4	0.2		2.0	
Precision Engineering 1993	3/8/1990	MW1	Zinc	620	4,800	76	<1	8.2
Precision Engineering 1993	3/8/1990	MW4	Zinc	370	4,800	76	<1	4.9
Precision Engineering 1993	3/8/1990	MW3	Zinc	90	4,800	76	<1	1.2

GW - groundwater

ug/L - micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 14
Chemicals Detected Above Screening Levels in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993a	3/5/1992	T1	0	2-Methylnaphthalene	180	320	1.4	<1	129
GeoEngineers 1993a	3/5/1992	T2	0	2-Methylnaphthalene	4.8	320	1.4	<1	3.4
GeoEngineers 1993a	3/5/1992	T1	0	Acenaphthene	47.0	4,800	1.2	<1	39
GeoEngineers 1993a	3/5/1992	T1	0	Acenaphthylene	16		1.4		11
GeoEngineers 1993a	3/5/1992	T1	0	Antimony	250	32		7.8	
GeoEngineers 1993a	3/5/1992	T1	0	Arsenic	250	0.67	12,000	373	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Arsenic	4.2	0.67	12,000	6.3	<1
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Arsenic	3	0.67	590	4.5	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Arsenic	2.6	0.67	590	3.9	<1
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Arsenic	1.7	0.67	590	2.5	<1
GeoEngineers 1993b	11/26/1991	SG-1	0	Arsenic	1.4	0.67	12,000	2.1	<1
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Arsenic	1.2	0.67	590	1.8	<1
GeoEngineers 1993b	11/26/1991	SG-2	0	Arsenic	0.9	0.67	12,000	1.3	<1
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(a)anthracene	32	1.37	5.4	23	5.9
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(a)pyrene	16	0.1	4.2	117	3.8
GeoEngineers 1993a	3/5/1992	T2	0	Benzo(a)pyrene	0.73	0.137	4.2	5.3	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Benzo(a)pyrene	0.29	0.137	4.2	2.1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(b)fluoranthene	23	1.4	9	17	2.6
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(g,h,i)perylene	5.2		1.6		3.3
GeoEngineers 1993a	3/5/1992	T1	0	Bis(2-ethylhexyl)phthalate	1,400	71	1.6	20	875
GeoEngineers 1993a	3/5/1992	T2	0	Bis(2-ethylhexyl)phthalate	14	71	1.6	<1	8.8
GeoEngineers 1993a	3/5/92	T1	0.00	Chrysene	49	137	9.2	<1	5.33
GeoEngineers 1993a	3/5/92	T1	0.00	Copper	1,600	3,200	780	<1	2.05
GeoEngineers 1993a	3/5/1992	T1	0	cPAHs, total	124.4	0.137		908	
GeoEngineers 1993a	3/5/1992	T2	0	cPAHs, total	4.6	0.137		34	
GeoEngineers 1993a	5/13/1992	T-5	0.5	cPAHs, total	1.15	0.137		8.4	
GeoEngineers 1993a	6/10/1992	T-8	2.5	cPAHs, total	1.01	0.137		7.4	
GeoEngineers 1993a	5/13/1992	T-6	0.5	cPAHs, total	0.5	0.137		3.6	
GeoEngineers 1993a	3/5/1992	T1	0	Dibenzofuran	6.3	80	1.2	<1	5.3
GeoEngineers 1993a	3/5/1992	T1	0	Dimethyl phthalate	23		1.6		14

Table 14
Chemicals Detected Above Screening Levels in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993a	3/5/1992	T1	0	Di-n-butyl phthalate	2,000	8,000	39	<1	51
GeoEngineers 1993a	3/5/1992	T1	0	Fluoranthene	60	3,200	24	<1	2.5
GeoEngineers 1993a	3/5/1992	T1	0	Fluorene	56	3,200	1.6	<1	35
GeoEngineers 1993a	3/5/1992	T1	0	Indeno(1,2,3-cd)pyrene	4.4	1.37	1.8	3.2	2.4
GeoEngineers 1993a	3/5/1992	T1	0	Lead	690	250	1,300	2.8	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Mercury	2.4	2	0.59	1.2	4.1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Mercury	0.075	2	0.03	<1	2.5
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Mercury	0.05	2	0.03	<1	1.7
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Mercury	0.038	2	0.03	<1	1.3
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Methylene chloride	4.2 B	0.02		210	
GeoEngineers 1993b	11/26/1991	TP-4-1	6.0	Methylene chloride	4.1 B	0.02		205	
GeoEngineers 1993b	11/26/1991	TP-8-1	6.5	Methylene chloride	4.1 B	0.02		205	
GeoEngineers 1993b	11/26/1991	TP-6-2	10	Methylene chloride	4.0 B	0.02		200	
GeoEngineers 1993b	11/26/1991	TP-10-1	7.0	Methylene chloride	3.8 B	0.02		190	
GeoEngineers 1993b	11/26/1991	TP-6-1	7.0	Methylene chloride	3.7 B	0.02		185	
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Methylene chloride	3.6 B	0.02		180	
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Methylene chloride	3.5 B	0.02		175	
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Methylene chloride	3.3 B	0.02		165	
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Methylene chloride	3.3 B	0.02		165	
GeoEngineers 1992	11/26/1991	TP6-2	10	Methylene chloride	3.1	0.02		155	
GeoEngineers 1992	11/26/1991	TP6-1	7	Methylene chloride	2.9	0.02		145	
GeoEngineers 1993a	3/5/1992	T1	0	Naphthalene	290	5	3.8	58	76
GeoEngineers 1993a	3/5/1992	T2	0	Naphthalene	5.6	5	3.8	1.1	1.5
GeoEngineers 1993a	3/5/1992	T1	0	Phenanthrene	260		9.7		27
GeoEngineers 1993a	3/5/1992	T1	0	Pyrene	130	2,400	28	<1	4.6
GeoEngineers 1993a	3/5/1992	T2	0	Total recoverable petroleum hydrocarbons	3,600	2,000		1.8	

Table 14
Chemicals Detected Above Screening Levels in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993a	3/5/1992	T1	0	Zinc	17,000	24,000	770	<1	22
GeoEngineers 1993a	3/5/1992	T2	0	Zinc	1,500	24,000	770	<1	1.9
GeoEngineers 1993a	5/13/1992	T-5	0.5	Zinc	1,100	24,000	770	<1	1.4

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

B - Possible blank contamination
🟩 Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 7 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level, whichever is lower.

Table 15
Chemicals Detected Above Screening Levels in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Benzene	0.06	0.03		2.0	
Floyd & Snider 1999b	4/27/1999	S9-2	0.5	Diesel-range hydrocarbons	29,170	2,000		15	
Floyd & Snider 1999b	4/27/1999	S14-2	0.5	Diesel-range hydrocarbons	27,610	2,000		14	
Floyd & Snider 1999b	4/27/1999	S9-1	0.5	Diesel-range hydrocarbons	19,530	2,000		9.8	
Floyd & Snider 1999b	4/27/1999	S14-1	0.5	Diesel-range hydrocarbons	12,250	2,000		6.1	
Floyd & Snider 1999b	4/27/1999	S6-2	0.5	Diesel-range hydrocarbons	11,600	2,000		5.8	
Floyd & Snider 1999a	1/14/1999	S-14	0-0.5	Diesel-range hydrocarbons	9,750	2,000		4.9	
Floyd & Snider 1999b	4/27/1999	S6-1	0.5	Diesel-range hydrocarbons	7,460	2,000		3.7	
Floyd & Snider 1999a	1/14/1999	S-1	0-0.5	Diesel-range hydrocarbons	7,440	2,000		3.7	
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Diesel-range hydrocarbons	6,310	2,000		3.2	
Floyd & Snider 1999a	1/14/1999	S-2	0-0.5	Diesel-range hydrocarbons	5,350	2,000		2.7	
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Diesel-range hydrocarbons	5,060	2,000		2.5	
Floyd & Snider 1999a	1/14/1999	S-4	2.0-3.0	Diesel-range hydrocarbons	4,790	2,000		2.4	
Floyd & Snider 1999a	4/4/1997	MW-2	5.0-6.5	Diesel-range hydrocarbons	4,500	2,000		2.3	
Floyd & Snider 1999b	4/27/1999	S5-2	0.5	Diesel-range hydrocarbons	4,390	2,000		2.2	
Floyd & Snider 1999b	4/27/1999	S6-1 (OE)	2	Diesel-range hydrocarbons	4,330	2,000		2.2	
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Diesel-range hydrocarbons	4,050	2,000		2.0	
Floyd & Snider 1999a	1/14/1999	S-3	0-0.5	Diesel-range hydrocarbons	3,800	2,000		1.9	
Floyd & Snider 1999b	4/27/1999	S8-1	0.5	Diesel-range hydrocarbons	3,530	2,000		1.8	
Floyd & Snider 1999a	1/14/1999	S-9	0-0.5	Diesel-range hydrocarbons	3,510	2,000		1.8	
Floyd & Snider 1999b	4/27/1999	S6-2 (OE)	2	Diesel-range hydrocarbons	3,198	2,000		1.6	
Floyd & Snider 1999b	4/27/1999	S1-4	4	Diesel-range hydrocarbons	3,108	2,000		1.6	
Floyd & Snider 1999b	4/27/1999	S8-2	0.5	Diesel-range hydrocarbons	2,518	2,000		1.3	
Floyd & Snider 1999b	4/27/1999	S11-2	0.5	Diesel-range hydrocarbons	2,439	2,000		1.2	
Floyd & Snider 1999b	4/27/1999	S1-2	2-4	Diesel-range hydrocarbons	2,393	2,000		1.2	
Floyd & Snider 1999a	1/14/1999	S-8	0-0.5	Diesel-range hydrocarbons	2,260	2,000		1.1	
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Gasoline-range hydrocarbons	360	30		12	
Floyd & Snider 1999a	1/14/1999	S-1	0-0.5	Heavy oil-range hydrocarbons	26,900	2,000		13	
Floyd & Snider 1999a	1/14/1999	S-14	0-0.5	Heavy oil-range hydrocarbons	18,300	2,000		9.2	
Floyd & Snider 1999a	1/14/1999	S-2	0-0.5	Heavy oil-range hydrocarbons	16,800	2,000		8.4	
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Heavy oil-range hydrocarbons	16,600	2,000		8.3	
Floyd & Snider 1999a	1/14/1999	S-9	0-0.5	Heavy oil-range hydrocarbons	16,200	2,000		8.1	
Floyd & Snider 1999a	4/4/1997	MW-2	5.0-6.5	Heavy oil-range hydrocarbons	14,000	2,000		7.0	
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Heavy oil-range hydrocarbons	12,400	2,000		6.2	
Floyd & Snider 1999a	1/14/1999	S-3	0-0.5	Heavy oil-range hydrocarbons	12,100	2,000		6.1	
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Heavy oil-range hydrocarbons	10,600	2,000		5.3	
Floyd & Snider 1999a	1/14/1999	S-4	2.0-3.0	Heavy oil-range hydrocarbons	6,310	2,000		3.2	

Table 15
Chemicals Detected Above Screening Levels in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999a	1/14/1999	S-8	0-0.5	Heavy oil-range hydrocarbons	6,200	2,000		3.1	
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Heavy oil-range hydrocarbons	5,310	2,000		2.7	
Floyd & Snider 1999a	1/14/1999	S-5	0-0.5	Heavy oil-range hydrocarbons	4,830	2,000		2.4	
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Heavy oil-range hydrocarbons	3,770	2,000		1.9	
Floyd & Snider 1999a	1/14/1999	S-11	0-0.5	Heavy oil-range hydrocarbons	3,390	2,000		1.7	
Floyd & Snider 1999a	1/14/1999	S-4	0-0.5	Heavy oil-range hydrocarbons	2,650	2,000		1.3	
Floyd & Snider 1999a	4/4/1997	MW-2	2.5-4.0	Heavy oil-range hydrocarbons	2,500	2,000		1.3	
Floyd & Snider 1999a	1/14/1999	S-13	0-0.5	Heavy oil-range hydrocarbons	2,210	2,000		1.1	
Floyd & Snider 1999a	1/14/1999	S-8	0-0.5	Lead	1,590	250	1,300	6.4	1
Floyd & Snider 1999a	1/14/1999	S-14	0-0.5	Lead	1,370	250	1,300	5.5	1
Floyd & Snider 1999b	4/27/1999	S14-1	0.5	Lead	1,160	250	1,300	4.6	<1
Floyd & Snider 1999b	4/27/1999	S6-1	0.5	Lead	1,130	250	1,300	4.5	<1
Floyd & Snider 1999a	1/14/1999	S-3	0-0.5	Lead	959	250	1,300	3.8	<1
Floyd & Snider 1999a	1/14/1999	S-9	0-0.5	Lead	780	250	1,300	3.1	<1
Floyd & Snider 1999b	4/27/1999	S9-1	0.5	Lead	780	250	1,300	3.1	<1
Floyd & Snider 1999b	4/27/1999	S6-1 (OE)	2	Lead	768	250	1,300	3.1	<1
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Lead	758	250	1,300	3.0	<1
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Lead	695	250	1,300	2.8	<1
Floyd & Snider 1999a	1/14/1999	S-2	0-0.5	Lead	682	250	1,300	2.7	<1
Floyd & Snider 1999a	1/14/1999	S-7	0-0.5	Lead	669	250	1,300	2.7	<1
Floyd & Snider 1999b	4/27/1999	S6-2	1	Lead	655	250	1,300	2.6	<1
Floyd & Snider 1999b	4/27/1999	S6-2 (OE)	2	Lead	616	250	1,300	2.5	<1
Floyd & Snider 1999a	1/14/1999	S-1	0-0.5	Lead	612	250	1,300	2.4	<1
Floyd & Snider 1999b	4/27/1999	S14-2	0.5	Lead	562	250	1,300	2.2	<1
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Lead	485	250	1,300	1.9	<1
Floyd & Snider 1999a	1/14/1999	S-4	0-0.5	Lead	470	250	1,300	1.9	<1
Floyd & Snider 1999b	4/27/1999	S11-2	0.5	Lead	452	250	1,300	1.8	<1
Floyd & Snider 1999a	1/14/1999	S-5	0-0.5	Lead	448	250	1,300	1.8	<1
Floyd & Snider 1999b	4/27/1999	S1-4	4	Lead	448	250	1,300	1.8	<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Lead	316	250	1,300	1.3	<1
Floyd & Snider 1999b	4/27/1999	S1-1	2-4	Lead	313	250	1,300	1.3	<1
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Lead	298	250	1,300	1.2	<1

Table 15
Chemicals Detected Above Screening Levels in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟩 Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 7.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 16
Chemicals Detected Above Screening Levels in Groundwater
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999b	5/3/1999	MW-4	Arsenic	23.9	0.0583	370	410	<1
Floyd & Snider 1999a	1/14/1999	MW-4	Arsenic	17.4	0.0583	370	298	<1
Floyd & Snider 1999a	1/14/1999	MW-3	Arsenic	16.7	0.0583	370	286	<1
Floyd & Snider 1999a	1/14/1999	MW-2	Arsenic	10.7	0.0583	370	184	<1
Floyd & Snider 1999b	5/3/1999	MW-3	Arsenic	7.7	0.0583	370	132	<1
Floyd & Snider 1999a	4/4/1997	MW-3	Arsenic	5.5	0.0583	370	94	<1
Floyd & Snider 1999b	5/3/1999	MW-2R	Arsenic	5.5	0.0583	370	94	<1
Floyd & Snider 1999b	5/3/1999	MW-1	Arsenic	1.3	0.0583	370	22	<1
Floyd & Snider 1999a	1/14/1999	MW-1	Arsenic	1.2	0.0583	370	21	<1
Floyd & Snider 1999a	4/4/1997	MW-3	Cadmium	11	5.0	3.4	2.2	3.2
Floyd & Snider 1999a	1/14/1999	MW-2	Diesel-range hydrocarbons	1,150	500		2.3	
Floyd & Snider 1999a	4/4/1997	MW-2	Diesel-range hydrocarbons	800	500		1.6	

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 17
Chemicals Detected Above Screening Levels in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Aroclor 1248	0.23	0.5	0.065	<1	3.5
GeoEngineers 1990	Jan-90	14	1.2	Aroclor 1254	0.58	0.5	0.065	1.2	8.9
GeoEngineers 1990	Jan-90	2	0	Aroclor 1254	0.38	0.5	0.065	<1	5.8
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Aroclor 1254	0.3	0.5	0.065	<1	4.9
GeoEngineers 1990	Jan-90	8	0.4	Aroclor 1254	0.31	0.5	0.065	<1	4.8
GeoEngineers 1990	Jan-90	12	2.7	Aroclor 1254	0.26	0.5	0.065	<1	4.0
GeoEngineers 1990	Jan-90	9	0.4	Aroclor 1254	0.17	0.5	0.065	<1	2.6
GeoEngineers 1990	Jan-90	10	0.9	Aroclor 1254	0.17	0.5	0.065	<1	2.6
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Aroclor 1260	1.3	0.5	0.065	2.6	20
GeoEngineers 1990	Jan-90	14	1.2	Aroclor 1260	1.1	0.5	0.065	2.2	17
GeoEngineers 1990	Jan-90	2	0	Aroclor 1260	0.78	0.5	0.065	1.6	12
GeoEngineers 1990	Jan-90	8	0.4	Aroclor 1260	0.65	0.5	0.065	1.3	10
GeoEngineers 1990	Jan-90	12	2.7	Aroclor 1260	0.42	0.5	0.065	<1	6.5
GeoEngineers 1990	Jan-90	10	0.9	Aroclor 1260	0.4	0.5	0.065	<1	6.2
GeoEngineers 1990	Jan-90	9	0.4	Aroclor 1260	0.36	0.5	0.065	<1	5.5
GeoEngineers 1989a	4/17/1989	TP-23		Arsenic	210	0.67	590	313	<1
Hart Crowser 1996	1994	B-3	1 to 8	Arsenic	205	0.67	590	306	<1
GeoEngineers 1989a	4/17/1989	TP-27		Arsenic	190	0.67	590	284	<1
GeoEngineers 1989a	4/18/1989	TP-31		Arsenic	170	0.67	590	254	<1
GeoEngineers 1989a	4/18/1989	TP-34		Arsenic	150	0.67	590	224	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Arsenic	89	0.67	590	133	<1
GeoEngineers 1989a	5/26/1988	CKD Composite		Arsenic	5.6	0.67	590	8.4	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Benzo(g,h,i)perylene	0.24		0.078		3.1
GeoEngineers 1989a	4/17/1989	TP-27		Cadmium	4	2	1.7	1.9	2.2
GeoEngineers 1989a	4/17/1989	TP-23		Cadmium	3.5	2	1.7	1.8	2.1
GeoEngineers 1989a	4/18/1989	TP-34		Cadmium	3	2	1.7	1.6	1.8
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Cadmium	2	2	1.7	1.2	1.4
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Copper	430	3,200	39	<1	11
GeoEngineers 1989a	4/18/1989	TP-34		Copper	100	3,200	39	<1	2.6
GeoEngineers 1989a	4/17/1989	TP-23		Copper	89	3,200	39	<1	2.3
GeoEngineers 1989a	4/17/1989	TP-27		Copper	85	3,200	39	<1	2.2
GeoEngineers 1989a	4/18/1989	TP-31		Copper	80	3,200	39	<1	2.1
GeoEngineers 1989a	5/26/1988	CKD Composite		Copper	42	3,200	39	<1	1.1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Lead	9,500	250	67	38	142
GeoEngineers 1989a	4/17/1989	TP-27		Lead	1,730	250	67	6.9	26
GeoEngineers 1989a	4/17/1989	TP-23		Lead	1300	250	67	5.2	19
Hart Crowser 1996	1994	B-3	1 to 8	Lead	1,107	250	67	4.4	17

Table 17
Chemicals Detected Above Screening Levels in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1989a	4/18/1989	TP-34		Lead	1,080	250	67	4.3	16
GeoEngineers 1989a	4/18/1989	TP-31		Lead	960	250	67	3.8	14
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Methylene chloride	0.29	0.02		15	
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		PCBs, total	1.9	0.5	0.065	3.8	29
GeoEngineers 1990	Jan-90	14	1.2	PCBs, total	1.68	0.5	0.065	3.4	26
GeoEngineers 1990	Jan-90	2	0	PCBs, total	1.16	0.5	0.065	2.3	18
GeoEngineers 1990	Jan-90	8	0.4	PCBs, total	0.96	0.5	0.065	1.9	15
GeoEngineers 1990	Jan-90	12	2.7	PCBs, total	0.68	0.5	0.065	1.4	10
GeoEngineers 1990	Jan-90	10	0.9	PCBs, total	0.57	0.5	0.065	1.1	8.8
GeoEngineers 1990	Jan-90	9	0.4	PCBs, total	0.53	0.5	0.065	1.1	8.2
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Zinc	890	24,000	38	<1	23
GeoEngineers 1989a	4/18/1989	TP-31		Zinc	720	24,000	38	<1	19
GeoEngineers 1989a	4/17/1989	TP-27		Zinc	690	24,000	38	<1	18
GeoEngineers 1989a	4/17/1989	TP-23		Zinc	540	24,000	38	<1	14
GeoEngineers 1989a	4/18/1989	TP-34		Zinc	530	24,000	38	<1	14
GeoEngineers 1989a	5/26/1988	CKD Composite		Zinc	67	24,000	38	<1	1.8
10th Avenue S Ditch									
Hart Crowser 1996	8/15/1996	SED-1		Arsenic	14	0.67	590	21	<1
Hart Crowser 1996	8/15/1996	SED-1		Copper	43	3,200	39	<1	1.1
Hart Crowser 1996	8/15/1996	SED-1		Lead	110	250	67	<1	1.6
Hart Crowser 1996	8/15/1996	SED-1		Zinc	160	24,000	38	<1	4.2
Hamm Creek									
Hart Crowser 1996	8/15/1996	SED-5		Arsenic	18	0.67	590	27	<1
Hart Crowser 1996	8/15/1996	SED-2		Arsenic	16	0.67	590	24	<1
Hart Crowser 1996	8/15/1996	SED-3		Arsenic	12	0.67	590	18	<1
Hart Crowser 1996	8/15/1996	SED-4		Arsenic	12	0.67	590	18	<1
Hart Crowser 1996	8/15/1996	SED-5		Copper	270	3,200	39	<1	6.9
Hart Crowser 1996	8/15/1996	SED-4		Copper	90	3,200	39	<1	2.3
Hart Crowser 1996	8/15/1996	SED-3		Copper	69	3,200	39	<1	1.8
Hart Crowser 1996	8/15/1996	SED-2		Copper	42	3,200	39	<1	1.1
Hart Crowser 1996	8/15/1996	SED-5		Lead	270	250	67	1.1	4.0
Hart Crowser 1996	8/15/1996	SED-4		Lead	240	250	67	<1	3.6
Hart Crowser 1996	8/15/1996	SED-3		Lead	160	250	67	<1	2.4
Hart Crowser 1996	8/15/1996	SED-2		Lead	79	250	67	<1	1.2
Hart Crowser 1996	8/15/1996	SED-5		Zinc	2500	24,000	38	<1	66
Hart Crowser 1996	8/15/1996	SED-3		Zinc	1300	24,000	38	<1	34
Hart Crowser 1996	8/15/1996	SED-4		Zinc	1,200	24,000	38	<1	32

Table 17
Chemicals Detected Above Screening Levels in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1996	8/15/1996	SED-2		Zinc	760	24,000	38	<1	20
Wetland									
Hart Crowser 1996	8/15/1996	SED-6		Arsenic	14	0.67	590	21	<1
Hart Crowser 1996	8/15/1996	SED-7		Arsenic	11	0.67	590	16	<1
Hart Crowser 1996	8/15/1996	SED-8		Arsenic	9	0.67	590	13	<1
Hart Crowser 1996	8/15/1996	SED-6		Copper	62	3,200	39	<1	1.6
Hart Crowser 1996	8/15/1996	SED-8		Copper	42	3,200	39	<1	1.1
Hart Crowser 1996	8/15/1996	SED-6		Lead	110	250	67	<1	1.6
Hart Crowser 1996	8/15/1996	SED-6		Zinc	420	24,000	38	<1	11
Hart Crowser 1996	8/15/1996	SED-7		Zinc	290	24,000	38	<1	7.6
Hart Crowser 1996	8/15/1996	SED-8		Zinc	77	24,000	38	<1	2.0
East Ditch									
Hart Crowser 1996	8/15/1996	SED-9		Arsenic	8.6	0.7	590	13	<1
Hart Crowser 1996	8/15/1996	SED-10		Arsenic	2	0.67	590	3.0	<1
Hart Crowser 1996	8/15/1996	SED-9		Copper	49	3,200	39	<1	1.3
Hart Crowser 1996	8/15/1996	SED-9		Lead	100	250	67	<1	1.5
Hart Crowser 1996	8/15/1996	SED-9		Zinc	66	24,000	38	<1	1.7

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards
C - Composite sample

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is approximately 2 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 18
Chemicals Detected Above Screening Levels in Groundwater
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1996	6/21/1996	MW-2	Arsenic	140	0.0583	370	2,401	<1
Hart Crowser 1996	6/21/1996	MW-4	Arsenic	120	0.0583	370	2,058	<1
Hart Crowser 1996	6/21/1996	MW-2	Arsenic	110	0.0583	370	1,887	<1
Hart Crowser 1996	8/21/1996	MW-2	Arsenic	56	0.0583	370	961	<1
Hart Crowser 1996	8/21/1996	MW-2	Arsenic	54	0.0583	370	926	<1
Hart Crowser 1996	6/21/1996	MW-3	Arsenic	40	0.0583	370	686	<1
Hart Crowser 1996	6/21/1996	MW-3	Arsenic	26	0.0583	370	446	<1
Hart Crowser 1996	6/21/1996	MW-4	Arsenic	12	0.0583	370	206	<1
Hart Crowser 1996	8/21/1996	MW-1	Arsenic	11	0.0583	370	189	<1
Hart Crowser 1996	8/21/1996	MW-1	Arsenic	8.6	0.0583	370	148	<1
GeoEngineers 1989a	4/21/1989	MW-3	Arsenic	7	0.0583	370	120	<1
GeoEngineers 1989a	4/21/1989	MW-4	Arsenic	7	0.0583	370	120	<1
Hart Crowser 1996	6/21/1996	MW-1	Arsenic	6.2	0.0583	370	106	<1
Hart Crowser 1996	6/21/1996	MW-1	Arsenic	6	0.0583	370	103	<1
GeoEngineers 1989a	4/21/1989	MW-1	Arsenic	5	0.0583	370	86	<1
GeoEngineers 1989a	4/21/1989	MW-4	Chromium	80	50	320	1.6	<1
Hart Crowser 1996	6/21/1996	MW-4	Lead	160	15	13	11	12
Hart Crowser 1996	8/21/1996	MW-2	Lead	84	15	13	5.6	6.5
Hart Crowser 1996	6/21/1996	MW-2	Lead	25	15	13	1.7	1.9
Hart Crowser 1996	6/21/1996	MW-2	Lead	17	15	13	1.1	1.3
Hart Crowser 1996	6/21/1996	MW-1	Lead	17	15	13	1.1	1.3
Hart Crowser 1996	6/21/1996	MW-1	Lead	15	15	13	1.0	1.2
Hart Crowser 1996	8/21/1996	MW-2	Zinc	180	4,800	76	<1	2.4
Hart Crowser 1996	8/21/1996	MW-1	Zinc	91	4,800	76	<1	1.2
Hart Crowser 1996	6/21/1996	MW-4	Zinc	85	4,800	76	<1	1.1
Hart Crowser 1996	6/21/1996	MW-4	Zinc	82	4,800	76	<1	1.1
Hart Crowser 1996	6/21/1996	MW-1	Zinc	82	4,800	76	<1	1.1

GW - groundwater

ug/L - micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 19
Chemicals Detected Above Screening Levels in Surface Water
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor
10th Avenue S Ditch								
Hart Crowser 1996	7/19/1996	SW-2	Arsenic	25	0.098	190	255	<1
Hart Crowser 1996	7/19/1996	SW-1	Arsenic	24	0.098	190	245	<1
Hart Crowser 1996	7/19/1996	SW-1	Arsenic	22	0.098	190	224	<1
Hart Crowser 1996	7/19/1996	SW-2	Arsenic	21	0.098	190	214	<1
Hart Crowser 1996	7/19/1996	SW-2	Copper	99	2,900	3.5	<1	28
Hart Crowser 1996	7/19/1996	SW-2	Copper	94	2,900	3.5	<1	27
Hart Crowser 1996	7/19/1996	SW-1	Copper	92	2,900	3.5	<1	26
Hart Crowser 1996	7/19/1996	SW-1	Copper	89	2,900	3.5	<1	25
Hart Crowser 1996	7/19/1996	SW-2	Lead	19		0.54		35
Hart Crowser 1996	7/19/1996	SW-1	Lead	15		0.54		28
Hart Crowser 1996	7/19/1996	SW-1	Lead	8.9		0.54		16
Hart Crowser 1996	7/19/1996	SW-2	Lead	8.6		0.54		16
Hart Crowser 1996	7/19/1996	SW-2	Zinc	37	17,000	32	<1	1.2
S 96th Street Ditch								
GeoEngineers 1989a	5/26/1988	Leachate	Arsenic	10	0.098	190	102	<1
GeoEngineers 1989a	5/26/1988	Leachate	Copper	314	2,900	3.5	<1	90
GeoEngineers 1989a	4/24/1989	D	Copper	280	2,900	3.5	<1	80
GeoEngineers 1989a	5/26/1988	Leachate	Lead	297		0.54		550
GeoEngineers 1989a	4/24/1989	D	Lead	25		0.54		46
GeoEngineers 1989a	5/26/1988	Leachate	Zinc	230	17,000	32	<1	7.2
Hamm Creek								
GeoEngineers 1989a	5/26/1988	Upstream	Arsenic	3	0.098	190	31	<1
GeoEngineers 1989a	5/26/1988	Downstream	Arsenic	2	0.098	190	20	<1
GeoEngineers 1989a	5/26/1988	Upstream	Cadmium	10	41	0.37	<1	27
GeoEngineers 1989a	5/26/1988	Downstream	Copper	9	2,900	3.5	<1	2.6
GeoEngineers 1989a	5/26/1988	Upstream	Copper	6	2,900	3.5	<1	1.7
GeoEngineers 1989a	5/26/1988	Downstream	Lead	50		0.54		93
GeoEngineers 1989a	4/21/1989	A	Lead	6.0		0.54		11
Wetland								
GeoEngineers 1989a	4/21/1989	C	Copper	80	2,900	3.5	<1	23
GeoEngineers 1989a	4/21/1989	C	Lead	360		0.54		667

GW - groundwater

ug/L - micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Chronic Surface Fresh Water Quality Standard.

Table 20
Chemicals Detected Above Screening Levels in Soil
Terex Utilities (Former Fruehauf Trailer Services)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
ATC 1999	7/17/1998	S2A-4	4	Arsenic	1	0.67	12,000	1.5	<1
ATC 1999	7/17/1998	S2A-4	4	Diesel-range hydrocarbons	3600	2,000		1.8	
ATC 1999	5/22/1998	S11-4.5	4.5	Heavy oil-range hydrocarbons	7400	2,000		3.7	
ATC 1999	4/23/1998	S4-8	8	Heavy oil-range hydrocarbons	2300	2,000		1.2	
ATC 1999	7/17/1998	S3A-4	4	Mercury	0.89	2	0.59	<1	1.5
ATC 1999	7/17/1998	S2A-4	4	Tetrachloroethene	0.62	0.05		12	
ATC 1999	7/17/1998	S2A-4	4	Xylenes, m+p	11	9		1.2	

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is greater than 10 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 21
Chemicals Detected Above Screening Levels in Soil
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Arsenic	25	0.67	12,000	37	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Arsenic	15.6	0.67	12,000	23	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Arsenic	12.8	0.67	590	19	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Arsenic	10.8	0.7	590	16	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Trichloroethene	0.071	0.03		2.4	
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Zinc	179	24,000	38	<1	4.7
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Zinc	87.8	24,000	38	<1	2.3

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater was observed at 6.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 22
Chemicals Detected Above Screening Levels in Groundwater
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991b	5/13/1991	MW-01	1,1,1-Trichloroethane	330	200		1.7	
Parametrix and SAIC 1991b	5/14/1991	MW-01	Arsenic	46	0.0583	370	789	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Arsenic	22	0.0583	370	377	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Cadmium	358	5	3.4	72	105
Parametrix and SAIC 1991b	5/14/1991	MW-01	Cadmium	327	5	3.4	65	96
Parametrix and SAIC 1991b	5/14/1991	MW-01	Chromium	5,590	50	320	112	17
Parametrix and SAIC 1991b	5/14/1991	MW-01	Chromium	5,320	50	320	106	17
Parametrix and SAIC 1991b	5/14/1991	MW-01	Copper	7,380	640	120	12	62
Parametrix and SAIC 1991b	5/14/1991	MW-01	Copper	6,420	640	120	10	54
Parametrix and SAIC 1991b	5/13/1991	MW-01	Tetrachloroethene	300	5		60	
Parametrix and SAIC 1991b	5/13/1991	MW-01	Trichloroethene	1,500	5		300	
Parametrix and SAIC 1991b	5/14/1991	MW-01	Zinc	64,600	4,800	76	13	850
Parametrix and SAIC 1991b	5/14/1991	MW-01	Zinc	57,100	4,800	76	12	751

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 23
Chemicals Detected Above Screening Levels in Groundwater
Old Dominion Freight Line (Desimone Trust Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1991*		Well 2	Benzene	4	1		5.0	
Hart Crowser 1991*		Well 2	Cadmium	14	5.0	3.4	2.8	4.1
Hart Crowser 1991*		Well 2	Zinc	106,000	4,800	76	22	1,395
Hart Crowser 1991*		Well 1C	Zinc	100	4,800	76	<1	1.3
Hart Crowser 1991*		Well 3A	Zinc	100	4,800	76	<1	1.3

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

*As cited in Herrera 1994

Table 24
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Former Penberthy Electromelt Property									
PGG 2001b	1/22/2001	S-5-0-6	0.5	2,3,7,8-TCDD TEQ	0.00046	0.000011		42	
PGG 2001b	1/22/2001	S-13-0-6	0.5	2,3,7,8-TCDD TEQ	0.00044	0.000011		40	
PGG 2001b	1/23/2001	S-7-0-6	0.5	2,3,7,8-TCDD TEQ	0.0002	0.000011		18	
PGG 2001b	1/22/2001	S-14-0-6	0.5	2,3,7,8-TCDD TEQ	7.90E-05	0.000011		7.2	
PGG 2001b	1/23/2001	S-9-0-6	0.5	2,3,7,8-TCDD TEQ	5.20E-05	0.000011		4.7	
PGG 2001b	1/22/2001	B3-48-54	4.5	2,3,7,8-TCDD TEQ	3.70E-05	0.000011		3.4	
PGG 2001b	1/22/2001	S-6-0-6	0.5	2,3,7,8-TCDD TEQ	2.20E-05	0.000011		2.0	
PGG 2001b	1/23/2001	S-10-0-6	0.5	2,3,7,8-TCDD TEQ	1.30E-05	0.000011		1.2	
PGG 2001b	1/22/2001	S-13-0-6	0.5	Arsenic	156	0.67	12,000	233	<1
PGG 2002	2/12/2002	Bkyd-SW+2-N	2	Arsenic	68	0.67	12,000	101	<1
PGG 2002	9/24/2001	PbO - SE		Arsenic	66	0.67	590	99	<1
PGG 2002	1/15/2002	Bkyd-SW+2	2	Arsenic	49	0.67	12,000	73	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Arsenic	44	0.67	12,000	66	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Arsenic	40	0.67	12,000	60	<1
PGG 2001b	1/22/2001	S-SW		Arsenic	40	0.67	590	60	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Arsenic	34	0.67	12,000	51	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Arsenic	32	0.67	12,000	48	<1
PGG 2002	2/12/2002	Bkyd-SW+2-S	2	Arsenic	27	0.67	12,000	40	<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Arsenic	25	0.67	12,000	37	<1
PGG 2002	12/11/2001	S-13-Conf @ 4'	4	Arsenic	25	0.67	12,000	37	<1
PGG 2002	1/15/2002	S-13-Conf-7ft	7	Arsenic	23	0.67	590	34	<1
PGG 2002	12/11/2001	Bkyd-SW+1	1	Arsenic	21	0.67	12,000	31	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Arsenic	15	0.67	12,000	22	<1
PGG 2002	9/24/2001	Beneath Sump	2	Arsenic	14	0.67	12,000	21	<1
PGG 2002	2/12/2002	Bkyd-SW+2-N Floor	2	Arsenic	14	0.67	12,000	21	<1
PGG 2002	3/13/2002	Bkyd-SW-2ft-S Native	2	Arsenic	12	0.67	12,000	18	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Arsenic	11	0.67	12,000	16	<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Arsenic	11	0.67	12,000	16	<1
PGG 2002	12/17/2001	Repeat-1-CS-3	1	Arsenic	11	0.67	12,000	16	<1
PGG 2002	2/12/2002	Bkyd-SW+2-S Floor	2	Arsenic	11	0.67	12,000	16	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Arsenic	10	0.67	12,000	15	<1
PGG 2001b	1/22/2001	S-SN		Arsenic	10	0.67	590	15	<1
PGG 2002	3/13/2002	Bkyd-SW-2ft-N Native	2	Arsenic	9.8	0.67	12,000	15	<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Arsenic	9	0.67	12,000	13	<1
PGG 2002	11/9/2001	Beneath Sump - 2ft	2	Arsenic	9	0.67	12,000	13	<1

Table 24
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	3/13/2002	Bkyd-SW-4ft-Floor N	4	Arsenic	9	0.67	12,000	13	<1
PGG 2001b	1/22/2001	S-B-1		Arsenic	9	0.67	590	13	<1
PGG 2002	3/13/2002	Bkyd-SW-4ft-Floor S	4	Arsenic	8.8	0.67	12,000	13	<1
PGG 2002	11/19/2001	S-14-Conf	0.5	Arsenic	8.2	0.67	12,000	12	<1
PGG 2001b	1/22/2001	B3-6-12	1	Arsenic	8	0.67	12,000	12	<1
PGG 2001b	1/22/2001	S-Comp		Arsenic	8	0.67	590	12	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Arsenic	7.4	0.67	12,000	11	<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Arsenic	7	0.67	12,000	10	<1
PGG 2002	12/11/2001	Beneath Sump - 4ft	4	Arsenic	6.4	0.67	12,000	9.6	<1
PGG 2001b	1/22/2001	B6-6-12	1	Arsenic	6	0.67	12,000	9.0	<1
PGG 2002	11/19/2001	Bkyd-SE	1	Arsenic	5.2	0.67	12,000	7.8	<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Arsenic	4.5	0.67	12,000	6.7	<1
PGG 2002	9/24/2001	PbO - SS		Arsenic	4.2	0.67	590	6.3	<1
PGG 2002	9/24/2001	PbO - SW		Arsenic	3.9	0.67	590	5.8	<1
PGG 2002	1/29/2002	S-14-Conf @ 2'	2	Arsenic	3.6	0.67	12,000	5.4	<1
PGG 2002	11/9/2001	PbO - 2ft SE	2	Arsenic	3.2	0.67	12,000	4.8	<1
PGG 2002	9/24/2001	Drum Sump		Arsenic	3.2	0.67	590	4.8	<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Arsenic	2.7	0.67	12,000	4.0	<1
PGG 2002	9/24/2001	B2/3 Trench-6	6	Arsenic	2.4	0.67	590	3.6	<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Arsenic	2.2	0.67	12,000	3.3	<1
PGG 2002	9/24/2001	S-5-Conf	0.5	Arsenic	2.1	0.67	12,000	3.1	<1
PGG 2002	9/21/2001	Drum West		Arsenic	2.1	0.67	590	3.1	<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Arsenic	1.9	0.67	12,000	2.8	<1
PGG 2002	9/24/2001	Asphalt	0.5	Arsenic	1.6	0.67	12,000	2.4	<1
PGG 2002	9/24/2001	PbO - SN		Arsenic	1.4	0.67	590	2.1	<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Cadmium	176	2	34	88	5.2
PGG 2002	11/19/2001	S-13-Conf	0.5	Cadmium	8.8	2	34	4.4	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Cadmium	4.1	2	34	2.1	<1
PGG 2001b	1/22/2001	S-2-0-6	0.5	Cadmium	3.7	2	34	1.9	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Cadmium	3.7	2	34	1.9	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Cadmium	2.9	2	34	1.5	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Cadmium	2.1	2	34	1.1	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Cadmium	2	2	34	1.0	<1

Table 24
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	S-SW		Cadmium	1.9	2	1.7	<1	1.1
PGG 2001b	1/22/2001	S-B-1		Chromium	734		270		2.7
PGG 2001b	1/22/2001	S-SN		Chromium	408		270		1.5
PGG 2001b	1/22/2001	S-B-1		Copper	437	3,200	39	<1	11
PGG 2001b	1/22/2001	S-SN		Copper	301	3,200	39	<1	7.7
PGG 2001b	1/22/2001	S-SW		Copper	282	3,200	39	<1	7.2
PGG 2001b	1/22/2001	S-Comp		Copper	197	3,200	39	<1	5.1
PGG 2001b	1/22/2001	S-SE		Copper	133	3,200	39	<1	3.4
PGG 2002	9/24/2001	PbO - SE		Copper	97	3,200	39	<1	2.5
PGG 2002	9/24/2001	PbO - SS		Copper	93	3,200	39	<1	2.4
PGG 2001b	1/22/2001	S-B-2E		Copper	84.1	3,200	39	<1	2.2
PGG 2001b	1/22/2001	S-B-1		Lead	940	250	67	3.8	14
PGG 2001b	1/22/2001	S-13-0-6	0.5	Lead	592	250	1,300	2.4	<1
PGG 2001b	1/22/2001	S-B-2E		Lead	429	250	67	1.7	6.4
PGG 2002	9/24/2001	PbO - SS		Lead	410	250	67	1.6	6.1
PGG 2001b	1/22/2001	S-SN		Lead	313	250	67	1.3	4.7
PGG 2002	9/24/2001	PbO - SE		Lead	170	250	67	<1	2.5
PGG 2001b	1/22/2001	S-Comp		Lead	148	250	67	<1	2.2
PGG 2001b	1/22/2001	S-SE		Lead	145	250	67	<1	2.2
PGG 2001b	1/22/2001	S-SW		Lead	110	250	67	<1	1.6
PGG 2001b	1/22/2001	B2-6-12	1	Silver	18	400	12	<1	1.5
PGG 2001b	1/22/2001	S-B-1		Silver	2.7	400	0.61	<1	4.4
PGG 2001b	1/22/2001	S-SN		Silver	1	400	0.61	<1	1.6
PGG 2001b	1/22/2001	S-SW		Silver	0.8	400	0.61	<1	1.3
PGG 2002	11/19/2001	S-13-Conf	0.5	TCDD	0.0004209	0.000011		38	
PGG 2002	11/19/2001	S-14-Conf	0.5	TCDD	8.07E-05	0.000011		7.3	
PGG 2002	11/19/2001	Bkyd-SE	1	TCDD	0.00008042	0.000011		7.3	
PGG 2002	12/14/2001	Repeat-1-CS-6	1	TCDD	0.000026037	0.000011		2.4	
PGG 2001b	1/22/2001	S-13-0-6	0.5	Zinc	1920	24,000	770	<1	2.5
PGG 2001b	1/22/2001	S-SW		Zinc	211	24,000	38	<1	5.6
PGG 2001b	1/22/2001	S-B-1		Zinc	149	24,000	38	<1	3.9
PGG 2001b	1/22/2001	S-SN		Zinc	119	24,000	38	<1	3.1
PGG 2001b	1/22/2001	S-SE		Zinc	87.6	24,000	38	<1	2.3
PGG 2001b	1/22/2001	S-Comp		Zinc	83.2	24,000	38	<1	2.2
PGG 2002	9/24/2001	PbO - SS		Zinc	74	24,000	38	<1	1.9
PGG 2002	9/24/2001	PbO - SE		Zinc	66	24,000	38	<1	1.7

Table 24
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	S-B-2E		Zinc	64.6	24,000	38	<1	1.7
PGG 2001b	1/22/2001	B3-48-54	4.5	Zinc	42.7	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-B-2S		Zinc	42.5	24,000	38	<1	1.1
Drainage Ditches Adjacent to Property									
PGG 2001b	1/22/2001	S-11-0-6	0.5	2,3,7,8-TCDD TEQ	3.80E-05	0.000011		3.5	
PGG 2001b	1/23/2001	S-12-0-6	0.5	2,3,7,8-TCDD TEQ	2.20E-05	0.000011		2.0	
Ecology 1991e	7/2/1991	Penb-2	Surface	Arsenic	25	0.67	12,000	37	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Arsenic	24	0.67	12,000	36	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Arsenic	13	0.67	12,000	19	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Arsenic	10	0.67	12,000	15	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Arsenic	6.5	0.67	12,000	9.7	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Arsenic	3.3	0.67	12,000	4.9	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(a)anthracene	2.5	1.37	5.4	1.8	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(a)pyrene	5.3	0.137	4.2	39	1.3
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(b)fluoranthene	5.1	1.37	9	3.7	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(g,h,i)perylene	4		1.6		2.5
PGG 2001b	1/22/2001	S-11-0-6	0.5	Bis(2-ethylhexyl)phthalate	9.5	71	1.6	<1	5.9
PGG 2001b	1/23/2001	S-12-0-6	0.5	Bis(2-ethylhexyl)phthalate	4.2	71	1.6	<1	2.6
PGG 2001b	1/22/2001	S-11-0-6	0.5	Butyl benzyl phthalate	1.8	530	1.3	<1	1.4
PGG 2001b	1/22/2001	S-11-0-6	0.5	Cadmium	6.9	2	34	3.5	<1
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	Cadmium	7	2	34	3.4	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Cadmium	3.9	2	34	2.0	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Cadmium	2.4	2	34	1.2	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Dibenzo(a,h)anthracene	1.1	0.137	0.66	8.0	1.7
PGG 2001b	1/23/2001	S-12-0-6	0.5	Indeno(1,2,3-cd)pyrene	4.8	1.37	1.8	3.5	2.7
PGG 2003	1/16/2003	W.Drain-80ft+3ft Ex	3	TCDD	4.40E-05	0.000011		4.0	
PGG 2003	3/7/2002	W. Drain-80 ft Native	0.5	TCDD	3.87E-05	0.000011		3.5	
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	TCDD	2.98E-05	0.000011		2.7	
PGG 2003	3/5/2002	W. Drain-80 ft Excav	0.5	TCDD	1.91E-05	0.000011		1.7	
PGG 2003	9/25/2002	W.Drain-80ft+2ft Excav	0.5	TCDD	1.80E-05	0.000011		1.6	
PGG 2003	9/21/2001	S-11-Downstream	0.5	TCDD	0.000014391	0.000011		1.3	
PGG 2001b	1/23/2001	S-12-0-6	0.5	Zinc	1,260	24,000	770	<1	1.6
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	Zinc	1,100	24,000	770	<1	1.4
PGG 2001b	1/22/2001	S-11-0-6	0.5	Zinc	1080	24,000	770	<1	1.4

Table 24
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟩 Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 6 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 25
Chemicals Detected Above Screening Levels in Soil
Ace Galvanizing

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Cadmium	4	2	34	2.0	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Cadmium	3	2	34	1.5	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Cadmium	3	2	34	1.5	<1
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Lead	653	250	1,300	2.6	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Lead	408	250	1,300	1.6	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Lead	284	250	1,300	1.1	<1
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Total petroleum hydrocarbons	31,000	2,000		16	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Total petroleum hydrocarbons	7,800	2,000		3.9	
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Total petroleum hydrocarbons	2,500	2,000		1.3	
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Total petroleum hydrocarbons	2,300	2,000		1.2	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Zinc	12,100	24,000	770	<1	16
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Zinc	9,030	24,000	770	<1	12
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Zinc	6,330	24,000	770	<1	8.2
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Zinc	5,890	24,000	770	<1	7.6
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Zinc	5,810	24,000	770	<1	7.5
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Zinc	2,330	24,000	770	<1	3.0
Parametrix and SAIC 1991a	5/8/1991	MW01	22	Zinc	116	24,000	38	<1	3.1

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 22 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 26
Chemicals Detected Above Screening Levels in Groundwater
Ace Galvanizing

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/14/1991	MW01	Cadmium	139	5	3.4	28	41
Parametrix and SAIC 1991a	5/14/1991	MW01	Cadmium	126	5	3.4	25	37
Parametrix and SAIC 1991a	5/14/1991	MW01	Chromium	2,870	50	320	57	9.0
Parametrix and SAIC 1991a	5/14/1991	MW01	Chromium	2,750	50	320	55	8.6
Parametrix and SAIC 1991a	5/14/1991	MW01	Copper	850	640	120	1.3	7.1
Parametrix and SAIC 1991a	5/14/1991	MW01	Copper	807	640	120	1.3	6.7
Parametrix and SAIC 1991a	5/14/1991	MW01	Methylene chloride	16	5		3.2	
Parametrix and SAIC 1991a	5/14/1991	MW01	Zinc	1,420,000	4,800	76	296	18,684
Parametrix and SAIC 1991a	5/14/1991	MW01	Zinc	1,350,000	4,800	76	281	17,763

GW - groundwater

ug/L - micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 27
Chemicals Detected Above Screening Levels in Storm Drain Solids
Ace Galvanizing

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SD04	Cadmium	21	5.1	6.7	4.1	3.1
Parametrix and SAIC 1991a	5/8/1991	SD02	Cadmium	11	5.1	6.7	2.2	1.6
Parametrix and SAIC 1991a	5/8/1991	SD04	Lead	1,480	450	530	3.3	2.8
Parametrix and SAIC 1991a	5/8/1991	SD01	Total petroleum hydrocarbons	23,800	2,000		12	
Parametrix and SAIC 1991a	5/8/1991	SD04	Total petroleum hydrocarbons	8,900	2,000		4.5	
Parametrix and SAIC 1991a	5/8/1991	SD02	Total petroleum hydrocarbons	8,000	2,000		4	
Parametrix and SAIC 1991a	5/8/1991	SD04	Zinc	91,100	410	960	222	95
Parametrix and SAIC 1991a	5/8/1991	SD02	Zinc	29,900	410	960	73	31
Parametrix and SAIC 1991a	5/8/1991	SD01	Zinc	12,400	410	960	30	13

mg/kg - milligrams per kilogram
DW - dry weight
SQS - SMS Sediment Quality Standard
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the SQS or CSL. Petroleum hydrocarbons are compared to the MTCA Method A cleanup level.

Appendix A
Sediment Sampling Data
RM 3.8 to 4.2 West

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,6,7,8-HPCDD	3.95E-04	2.78	1.42E-02					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,6,7,8-HPCDD	1.71E-04	3.18	5.38E-03					
EPA Site Inspection	DR284	8/25/1998	1,2,3,4,6,7,8-HPCDD	1.00E-04	2.23	4.48E-03					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,4,6,7,8-HPCDD	6.01E-05	1.88	3.20E-03					
EPA Site Inspection	DR264	8/26/1998	1,2,3,4,6,7,8-HPCDD	5.30E-05	1.48	3.58E-03					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,4,6,7,8-HPCDD	3.95E-05	1.16	3.41E-03					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,6,7,8-HPCDD	2.42E-05	0.587	4.12E-03					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,6,7,8-HPCDD	2.42E-07	0.587	4.12E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,6,7,8-HPCDF	5.17E-05	2.78	1.86E-03					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,6,7,8-HPCDF	2.19E-05	3.18	6.89E-04					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,4,6,7,8-HPCDF	1.40E-05	1.88	7.45E-04					
EPA Site Inspection	DR284	8/25/1998	1,2,3,4,6,7,8-HPCDF	9.80E-06	2.23	4.39E-04					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,4,6,7,8-HPCDF	8.27E-06	1.16	7.13E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,6,7,8-HPCDF	3.85E-06 J	0.587	6.56E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,6,7,8-HPCDF	3.85E-08	0.587	6.56E-06					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,7,8,9-HPCDF	3.32E-06 J	2.78	1.19E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,7,8,9-HPCDF	1.76E-06 J	3.18	5.53E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,4,7,8,9-HPCDF	1.15E-06	1.88	6.12E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,4,7,8,9-HPCDF	5.77E-07	1.16	4.97E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,7,8,9-HPCDF	3.12E-07 J	0.587	5.32E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,7,8,9-HPCDF	3.12E-09	0.587	5.32E-07					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,7,8-HXCDD	5.40E-06	2.78	1.94E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,7,8-HXCDD	1.86E-06 J	3.18	5.85E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,4,7,8-HXCDD	9.11E-07 J	1.88	4.85E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,4,7,8-HXCDD	6.41E-07	1.16	5.53E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,7,8-HXCDD	4.29E-07 J	0.587	7.31E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,7,8-HXCDD	4.29E-08	0.587	7.31E-06					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,7,8-HXCDF	7.20E-06	2.78	2.59E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,4,7,8-HXCDF	3.10E-06 J	3.18	9.75E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,4,7,8-HXCDF	2.60E-06	1.88	1.38E-04					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,4,7,8-HXCDF	1.13E-06	1.16	9.74E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,7,8-HXCDF	5.34E-07 J	0.587	9.10E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,4,7,8-HXCDF	5.34E-08	0.587	9.10E-06					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,6,7,8-HXCDD	2.48E-05	2.78	8.92E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,6,7,8-HXCDD	7.25E-06	3.18	2.28E-04					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,6,7,8-HXCDD	2.87E-06	1.88	1.53E-04					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,6,7,8-HXCDD	2.11E-06	1.16	1.82E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,6,7,8-HXCDD	1.20E-06 J	0.587	2.04E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,6,7,8-HXCDD	1.20E-07	0.587	2.04E-05					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,6,7,8-HXCDF	3.00E-06 J	2.78	1.08E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,6,7,8-HXCDF	1.25E-06 J	3.18	3.93E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,6,7,8-HXCDF	1.16E-06	1.88	6.17E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,6,7,8-HXCDF	5.00E-07	1.16	4.31E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,6,7,8-HXCDF	2.26E-07 J	0.587	3.85E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,6,7,8-HXCDF	2.26E-08	0.587	3.85E-06					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8,9-HXCDD	2.19E-05	2.78	7.88E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8,9-HXCDD	7.40E-06	3.18	2.33E-04					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,7,8,9-HXCDD	2.73E-06	1.88	1.45E-04					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,7,8,9-HXCDD	1.96E-06	1.16	1.69E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,7,8,9-HXCDD	1.11E-06 J	0.587	1.89E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,7,8,9-HXCDD	1.11E-07	0.587	1.89E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8,9-HXCDF	5.26E-07 J	2.78	1.89E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8,9-HXCDF	1.72E-07 J	3.18	5.41E-06					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8-PECDD	7.98E-06	2.78	2.87E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8-PECDD	2.38E-06 J	3.18	7.48E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	1,2,3,7,8-PECDD	6.90E-07 J	1.88	3.67E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,7,8-PECDD	5.68E-07	1.16	4.90E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,7,8-PECDD	3.86E-07 J	0.587	6.58E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	1,2,3,7,8-PECDD	3.86E-07	0.587	6.58E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8-PECDF	4.74E-07 J	2.78	1.71E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	1,2,3,7,8-PECDF	4.63E-07 J	3.18	1.46E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	1,2,3,7,8-PECDF	2.38E-07	1.16	2.05E-05					
LDWRI-Benthic	B10b	8/19/2004	1-Methylnaphthalene	1.90E-03 J	1.09	1.74E-01					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,4,6,7,8-HXCDF	1.93E-06 J	2.78	6.94E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	2,3,4,6,7,8-HXCDF	8.43E-07 J	1.88	4.48E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,4,6,7,8-HXCDF	8.43E-07 J	3.18	2.65E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	2,3,4,6,7,8-HXCDF	3.87E-07	1.16	3.34E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2,3,4,6,7,8-HXCDF	2.04E-07 J	0.587	3.48E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2,3,4,6,7,8-HXCDF	2.04E-08	0.587	3.48E-06					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,4,7,8-PECDF	1.94E-06 J	2.78	6.98E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	2,3,4,7,8-PECDF	9.48E-07	1.88	5.04E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,4,7,8-PECDF	8.76E-07 J	3.18	2.75E-05					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	2,3,4,7,8-PECDF	4.24E-07	1.16	3.66E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2,3,4,7,8-PECDF	2.17E-07 J	0.587	3.70E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2,3,4,7,8-PECDF	6.51E-08	0.587	1.11E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,7,8-TCDD	2.41E-06	2.78	8.67E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,7,8-TCDD	1.07E-06	3.18	3.36E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	2,3,7,8-TCDD	6.06E-07	1.88	3.22E-05					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDW Dioxin Sampling	LDW-SS542	12/17/2009	2,3,7,8-TCDD	3.51E-07	1.16	3.03E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	2,3,7,8-TCDF	9.27E-07 J	1.88	4.93E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,7,8-TCDF	7.28E-07 J	2.78	2.62E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	2,3,7,8-TCDF	6.14E-07 J	3.18	1.93E-05					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2,4,6-Tribromophenol	7.60E-01	0.587	1.29E+02					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	2,4,6-Tribromophenol	7.30E-01	1.25	5.84E+01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	2,4,6-Tribromophenol	7.00E-01	1.56	4.50E+01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	2,4,6-Tribromophenol	6.90E-01	1.75	3.90E+01					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	2,4,6-Tribromophenol	5.90E-01	1.35	4.40E+01					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	2,4,6-Tribromophenol	5.30E-01	1.05	5.00E+01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	2,4,6-Tribromophenol	4.70E-01	0.663	7.09E+01					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	2,4,6-Tribromophenol	4.70E-01	0.926	5.10E+01					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	2,4,6-Tribromophenol	4.40E-01	0.553	7.96E+01					
LDWRI-Benthic	B10b	8/19/2004	2,4'-DDT	6.50E-04 J	1.09	5.96E-02					
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	2,4-Dimethylphenol	1.80E-06 J	2.2		29	29	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	2,4-Dimethylphenol	1.40E-06 J	2.6		29	29	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	2,4-Dimethylphenol	1.30E-06 J	2.4		29	29	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	2,4-Dimethylphenol	1.10E-06 J	2.8		29	29	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	2,4-Dimethylphenol	1.00E-06 J	2.2		29	29	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	2,4-Dimethylphenol	1.00E-06 J	2.8		29	29	ug/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2-Fluorobiphenyl	4.20E-01	0.587	7.20E+01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	2-Fluorobiphenyl	4.10E-01	1.56	2.60E+01					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	2-Fluorobiphenyl	3.90E-01	1.25	3.10E+01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	2-Fluorobiphenyl	3.80E-01	1.75	2.20E+01					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	2-Fluorobiphenyl	3.00E-01	1.35	2.20E+01					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	2-Fluorobiphenyl	2.70E-01	1.05	2.60E+01					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	2-Fluorobiphenyl	2.40E-01	0.926	2.60E+01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	2-Fluorobiphenyl	2.30E-01	0.663	3.50E+01					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	2-Fluorobiphenyl	2.10E-01	0.553	3.80E+01					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2-Fluorophenol	6.00E-01	0.587	1.00E+02					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	2-Fluorophenol	5.90E-01	0.587	1.00E+02					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	2-Fluorophenol	5.90E-01	1.25	4.70E+01					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	2-Fluorophenol	5.60E-01	1.25	4.50E+01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	2-Fluorophenol	5.60E-01	1.56	3.60E+01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	2-Fluorophenol	5.50E-01	1.56	3.50E+01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	2-Fluorophenol	5.50E-01	1.75	3.10E+01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	2-Fluorophenol	5.40E-01	1.75	3.10E+01					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	2-Fluorophenol	4.70E-01	1.35	3.50E+01					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	2-Fluorophenol	4.60E-01	1.35	3.40E+01					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	2-Fluorophenol	4.40E-01	0.926	4.80E+01					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	2-Fluorophenol	4.40E-01	0.926	4.80E+01					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	2-Fluorophenol	4.30E-01	1.05	4.10E+01					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	2-Fluorophenol	4.20E-01	1.05	4.00E+01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	2-Fluorophenol	4.10E-01	0.663	6.20E+01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	2-Fluorophenol	4.10E-01	0.663	6.20E+01					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	2-Fluorophenol	3.80E-01	0.553	6.90E+01					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	2-Fluorophenol	3.70E-01	0.553	6.70E+01					
LDWRI-Benthic	B10b	8/19/2004	2-Methylnaphthalene	2.30E-03 J	1.09	2.11E-01	38	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	2-Methylnaphthalene	1.20E-05 J	2.8	4.29E-04	38	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	2-Methylnaphthalene	1.20E-05 J	2.2	5.45E-04	38	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	2-Methylnaphthalene	6.20E-06 J	2.2	2.82E-04	38	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	2-Methylphenol	1.90E-06 J	2.2		0.063	0.063	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	2-Methylphenol	1.60E-06 J	2.6		0.063	0.063	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	2-Methylphenol	1.50E-06 J	2.4		0.063	0.063	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	2-Methylphenol	1.30E-06 J	2.8		0.063	0.063	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	2-Methylphenol	1.30E-06 J	2.8		0.063	0.063	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	2-Methylphenol	1.10E-06 J	2.2		0.063	0.063	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	4,4'-DDD	3.90E-04 J	1.09	3.58E-02					
LDWRI-Benthic	B10b	8/19/2004	4,4'-DDE	2.80E-04 J	1.09	2.57E-02					
EPA Site Inspection	DR284	8/25/1998	4,4'-DDT	1.10E-02	2.23						
LDWRI-Benthic	B10b	8/19/2004	4,4'-DDT	1.40E-03 J	1.09	1.28E-01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	4-Methylphenol	5.20E-02	1.56	3.30E+00	0.067	0.067	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	4-Methylphenol	3.40E-02	1.1	3.09E+00	0.067	0.067	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	4-Methylphenol	1.50E-05 J	2.2		0.067	0.067	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	4-Methylphenol	1.40E-05 J	2.6		0.067	0.067	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	4-Methylphenol	1.30E-05 J	2.8		0.067	0.067	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	4-Methylphenol	1.30E-05 J	2.8		0.067	0.067	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	4-Methylphenol	1.10E-05 J	2.4		0.067	0.067	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	4-Methylphenol	9.20E-06 J	2.2		0.067	0.067	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Acenaphthene	1.00E-03 J	1.09	9.17E-02	16	57	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Acenaphthene	8.60E-06 J	2.2	3.91E-04	16	57	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Acenaphthene	7.10E-06 J	2.8	2.54E-04	16	57	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Acenaphthylene	1.50E-03 J	1.09	1.38E-01	66	66	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Aluminum	2.40E+04	3.39						
EPA Site Inspection	DR263	8/25/1998	Aluminum	2.27E+04	2.9						
EPA Site Inspection	DR262	9/1/1998	Aluminum	2.25E+04	2.46						
EPA Site Inspection	DR209	8/27/1998	Aluminum	2.20E+04	1.03						
EPA Site Inspection	DR259	8/25/1998	Aluminum	2.11E+04	2.94						

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR284	8/25/1998	Aluminum	1.97E+04	2.23						
EPA Site Inspection	DR211	8/25/1998	Aluminum	1.86E+04	1.56						
EPA Site Inspection	DR258	8/25/1998	Aluminum	1.58E+04	1.55						
EPA Site Inspection	DR264	8/26/1998	Aluminum	1.45E+04	1.48						
EPA Site Inspection	DR210	8/25/1998	Aluminum	1.45E+04	1.45						
S 96th Street WQ Engineering Report	96-8	4/27/1993	Anthracene	2.90E-01 M	2.17	1.34E+01	220	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Anthracene	6.10E-02	2.59	2.40E+00	220	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Anthracene	3.60E-02	2.78	1.30E+00	220	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Anthracene	2.80E-02	0.964	2.90E+00	220	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Anthracene	2.20E-02	1.1	2.00E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Anthracene	2.00E-02	1.45	1.40E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Anthracene	2.00E-02	1.55	1.30E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Anthracene	2.00E-02	2.23	9.00E-01	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Anthracene	2.00E-02	2.94	6.80E-01	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Anthracene	2.00E-02	3.39	5.90E-01	220	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Anthracene	1.40E-02 J	1.56	9.00E-01	220	1200	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Anthracene	4.80E-03	1.88	2.60E-01	220	1200	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Anthracene	4.20E-03 J	1.09	3.85E-01	220	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Anthracene	3.10E-05 J	2.2	1.41E-03	220	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Anthracene	3.00E-05 J	2.4	1.25E-03	220	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Anthracene	2.70E-05 J	2.6	1.04E-03	220	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Anthracene	2.50E-05 J	2.8	8.93E-04	220	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Anthracene	1.50E-05 J	2.2	6.82E-04	220	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Anthracene	1.30E-05 J	2.8	4.64E-04	220	1200	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Antimony	5.00E-01 J	2.17						
LDWRI-Benthic	B10b	8/19/2004	Antimony	9.00E-02 J	1.09	8.26E+00					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Aroclor 1248	7.30E-02	0.553	1.30E+01					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Aroclor 1248	3.10E-02	1.88						
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Aroclor 1248	5.50E-03	1.75	3.10E-01					
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Aroclor 1254	2.90E-01	1.35	2.15E+01					
EPA Site Inspection	DR210	8/25/1998	Aroclor 1254	2.45E-01	1.45	1.69E+01					
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Aroclor 1254	1.70E-01	2.28	7.46E+00					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Aroclor 1254	1.00E-01	0.553	1.80E+01					
Boeing Site Characterization	R20	10/10/1997	Aroclor 1254	9.90E-02	0.82	1.21E+01					
EPA Site Inspection	DR259	8/25/1998	Aroclor 1254	6.80E-02	2.94	2.31E+00					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Aroclor 1254	5.50E-02	1.88						
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Aroclor 1254	4.30E-02	1.47	2.93E+00					
Boeing Site Characterization	R25	10/9/1997	Aroclor 1254	3.90E-02	1.3	3.00E+00					
EPA Site Inspection	DR258	8/25/1998	Aroclor 1254	3.40E-02	1.55	2.19E+00					
EPA Site Inspection	DR284	8/25/1998	Aroclor 1254	3.40E-02	2.23	1.52E+00					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR211	8/25/1998	Aroclor 1254	3.10E-02	1.56	1.99E+00					
EPA Site Inspection	DR209	8/27/1998	Aroclor 1254	3.00E-02	1.03	2.91E+00					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Aroclor 1254	2.90E-02	0.926	3.10E+00					
Boeing Site Characterization	R29	10/9/1997	Aroclor 1254	2.90E-02	1.1	2.64E+00					
EPA Site Inspection	DR285	8/25/1998	Aroclor 1254	2.90E-02	3.39	8.55E-01					
EPA Site Inspection	DR262	9/1/1998	Aroclor 1254	2.80E-02	2.46	1.14E+00					
EPA Site Inspection	DR263	8/25/1998	Aroclor 1254	2.80E-02	2.9	9.66E-01					
EPA Site Inspection	DR264	8/26/1998	Aroclor 1254	2.50E-02	1.48	1.69E+00					
Boeing Site Characterization	R28	10/10/1997	Aroclor 1254	2.40E-02	1.1	2.18E+00					
Boeing Site Characterization	R33	10/9/1997	Aroclor 1254	2.40E-02	1.1	2.18E+00					
Boeing Site Characterization	R37	10/9/1997	Aroclor 1254	2.40E-02	1.1	2.18E+00					
Boeing Site Characterization	R32	10/10/1997	Aroclor 1254	2.40E-02	1.2	2.00E+00					
Boeing Site Characterization	R36	10/10/1997	Aroclor 1254	2.30E-02	1.5	1.53E+00					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Aroclor 1254	2.30E-02	2.78	8.27E-01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Aroclor 1254	2.20E-02	1.56	1.40E+00					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Aroclor 1254	2.10E-02 J	3.18	6.60E-01					
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Aroclor 1254	1.80E-02 J	1.42	1.27E+00					
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Aroclor 1254	1.70E-02 J	2.59	6.56E-01					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Aroclor 1254	1.00E-02	1.05	9.50E-01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Aroclor 1254	9.00E-03	0.663	1.40E+00					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Aroclor 1254	8.50E-03	1.35	6.30E-01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Aroclor 1254	8.40E-03	1.75	4.80E-01					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Aroclor 1254	7.70E-03	1.25	6.20E-01					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Aroclor 1254	6.60E-03	0.587	1.10E+00					
EPA Site Inspection	DR210	8/25/1998	Aroclor 1260	1.30E-01	1.45	8.97E+00					
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Aroclor 1260	8.10E-02	1.35	6.00E+00					
Boeing Site Characterization	R20	10/10/1997	Aroclor 1260	7.10E-02	0.82	8.66E+00					
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Aroclor 1260	7.00E-02	2.28	3.07E+00					
EPA Site Inspection	DR259	8/25/1998	Aroclor 1260	5.50E-02	2.94	1.87E+00					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Aroclor 1260	4.10E-02	1.88						
EPA Site Inspection	DR209	8/27/1998	Aroclor 1260	3.70E-02	1.03	3.59E+00					
Boeing Site Characterization	R25	10/9/1997	Aroclor 1260	3.60E-02	1.3	2.77E+00					
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Aroclor 1260	3.60E-02 J	1.47	2.45E+00					
Boeing Site Characterization	R36	10/10/1997	Aroclor 1260	3.10E-02	1.5	2.07E+00					
EPA Site Inspection	DR258	8/25/1998	Aroclor 1260	2.80E-02	1.55	1.81E+00					
EPA Site Inspection	DR284	8/25/1998	Aroclor 1260	2.70E-02	2.23	1.21E+00					
EPA Site Inspection	DR264	8/26/1998	Aroclor 1260	2.60E-02	1.48	1.76E+00					
EPA Site Inspection	DR211	8/25/1998	Aroclor 1260	2.50E-02	1.56	1.60E+00					
EPA Site Inspection	DR262	9/1/1998	Aroclor 1260	2.40E-02 J	2.46	9.76E-01					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR285	8/25/1998	Aroclor 1260	2.40E-02 J	3.39	7.08E-01					
Boeing Site Characterization	R29	10/9/1997	Aroclor 1260	2.30E-02	1.1	2.09E+00					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Aroclor 1260	2.20E-02	0.553	4.00E+00					
Boeing Site Characterization	R33	10/9/1997	Aroclor 1260	2.20E-02	1.1	2.00E+00					
EPA Site Inspection	DR263	8/25/1998	Aroclor 1260	2.20E-02 J	2.9	7.59E-01					
Boeing Site Characterization	R37	10/9/1997	Aroclor 1260	2.10E-02	1.1	1.91E+00					
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Aroclor 1260	1.90E-02 J	2.59	7.34E-01					
Boeing Site Characterization	R32	10/10/1997	Aroclor 1260	1.80E-02 J	1.2	1.50E+00					
Boeing Site Characterization	R28	10/10/1997	Aroclor 1260	1.70E-02 J	1.1	1.55E+00					
LDWRI-Benthic	B10b	8/19/2004	Aroclor 1260	9.80E-03 J	1.09	8.99E-01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Aroclor 1260	9.70E-03	1.56	6.20E-01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Aroclor 1260	9.70E-03	1.75	5.50E-01					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Aroclor 1260	9.50E-03	0.587	1.60E+00					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Aroclor 1260	7.20E-03	1.05	6.90E-01					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Aroclor 1260	5.80E-03	1.25	4.60E-01					
EPA Site Inspection	DR210	8/25/1998	Arsenic	1.50E+01	1.45		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Arsenic	1.44E+01	1.47		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Arsenic	1.38E+01	2.9		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Arsenic	1.31E+01	1.56		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Arsenic	1.27E+01	2.94		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Arsenic	1.23E+01	3.39		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Arsenic	1.19E+01	0.82		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R32	10/10/1997	Arsenic	1.17E+01	1.2		57	93	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Arsenic	1.16E+01	2.17		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Arsenic	1.15E+01	1.55		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R36	10/10/1997	Arsenic	1.13E+01	1.5		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R28	10/10/1997	Arsenic	1.09E+01	1.1		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R37	10/9/1997	Arsenic	1.05E+01	1.1		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Arsenic	1.04E+01	3.18		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R25	10/9/1997	Arsenic	1.01E+01	1.3		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Arsenic	1.00E+01	1.35		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Arsenic	1.00E+01	1.05		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Arsenic	1.00E+01 J	0.587		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Arsenic	1.00E+01 J	1.75		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Arsenic	1.00E+01	1.48		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Arsenic	1.00E+01	2.59		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Arsenic	9.80E+00	1.03		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Arsenic	9.80E+00	2.28		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Arsenic	9.60E+00	2.78		57	93	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR284	8/25/1998	Arsenic	9.20E+00	2.23		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Arsenic	9.00E+00	0.926		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Arsenic	9.00E+00 J	1.25		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	Arsenic	8.80E+00	1.1		57	93	mg/kg DW	<1	<1
Boeing Site Characterization	R33	10/9/1997	Arsenic	8.70E+00	1.1		57	93	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Arsenic	8.70E+00	2.8		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Arsenic	8.50E+00	2.46		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Arsenic	8.30E+00	1.42		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Arsenic	8.00E+00	0.663		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Arsenic	7.50E+00	1.35		57	93	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Arsenic	7.30E+00	2.4		57	93	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Arsenic	7.10E+00	2.2		57	93	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Arsenic	7.10E+00	2.6		57	93	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Arsenic	7.00E+00	0.553		57	93	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Arsenic	6.70E+00	2.8		57	93	mg/kg DW	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Arsenic	6.40E+00	1.18		57	93	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Arsenic	6.30E+00	2.2		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Arsenic	5.60E+00	1.56		57	93	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Arsenic	5.05E+00 J	1.09		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Arsenic	4.80E+00	0.964		57	93	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Arsenic	3.50E+00	0.39		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Barium	8.20E+01	2.46						
EPA Site Inspection	DR285	8/25/1998	Barium	7.60E+01	3.39						
EPA Site Inspection	DR209	8/27/1998	Barium	7.20E+01	1.03						
EPA Site Inspection	DR263	8/25/1998	Barium	7.20E+01	2.9						
EPA Site Inspection	DR259	8/25/1998	Barium	7.10E+01	2.94						
EPA Site Inspection	DR284	8/25/1998	Barium	6.00E+01	2.23						
EPA Site Inspection	DR211	8/25/1998	Barium	5.80E+01	1.56						
EPA Site Inspection	DR258	8/25/1998	Barium	5.20E+01	1.55						
EPA Site Inspection	DR210	8/25/1998	Barium	4.70E+01	1.45						
EPA Site Inspection	DR264	8/26/1998	Barium	4.40E+01	1.48						
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(a)anthracene	8.60E-01 M	2.17	3.96E+01	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(a)anthracene	1.70E-01	2.78	6.10E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Benzo(a)anthracene	1.30E-01	3.39	3.80E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Benzo(a)anthracene	1.20E-01	2.94	4.10E+00	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Benzo(a)anthracene	1.10E-01	1.42	7.75E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Benzo(a)anthracene	1.10E-01	2.46	4.50E+00	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzo(a)anthracene	1.10E-01	2.59	4.20E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Benzo(a)anthracene	1.00E-01	1.45	6.90E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Benzo(a)anthracene	1.00E-01	2.23	4.50E+00	110	270	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR258	8/25/1998	Benzo(a)anthracene	9.00E-02	1.55	5.80E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Benzo(a)anthracene	8.80E-02	1.1	8.00E+00	110	270	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzo(a)anthracene	8.80E-02	1.56	5.60E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Benzo(a)anthracene	8.70E-02	0.82	1.06E+01	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Benzo(a)anthracene	8.00E-02	2.9	2.76E+00	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(a)anthracene	7.90E-02	3.18	2.50E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Benzo(a)anthracene	7.00E-02	1.48	4.73E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Benzo(a)anthracene	6.10E-02	1.3	4.70E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzo(a)anthracene	5.80E-02	1.1	5.30E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Benzo(a)anthracene	5.50E-02	1.1	5.00E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Benzo(a)anthracene	5.20E-02	1.5	3.50E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Benzo(a)anthracene	5.10E-02	1.1	4.60E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Benzo(a)anthracene	5.00E-02	1.56	3.20E+00	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Benzo(a)anthracene	4.90E-02	0.964	5.10E+00	110	270	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Benzo(a)anthracene	4.10E-02	1.2	3.40E+00	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzo(a)anthracene	3.90E-02	1.47	2.70E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Benzo(a)anthracene	3.00E-02	1.03	2.91E+00	110	270	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Benzo(a)anthracene	2.60E-02	0.926	2.80E+00	110	270	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Benzo(a)anthracene	1.60E-02	1.88	8.50E-01	110	270	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzo(a)anthracene	1.30E-02	1.09	1.19E+00	110	270	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Benzo(a)anthracene	1.20E-02	1.56	7.69E-01	110	270	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Benzo(a)anthracene	1.20E-02 J	1.75	6.90E-01	110	270	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Benzo(a)anthracene	1.70E-04	2.4	7.08E-03	110	270	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Benzo(a)anthracene	1.40E-04	2.2	6.36E-03	110	270	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Benzo(a)anthracene	1.20E-04	2.8	4.29E-03	110	270	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Benzo(a)anthracene	1.20E-04	2.6	4.62E-03	110	270	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Benzo(a)anthracene	1.10E-04	2.8	3.93E-03	110	270	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Benzo(a)anthracene	8.90E-05	2.2	4.05E-03	110	270	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(a)pyrene	1.70E+00 M	2.17	7.83E+01	99	210	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Benzo(a)pyrene	1.30E-01	1.42	9.15E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Benzo(a)pyrene	1.30E-01	1.45	9.00E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Benzo(a)pyrene	1.30E-01	2.94	4.40E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Benzo(a)pyrene	1.20E-01	1.1	1.10E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Benzo(a)pyrene	1.20E-01	1.55	7.70E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Benzo(a)pyrene	1.20E-01	2.23	5.40E+00	99	210	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(a)pyrene	1.20E-01	2.78	4.30E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Benzo(a)pyrene	1.20E-01	3.39	3.50E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Benzo(a)pyrene	1.10E-01	0.82	1.34E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Benzo(a)pyrene	1.10E-01	2.46	4.50E+00	99	210	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzo(a)pyrene	1.00E-01	2.59	3.90E+00	99	210	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzo(a)pyrene	9.00E-02	1.56	5.80E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Benzo(a)pyrene	9.00E-02	2.9	3.10E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Benzo(a)pyrene	7.70E-02	1.3	5.90E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Benzo(a)pyrene	7.00E-02	1.48	4.73E+00	99	210	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(a)pyrene	7.00E-02	3.18	2.20E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Benzo(a)pyrene	6.80E-02	1.5	4.50E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Benzo(a)pyrene	6.60E-02	1.1	6.00E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzo(a)pyrene	6.40E-02	1.1	5.80E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Benzo(a)pyrene	6.10E-02	1.1	5.50E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Benzo(a)pyrene	6.00E-02	1.56	3.80E+00	99	210	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Benzo(a)pyrene	5.70E-02	1.2	4.80E+00	99	210	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzo(a)pyrene	5.20E-02	1.47	3.50E+00	99	210	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Benzo(a)pyrene	4.50E-02	0.964	4.70E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Benzo(a)pyrene	4.00E-02	1.03	3.88E+00	99	210	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Benzo(a)pyrene	2.30E-02	1.56	1.47E+00	99	210	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Benzo(a)pyrene	1.90E-02	1.88	1.00E+00	99	210	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Benzo(a)pyrene	1.70E-02	0.926	1.80E+00	99	210	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzo(a)pyrene	1.60E-02	1.09	1.47E+00	99	210	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Benzo(a)pyrene	1.50E-02 J	1.75	8.60E-01	99	210	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Benzo(a)pyrene	9.90E-03 J	0.587	1.70E+00	99	210	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Benzo(a)pyrene	1.90E-04	2.4	7.92E-03	99	210	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Benzo(a)pyrene	1.50E-04	2.6	5.77E-03	99	210	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Benzo(a)pyrene	1.40E-04	2.2	6.36E-03	99	210	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Benzo(a)pyrene	1.30E-04	2.8	4.64E-03	99	210	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Benzo(a)pyrene	1.10E-04	2.2	5.00E-03	99	210	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Benzo(a)pyrene	1.00E-04	2.8	3.57E-03	99	210	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(b)fluoranthene	8.60E-01 M	2.17	3.96E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(b)fluoranthene	2.40E-01	2.78	8.63E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Benzo(b)fluoranthene	1.80E-01	1.42	1.27E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Benzo(b)fluoranthene	1.80E-01	2.94	6.12E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Benzo(b)fluoranthene	1.60E-01	3.39	4.72E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Benzo(b)fluoranthene	1.50E-01	1.45	1.03E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Benzo(b)fluoranthene	1.50E-01	2.23	6.73E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Benzo(b)fluoranthene	1.40E-01	1.1	1.27E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Benzo(b)fluoranthene	1.40E-01	2.46	5.69E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Benzo(b)fluoranthene	1.30E-01	1.55	8.39E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Benzo(b)fluoranthene	1.30E-01	2.9	4.48E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzo(b)fluoranthene	1.20E-01	2.59	4.63E+00	230	450	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(b)fluoranthene	1.20E-01	3.18	3.77E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Benzo(b)fluoranthene	1.10E-01	0.82	1.34E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Benzo(b)fluoranthene	9.20E-02	1.5	6.13E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzo(b)fluoranthene	9.10E-02	1.47	6.19E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Benzo(b)fluoranthene	8.50E-02	1.3	6.54E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzo(b)fluoranthene	8.30E-02	1.1	7.55E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Benzo(b)fluoranthene	7.60E-02	1.1	6.91E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Benzo(b)fluoranthene	7.50E-02	1.1	6.82E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Benzo(b)fluoranthene	7.00E-02	1.48	4.73E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Benzo(b)fluoranthene	7.00E-02	1.56	4.49E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Benzo(b)fluoranthene	6.40E-02	1.2	5.33E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Benzo(b)fluoranthene	5.50E-02	0.964	5.71E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Benzo(b)fluoranthene	4.00E-02	1.03	3.88E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Benzo(b)fluoranthene	2.90E-02	1.56	1.86E+00	230	450	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzo(b)fluoranthene	2.10E-02	1.09	1.93E+00	230	450	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Benzo(b)fluoranthene	2.00E-02 J	1.88	1.06E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Benzo(b)fluoranthene	6.60E-03 J	1.35	4.89E-01	230	450	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzo(e)pyrene	1.70E-02	1.09	1.56E+00					
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(g,h,i)perylene	8.20E-01 M	2.17	3.78E+01	31	78	mg/kg OC	1.2	<1
Boeing Site Characterization	R29	10/9/1997	Benzo(g,h,i)perylene	1.00E-01	1.1	9.10E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Benzo(g,h,i)perylene	1.00E-01	2.46	4.10E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Benzo(g,h,i)perylene	9.00E-02	1.45	6.20E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Benzo(g,h,i)perylene	8.00E-02	1.55	5.20E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Benzo(g,h,i)perylene	8.00E-02	2.23	3.60E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Benzo(g,h,i)perylene	8.00E-02	2.9	2.76E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Benzo(g,h,i)perylene	8.00E-02	2.94	2.70E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Benzo(g,h,i)perylene	8.00E-02	3.39	2.40E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Benzo(g,h,i)perylene	7.70E-02	0.82	9.39E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Benzo(g,h,i)perylene	6.40E-02	1.3	4.90E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Benzo(g,h,i)perylene	5.50E-02	1.1	5.00E+00	31	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Benzo(g,h,i)perylene	5.40E-02 J	1.42	3.80E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Benzo(g,h,i)perylene	5.30E-02	1.5	3.50E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzo(g,h,i)perylene	5.20E-02	1.1	4.70E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Benzo(g,h,i)perylene	5.00E-02	1.48	3.38E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Benzo(g,h,i)perylene	5.00E-02	1.56	3.20E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Benzo(g,h,i)perylene	4.60E-02	1.1	4.20E+00	31	78	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Benzo(g,h,i)perylene	4.60E-02	1.2	3.80E+00	31	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzo(g,h,i)perylene	3.70E-02	2.59	1.40E+00	31	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(g,h,i)perylene	3.40E-02	2.78	1.20E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Benzo(g,h,i)perylene	3.00E-02	1.03	2.91E+00	31	78	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzo(g,h,i)perylene	2.60E-02	1.47	1.80E+00	31	78	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Benzo(g,h,i)perylene	2.00E-02	1.88	1.10E+00	31	78	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzo(g,h,i)perylene	1.70E-02	1.09	1.56E+00	31	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Benzo(g,h,i)perylene	1.40E-02 J	1.75	8.00E-01	31	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Benzo(g,h,i)perylene	9.90E-03 J	0.926	1.10E+00	31	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Benzo(g,h,i)perylene	1.20E-04	2.4	5.00E-03	31	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Benzo(g,h,i)perylene	1.10E-04	2.6	4.23E-03	31	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Benzo(g,h,i)perylene	1.00E-04	2.8	3.57E-03	31	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Benzo(g,h,i)perylene	9.80E-05	2.8	3.50E-03	31	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Benzo(g,h,i)perylene	9.70E-05	2.2	4.41E-03	31	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Benzo(g,h,i)perylene	8.30E-05	2.2	3.77E-03	31	78	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(k)fluoranthene	4.90E-01 M	2.17	2.26E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzo(k)fluoranthene	1.70E-01	2.59	6.56E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(k)fluoranthene	1.70E-01	2.78	6.12E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Benzo(k)fluoranthene	1.70E-01	2.94	5.78E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Benzo(k)fluoranthene	1.60E-01	3.39	4.72E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Benzo(k)fluoranthene	1.50E-01	1.45	1.03E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Benzo(k)fluoranthene	1.40E-01	2.23	6.28E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Benzo(k)fluoranthene	1.30E-01	0.82	1.59E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Benzo(k)fluoranthene	1.30E-01	1.1	1.18E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Benzo(k)fluoranthene	1.20E-01	1.42	8.45E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Benzo(k)fluoranthene	1.20E-01	2.9	4.14E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Benzo(k)fluoranthene	1.10E-01	1.55	7.10E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Benzo(k)fluoranthene	1.10E-01	2.46	4.47E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Benzo(k)fluoranthene	8.40E-02	1.3	6.46E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Benzo(k)fluoranthene	7.70E-02	1.1	7.00E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Benzo(k)fluoranthene	7.70E-02	1.5	5.13E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Benzo(k)fluoranthene	7.50E-02	1.1	6.82E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Benzo(k)fluoranthene	7.50E-02	1.2	6.25E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzo(k)fluoranthene	7.40E-02	1.1	6.73E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Benzo(k)fluoranthene	7.00E-02	1.48	4.73E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Benzo(k)fluoranthene	7.00E-02	1.56	4.49E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzo(k)fluoranthene	6.50E-02	3.18	2.04E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzo(k)fluoranthene	5.80E-02	1.47	3.95E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Benzo(k)fluoranthene	5.00E-02	0.964	5.19E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Benzo(k)fluoranthene	5.00E-02	1.03	4.85E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Benzo(k)fluoranthene	3.10E-02	1.56	1.99E+00	230	450	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Benzo(k)fluoranthene	2.00E-02 J	1.88	1.06E+00	230	450	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzo(k)fluoranthene	1.80E-02	1.09	1.65E+00	230	450	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzofluoranthenes (total-calc'd)	4.10E-01	2.78	1.50E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Benzofluoranthenes (total-calc'd)	3.50E-01	2.94	1.20E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Benzofluoranthenes (total-calc'd)	3.20E-01	3.39	9.40E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Benzofluoranthenes (total-calc'd)	3.00E-01	1.42	2.11E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Benzofluoranthenes (total-calc'd)	3.00E-01	1.45	2.10E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Benzofluoranthenes (total-calc'd)	2.90E-01	2.23	1.30E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzofluoranthenes (total-calc'd)	2.90E-01	2.59	1.10E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Benzofluoranthenes (total-calc'd)	2.70E-01	1.1	2.50E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Benzofluoranthenes (total-calc'd)	2.50E-01	2.46	1.00E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Benzofluoranthenes (total-calc'd)	2.50E-01	2.9	8.62E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Benzofluoranthenes (total-calc'd)	2.40E-01	0.82	2.93E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Benzofluoranthenes (total-calc'd)	2.40E-01	1.55	1.50E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzofluoranthenes (total-calc'd)	1.90E-01	3.18	6.00E+00	230	450	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzofluoranthenes (total-calc'd)	1.70E-01	1.56	1.10E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Benzofluoranthenes (total-calc'd)	1.69E-01	1.3	1.30E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Benzofluoranthenes (total-calc'd)	1.69E-01	1.5	1.10E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzofluoranthenes (total-calc'd)	1.57E-01	1.1	1.40E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Benzofluoranthenes (total-calc'd)	1.53E-01	1.1	1.40E+01	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Benzofluoranthenes (total-calc'd)	1.50E-01	1.1	1.40E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzofluoranthenes (total-calc'd)	1.49E-01	1.47	1.01E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Benzofluoranthenes (total-calc'd)	1.40E-01	1.48	9.46E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Benzofluoranthenes (total-calc'd)	1.40E-01	1.56	8.97E+00	230	450	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Benzofluoranthenes (total-calc'd)	1.39E-01	1.2	1.20E+01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Benzofluoranthenes (total-calc'd)	1.05E-01	0.964	1.09E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Benzofluoranthenes (total-calc'd)	9.00E-02	1.03	8.74E+00	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Benzofluoranthenes (total-calc'd)	6.00E-02	1.56	3.85E+00	230	450	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Benzofluoranthenes (total-calc'd)	4.00E-02 J	1.88	2.10E+00	230	450	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Benzofluoranthenes (total-calc'd)	3.90E-02	1.09	3.58E+00	230	450	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Benzofluoranthenes (total-calc'd)	3.80E-02	1.75	2.20E+00	230	450	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Benzofluoranthenes (total-calc'd)	3.00E-02	0.926	3.20E+00	230	450	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Benzofluoranthenes (total-calc'd)	2.30E-02	0.587	3.90E+00	230	450	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Benzofluoranthenes (total-calc'd)	2.00E-02	1.25	1.60E+00	230	450	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Benzofluoranthenes (total-calc'd)	1.00E-02 J	1.35	7.40E-01	230	450	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Benzofluoranthenes (total-calc'd)	6.60E-03 J	1.35	4.90E-01	230	450	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Benzofluoranthenes (total-calc'd)	4.10E-04	2.4	1.71E-02	230	450	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Benzofluoranthenes (total-calc'd)	3.20E-04	2.6	1.23E-02	230	450	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Benzofluoranthenes (total-calc'd)	3.10E-04	2.2	1.41E-02	230	450	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Benzofluoranthenes (total-calc'd)	2.80E-04	2.8	1.00E-02	230	450	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Benzofluoranthenes (total-calc'd)	2.60E-04	2.8	9.29E-03	230	450	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Benzofluoranthenes (total-calc'd)	2.50E-04	2.2	1.14E-02	230	450	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Benthic	B10b	8/19/2004	Benzoic acid	3.00E-01	1.09		0.65	0.65	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzoic acid	1.30E-01	2.78		0.65	0.65	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Benzoic acid	1.00E-01 J	1.47		0.65	0.65	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzoic acid	9.70E-02 J	1.56		0.65	0.65	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Benzoic acid	9.00E-02	3.18		0.65	0.65	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Benzoic acid	5.50E-02 J	1.75		0.65	0.65	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Benzoic acid	5.20E-02 J	1.25		0.65	0.65	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Benzoic acid	5.10E-02 J	0.587		0.65	0.65	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterizatior	C4	3/4/1999	Benzoic acid	2.00E-04 J	2.6		0.65	0.65	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Benzoic acid	1.80E-04 J	2.4		0.65	0.65	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Benzoic acid	1.60E-04 J	2.2		0.65	0.65	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Benzoic acid	1.50E-04 J	2.8		0.65	0.65	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Benzoic acid	1.40E-04 J	2.8		0.65	0.65	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Benzoic acid	1.10E-04 J	2.2		0.65	0.65	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzyl alcohol	1.80E-01	1.56		0.057	0.073	mg/kg DW	3.2	2.5
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Benzyl alcohol	5.90E-02	1.75		0.057	0.073	mg/kg DW	1.0	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Benzyl alcohol	4.10E-02	0.587		0.057	0.073	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Benzyl alcohol	3.10E-02	1.35		0.057	0.073	mg/kg DW	<1	<1
Boeing Site Characterization	R33	10/9/1997	Benzyl alcohol	2.30E-02 J	1.1		0.057	0.073	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Benzyl alcohol	2.00E-02	2.59		0.057	0.073	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Benzyl alcohol	1.40E-02	1.05		0.057	0.073	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Benzyl alcohol	1.30E-02	1.25		0.057	0.073	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Benzyl alcohol	6.10E-03	0.663		0.057	0.073	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Benzyl alcohol	2.50E-03 J	0.926		0.057	0.073	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Benzyl alcohol	1.60E-05 J	2.2		0.057	0.073	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Benzyl alcohol	1.40E-05 J	2.8		0.057	0.073	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Benzyl alcohol	1.40E-05 J	2.6		0.057	0.073	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Benzyl alcohol	1.40E-05 J	2.4		0.057	0.073	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Benzyl alcohol	1.10E-05 J	2.8		0.057	0.073	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Benzyl alcohol	7.60E-06 J	2.2		0.057	0.073	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Beryllium	4.30E-01	3.39						
EPA Site Inspection	DR259	8/25/1998	Beryllium	4.10E-01	2.94						
EPA Site Inspection	DR262	9/1/1998	Beryllium	4.10E-01	2.46						
EPA Site Inspection	DR263	8/25/1998	Beryllium	4.10E-01	2.9						
EPA Site Inspection	DR209	8/27/1998	Beryllium	3.90E-01	1.03						
EPA Site Inspection	DR284	8/25/1998	Beryllium	3.90E-01	2.23						
EPA Site Inspection	DR211	8/25/1998	Beryllium	3.40E-01	1.56						
EPA Site Inspection	DR264	8/26/1998	Beryllium	3.10E-01	1.48						
EPA Site Inspection	DR258	8/25/1998	Beryllium	3.00E-01	1.55						

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR210	8/25/1998	Beryllium	2.90E-01	1.45						
S 96th Street WQ Engineering Report	96-8	4/27/1993	Beryllium	2.00E-01	2.17						
LDWRI-Benthic	B10b	8/19/2004	Biphenyl	8.60E-04 J	1.09	7.89E-02					
EPA Site Inspection	DR259	8/25/1998	Bis(2-ethylhexyl)phthalate	6.10E-01	2.94	2.10E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Bis(2-ethylhexyl)phthalate	4.50E-01	3.39	1.30E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Bis(2-ethylhexyl)phthalate	3.90E-01	1.55	2.50E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Bis(2-ethylhexyl)phthalate	3.40E-01	2.23	1.50E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Bis(2-ethylhexyl)phthalate	2.80E-01	2.9	9.66E+00	47	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Bis(2-ethylhexyl)phthalate	2.70E-01	2.78	9.70E+00	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Bis(2-ethylhexyl)phthalate	2.60E-01	2.46	1.10E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Bis(2-ethylhexyl)phthalate	2.20E-01	1.1	2.00E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Bis(2-ethylhexyl)phthalate	2.20E-01	1.5	1.50E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Bis(2-ethylhexyl)phthalate	2.10E-01	1.1	1.90E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Bis(2-ethylhexyl)phthalate	2.10E-01	1.1	1.90E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Bis(2-ethylhexyl)phthalate	2.00E-01	0.82	2.44E+01	47	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Bis(2-ethylhexyl)phthalate	2.00E-01	1.42	1.41E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Bis(2-ethylhexyl)phthalate	2.00E-01	1.45	1.40E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Bis(2-ethylhexyl)phthalate	1.90E-01	1.1	1.70E+01	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Bis(2-ethylhexyl)phthalate	1.80E-01	1.2	1.50E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Bis(2-ethylhexyl)phthalate	1.60E-01	1.03	1.55E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Bis(2-ethylhexyl)phthalate	1.60E-01	1.56	1.00E+01	47	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Bis(2-ethylhexyl)phthalate	1.40E-01	1.47	9.50E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Bis(2-ethylhexyl)phthalate	1.30E-01	1.56	8.30E+00	47	78	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Bis(2-ethylhexyl)phthalate	1.20E-01 J	1.3	9.20E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Bis(2-ethylhexyl)phthalate	3.70E-02	0.587	6.30E+00	47	78	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Bis(2-ethylhexyl)phthalate	3.50E-02 J	1.09	3.21E+00	47	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Bis(2-ethylhexyl)phthalate	3.40E-02	2.28	1.49E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Bis(2-ethylhexyl)phthalate	3.10E-02	1.75	1.80E+00	47	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Bis(2-ethylhexyl)phthalate	2.70E-02	0.964	2.80E+00	47	78	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Bis(2-ethylhexyl)phthalate	2.50E-02	1.56	1.60E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Bis(2-ethylhexyl)phthalate	2.30E-02	0.553	4.20E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Bis(2-ethylhexyl)phthalate	1.90E-02	1.35	1.40E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Bis(2-ethylhexyl)phthalate	1.70E-02 J	1.25	1.40E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Bis(2-ethylhexyl)phthalate	1.60E-02 J	0.926	1.70E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Bis(2-ethylhexyl)phthalate	1.60E-02	1.05	1.50E+00	47	78	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Bis(2-ethylhexyl)phthalate	1.50E-02 J	0.663	2.30E+00	47	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Bis(2-ethylhexyl)phthalate	3.40E-04	2.6	1.31E-02	47	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Bis(2-ethylhexyl)phthalate	3.40E-04	2.2	1.55E-02	47	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Bis(2-ethylhexyl)phthalate	3.40E-04	2.4	1.42E-02	47	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Bis(2-ethylhexyl)phthalate	2.90E-04	2.8	1.04E-02	47	78	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Bis(2-ethylhexyl)phthalate	2.30E-04	2.2	1.05E-02	47	78	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Bis(2-ethylhexyl)phthalate	1.60E-04	2.8	5.71E-03	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Butyl benzyl phthalate	1.00E-01	1.55	6.50E+00	4.9	64	mg/kg OC	1.3	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Butyl benzyl phthalate	7.10E-02	1.56	4.60E+00	4.9	64	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Butyl benzyl phthalate	5.10E-02	1.47	3.50E+00	4.9	64	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Butyl benzyl phthalate	4.60E-02	2.78	1.70E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Butyl benzyl phthalate	4.50E-02 J	1.2	3.80E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Butyl benzyl phthalate	4.00E-02	1.45	2.80E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Butyl benzyl phthalate	4.00E-02	2.94	1.40E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Butyl benzyl phthalate	3.70E-02 J	1.1	3.40E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Butyl benzyl phthalate	3.60E-02 J	1.1	3.30E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Butyl benzyl phthalate	3.40E-02 J	1.1	3.10E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Butyl benzyl phthalate	3.00E-02 J	0.82	3.66E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Butyl benzyl phthalate	3.00E-02	2.9	1.03E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Butyl benzyl phthalate	3.00E-02	3.39	8.80E-01	4.9	64	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Butyl benzyl phthalate	2.70E-02	2.59	1.00E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Butyl benzyl phthalate	2.50E-02 J	1.1	2.30E+00	4.9	64	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Butyl benzyl phthalate	2.40E-02 J	1.5	1.60E+00	4.9	64	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Butyl benzyl phthalate	2.40E-02	1.75	1.40E+00	4.9	64	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Butyl benzyl phthalate	2.30E-02	3.18	7.20E-01	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Butyl benzyl phthalate	2.00E-02	2.23	9.00E-01	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Butyl benzyl phthalate	2.00E-02	2.46	8.10E-01	4.9	64	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Butyl benzyl phthalate	1.00E-02	1.35	7.40E-01	4.9	64	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Butyl benzyl phthalate	8.20E-03	1.25	6.60E-01	4.9	64	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Butyl benzyl phthalate	7.40E-03	0.587	1.30E+00	4.9	64	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Butyl benzyl phthalate	4.40E-03 J	1.09	4.04E-01	4.9	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Butyl benzyl phthalate	5.50E-05	2.4	2.29E-03	4.9	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Butyl benzyl phthalate	5.30E-05	2.2	2.41E-03	4.9	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Butyl benzyl phthalate	5.10E-05	2.6	1.96E-03	4.9	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Butyl benzyl phthalate	3.80E-05 J	2.8	1.36E-03	4.9	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Butyl benzyl phthalate	3.10E-05 J	2.8	1.11E-03	4.9	64	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Butyl benzyl phthalate	3.00E-05 J	2.2	1.36E-03	4.9	64	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Cadmium	1.00E+00	1.56		5.1	6.7	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Cadmium	8.00E-01	2.28		5.1	6.7	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Cadmium	5.00E-01 J	2.17		5.1	7.0	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Cadmium	4.00E-01	3.39		5.1	6.7	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Cadmium	4.00E-01	1.35		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Cadmium	3.70E-01	2.94		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	Cadmium	3.50E-01	2.23		5.1	6.7	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR263	8/25/1998	Cadmium	3.20E-01	2.9		5.1	6.7	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Cadmium	3.00E-01	0.553		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Cadmium	2.10E-01	1.56		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Cadmium	2.00E-01	1.03		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Cadmium	1.90E-01	1.55		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Cadmium	1.70E-01	1.48		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR210	8/25/1998	Cadmium	1.40E-01	1.45		5.1	6.7	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Cadmium	6.80E-02	1.09		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Calcium	6.84E+03	3.39						
EPA Site Inspection	DR262	9/1/1998	Calcium	6.20E+03	2.46						
EPA Site Inspection	DR259	8/25/1998	Calcium	6.07E+03	2.94						
EPA Site Inspection	DR284	8/25/1998	Calcium	5.72E+03	2.23						
EPA Site Inspection	DR211	8/25/1998	Calcium	5.45E+03	1.56						
EPA Site Inspection	DR210	8/25/1998	Calcium	4.80E+03	1.45						
EPA Site Inspection	DR258	8/25/1998	Calcium	4.76E+03	1.55						
EPA Site Inspection	DR209	8/27/1998	Calcium	3.00E+03	1.03						
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Carbazole	2.90E-02	2.59	1.12E+00					
Boeing Site Characterization	R20	10/10/1997	Carbazole	2.50E-02	0.82	3.05E+00					
Boeing Site Characterization	R29	10/9/1997	Carbazole	2.50E-02	1.1	2.27E+00					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Carbazole	2.40E-02	2.78	8.63E-01					
EPA Site Inspection	DR284	8/25/1998	Carbazole	2.00E-02	2.23	8.97E-01					
EPA Site Inspection	DR259	8/25/1998	Carbazole	2.00E-02	2.94	6.80E-01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Carbazole	1.40E-02 J	1.56	8.97E-01					
LDWRI-Benthic	B10b	8/19/2004	Carbazole	3.20E-03 J	1.09	2.94E-01					
EPA Site Inspection	DR284	8/25/1998	Carbon disulfide	1.10E-03 J	2.23	4.93E-02					
S 96th Street WQ Engineering Report	96-8	4/27/1993	Carcinogenic PAHs (calc'd)	6.35E+00	2.17	2.93E+02					
EPA Site Inspection	DR263	8/25/1998	Carcinogenic PAHs (calc'd)	6.60E-01	2.9	2.28E+01					
EPA Site Inspection	DR264	8/26/1998	Carcinogenic PAHs (calc'd)	4.30E-01	1.48	2.91E+01					
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Carcinogenic PAHs (calc'd)	1.90E-01	1.42	1.34E+01					
EPA Site Inspection	DR210	8/25/1998	Carcinogenic PAHs (calc'd)	1.90E-01	1.45	1.31E+01					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Carcinogenic PAHs (calc'd)	1.90E-01	2.78	6.83E+00					
EPA Site Inspection	DR259	8/25/1998	Carcinogenic PAHs (calc'd)	1.90E-01	2.94	6.46E+00					
Boeing Site Characterization	R29	10/9/1997	Carcinogenic PAHs (calc'd)	1.80E-01	1.1	1.64E+01					
EPA Site Inspection	DR285	8/25/1998	Carcinogenic PAHs (calc'd)	1.80E-01	3.39	5.31E+00					
Boeing Site Characterization	R20	10/10/1997	Carcinogenic PAHs (calc'd)	1.70E-01	0.82	2.07E+01					
EPA Site Inspection	DR258	8/25/1998	Carcinogenic PAHs (calc'd)	1.70E-01	1.55	1.10E+01					
EPA Site Inspection	DR284	8/25/1998	Carcinogenic PAHs (calc'd)	1.70E-01	2.23	7.62E+00					
EPA Site Inspection	DR262	9/1/1998	Carcinogenic PAHs (calc'd)	1.60E-01	2.46	6.50E+00					
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Carcinogenic PAHs (calc'd)	1.50E-01	2.59	5.79E+00					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Carcinogenic PAHs (calc'd)	1.30E-01 J	1.56	8.30E+00					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Boeing Site Characterization	R25	10/9/1997	Carcinogenic PAHs (calc'd)	1.20E-01	1.3	9.23E+00					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Carcinogenic PAHs (calc'd)	1.10E-01	3.18	3.46E+00					
Boeing Site Characterization	R36	10/10/1997	Carcinogenic PAHs (calc'd)	1.00E-01	1.5	6.67E+00					
Boeing Site Characterization	R28	10/10/1997	Carcinogenic PAHs (calc'd)	9.70E-02	1.1	8.82E+00					
Boeing Site Characterization	R33	10/9/1997	Carcinogenic PAHs (calc'd)	9.50E-02	1.1	8.64E+00					
Boeing Site Characterization	R37	10/9/1997	Carcinogenic PAHs (calc'd)	9.00E-02	1.1	8.18E+00					
EPA Site Inspection	DR211	8/25/1998	Carcinogenic PAHs (calc'd)	8.90E-02	1.56	5.71E+00					
Boeing Site Characterization	R32	10/10/1997	Carcinogenic PAHs (calc'd)	8.40E-02	1.2	7.00E+00					
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Carcinogenic PAHs (calc'd)	7.80E-02	1.47	5.31E+00					
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Carcinogenic PAHs (calc'd)	6.50E-02	0.964	6.74E+00					
EPA Site Inspection	DR209	8/27/1998	Carcinogenic PAHs (calc'd)	6.10E-02	1.03	5.92E+00					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Carcinogenic PAHs (calc'd)	2.90E-02 J	1.88	1.54E+00					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Carcinogenic PAHs (calc'd)	2.50E-02	0.926	2.70E+00					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Carcinogenic PAHs (calc'd)	2.20E-02 J	1.75	1.30E+00					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Carcinogenic PAHs (calc'd)	1.50E-02 J	0.587	2.60E+00					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Carcinogenic PAHs (calc'd)	1.40E-02 J	1.25	1.10E+00					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Carcinogenic PAHs (calc'd)	1.10E-02 J	1.05	1.00E+00					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Carcinogenic PAHs (calc'd)	1.10E-02 J	1.35	8.10E-01					
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Carcinogenic PAHs (calc'd)	9.70E-03 J	1.35	7.19E-01					
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Carcinogenic PAHs (calc'd)	7.40E-04	2.4						
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Carcinogenic PAHs (calc'd)	5.99E-04 J	2.2						
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Carcinogenic PAHs (calc'd)	5.76E-04 J	2.6						
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Carcinogenic PAHs (calc'd)	5.25E-04 J	2.8						
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Carcinogenic PAHs (calc'd)	4.49E-04	2.8						
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Carcinogenic PAHs (calc'd)	4.23E-04 J	2.2						
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Chromium	1.60E+02	1.56		260	270	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Chromium	4.80E+01	2.17		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Chromium	3.10E+01	3.18		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Chromium	3.00E+01	2.46		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Chromium	3.00E+01	2.78		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Chromium	2.80E+01	3.39		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Chromium	2.80E+01	2.9		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Chromium	2.70E+01	2.59		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Chromium	2.67E+01 J	1.47		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Chromium	2.63E+01	2.28		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R25	10/9/1997	Chromium	2.60E+01 J	1.3		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R33	10/9/1997	Chromium	2.60E+01 J	1.1		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R37	10/9/1997	Chromium	2.60E+01 J	1.1		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	Chromium	2.60E+01	2.23		260	270	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Chromium	2.60E+01 J	1.42		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Chromium	2.58E+01	1.35		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R28	10/10/1997	Chromium	2.50E+01 J	1.1		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	Chromium	2.50E+01 J	1.1		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R32	10/10/1997	Chromium	2.50E+01 J	1.2		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R36	10/10/1997	Chromium	2.50E+01 J	1.5		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Chromium	2.50E+01	2.94		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Chromium	2.47E+01	0.663		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Chromium	2.40E+01	1.56		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Chromium	2.30E+01	1.55		260	270	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Chromium	2.20E+01 J	0.82		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Chromium	2.13E+01	0.964		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Chromium	2.11E+01	1.56		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR210	8/25/1998	Chromium	2.00E+01	1.45		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Chromium	1.97E+01	0.553		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Chromium	1.90E+01	1.48		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Chromium	1.81E+01	0.587		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Chromium	1.72E+01	1.75		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Chromium	1.63E+01	1.25		260	270	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Chromium	1.61E+01	1.09		260	270	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Chromium	1.57E+01	0.39		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Chromium	1.56E+01	0.926		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Chromium	1.54E+01	1.05		260	270	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Chromium	1.44E+01	1.35		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Chromium	1.40E+01	1.03		260	270	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Chrysene	1.00E+00 M	2.17	4.61E+01	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Chrysene	2.70E-01	2.78	9.70E+00	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Chrysene	2.20E-01	1.42	1.55E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Chrysene	1.90E-01	3.39	5.60E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Chrysene	1.80E-01	1.45	1.20E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Chrysene	1.80E-01	2.94	6.10E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Chrysene	1.70E-01	2.23	7.60E+00	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Chrysene	1.60E-01	0.82	1.95E+01	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Chrysene	1.60E-01	1.1	1.50E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Chrysene	1.60E-01	1.55	1.00E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Chrysene	1.60E-01	2.9	5.52E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Chrysene	1.50E-01	2.46	6.10E+00	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Chrysene	1.50E-01	2.59	5.80E+00	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Chrysene	1.20E-01	1.56	7.70E+00	110	460	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Boeing Site Characterization	R25	10/9/1997	Chrysene	1.00E-01	1.3	7.70E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Chrysene	1.00E-01	1.48	6.76E+00	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Chrysene	1.00E-01	1.5	6.70E+00	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Chrysene	1.00E-01	3.18	3.10E+00	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Chrysene	9.60E-02	1.1	8.70E+00	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Chrysene	9.20E-02	1.1	8.40E+00	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Chrysene	8.90E-02	1.1	8.10E+00	110	460	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Chrysene	8.60E-02	1.2	7.20E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Chrysene	8.00E-02	1.56	5.10E+00	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Chrysene	6.60E-02	0.964	6.80E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Chrysene	6.00E-02	1.03	5.83E+00	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Chrysene	5.80E-02	1.47	3.90E+00	110	460	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Chrysene	2.70E-02	1.56	1.73E+00	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Chrysene	2.50E-02	0.926	2.70E+00	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Chrysene	2.40E-02	1.75	1.40E+00	110	460	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Chrysene	2.30E-02	1.09	2.11E+00	110	460	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Chrysene	2.30E-02	1.88	1.20E+00	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Chrysene	1.40E-02 J	0.587	2.40E+00	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Chrysene	1.30E-02 J	1.25	1.00E+00	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Chrysene	8.80E-03 J	1.35	6.50E-01	110	460	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Chrysene	8.00E-03 J	1.05	7.60E-01	110	460	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Chrysene	2.40E-04	2.4	1.00E-02	110	460	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Chrysene	2.10E-04	2.2	9.55E-03	110	460	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Chrysene	1.90E-04	2.6	7.31E-03	110	460	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Chrysene	1.70E-04	2.8	6.07E-03	110	460	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Chrysene	1.40E-04	2.8	5.00E-03	110	460	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Chrysene	1.30E-04	2.2	5.91E-03	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Cobalt	1.10E+01	2.46						
EPA Site Inspection	DR285	8/25/1998	Cobalt	1.10E+01	3.39						
EPA Site Inspection	DR263	8/25/1998	Cobalt	1.00E+01	2.9						
EPA Site Inspection	DR284	8/25/1998	Cobalt	1.00E+01	2.23						
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Cobalt	9.90E+00	2.78						
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Cobalt	9.90E+00	3.18						
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Cobalt	9.60E+00	2.59						
EPA Site Inspection	DR211	8/25/1998	Cobalt	9.00E+00	1.56						
EPA Site Inspection	DR259	8/25/1998	Cobalt	9.00E+00	2.94						
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Cobalt	8.80E+00	2.28						
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Cobalt	8.60E+00	1.47						
EPA Site Inspection	DR258	8/25/1998	Cobalt	8.00E+00	1.55						

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR264	8/26/1998	Cobalt	8.00E+00	1.48						
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Cobalt	8.00E+00	1.56						
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Cobalt	7.70E+00	1.42						
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Cobalt	7.70E+00	1.35						
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Cobalt	7.10E+00	0.964						
EPA Site Inspection	DR210	8/25/1998	Cobalt	7.00E+00	1.45						
LDWRI-Benthic	B10b	8/19/2004	Cobalt	6.90E+00	1.09						
EPA Site Inspection	DR209	8/27/1998	Cobalt	6.00E+00	1.03						
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Cobalt	4.70E+00	0.39						
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Copper	3.34E+02 J	1.56		390	390	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Copper	8.12E+01 J	2.17		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Copper	4.94E+01	2.59		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Copper	4.70E+01	3.39		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Copper	4.69E+01	3.18		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Copper	4.64E+01	2.78		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Copper	4.50E+01	2.94		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Copper	4.40E+01	2.9		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Copper	4.30E+01	2.46		390	390	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Copper	4.20E+01	2.8		390	390	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Copper	4.20E+01	2.4		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Copper	4.15E+01	1.42		390	390	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Copper	4.10E+01	2.8		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R36	10/10/1997	Copper	4.00E+01	1.5		390	390	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Copper	4.00E+01	2.6		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	Copper	3.90E+01	2.23		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Copper	3.88E+01	2.28		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Copper	3.80E+01	1.55		390	390	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Copper	3.80E+01	2.2		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Copper	3.70E+01	1.47		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R37	10/9/1997	Copper	3.60E+01	1.1		390	390	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Copper	3.60E+01	2.2		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R25	10/9/1997	Copper	3.40E+01	1.3		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R32	10/10/1997	Copper	3.40E+01	1.2		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R33	10/9/1997	Copper	3.40E+01	1.1		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R28	10/10/1997	Copper	3.30E+01	1.1		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Copper	3.30E+01	1.56		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Copper	3.20E+01	0.82		390	390	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	Copper	3.20E+01	1.1		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR210	8/25/1998	Copper	3.10E+01	1.45		390	390	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Copper	2.95E+01	1.35		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Copper	2.63E+01	1.56		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Copper	2.60E+01	1.48		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Copper	2.60E+01	1.03		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Copper	2.50E+01	0.39		390	390	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Copper	2.31E+01	0.964		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Copper	2.24E+01 J	0.587		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Copper	2.19E+01 J	1.75		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Copper	1.94E+01	1.05		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Copper	1.92E+01	0.926		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Copper	1.78E+01 J	1.25		390	390	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Copper	1.72E+01	1.09		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Copper	1.71E+01	1.35		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Copper	1.66E+01	0.553		390	390	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Copper	1.53E+01	0.663		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	DDTs (total-calc'd)	1.10E-02	2.23	4.93E-01					
LDWRI-Benthic	B10b	8/19/2004	DDTs (total-calc'd)	2.70E-03 J	1.09	2.48E-01					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Decachlorobiphenyl	7.10E-03	0.587	1.20E+00					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Decachlorobiphenyl	7.10E-03	1.25	5.70E-01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Decachlorobiphenyl	6.90E-03	1.56	4.40E-01					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Decachlorobiphenyl	6.80E-03	0.926	7.30E-01					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Decachlorobiphenyl	6.70E-03	1.05	6.40E-01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Decachlorobiphenyl	6.60E-03	0.663	1.00E+00					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Decachlorobiphenyl	6.60E-03	1.35	4.90E-01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Decachlorobiphenyl	6.50E-03	1.75	3.70E-01					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Decachlorobiphenyl	5.40E-03	0.553	9.80E-01					
S 96th Street WQ Engineering Report	96-8	4/27/1993	Dibenzo(a,h)anthracene	6.80E-01	2.17	3.13E+01	12	33	mg/kg OC	2.6	<1
Boeing Site Characterization	R20	10/10/1997	Dibenzo(a,h)anthracene	4.20E-02	0.82	5.12E+00	12	33	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Dibenzo(a,h)anthracene	4.00E-02	1.1	3.60E+00	12	33	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Dibenzo(a,h)anthracene	2.20E-02	1.3	1.70E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Dibenzo(a,h)anthracene	2.00E-02	1.45	1.40E+00	12	33	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Dibenzo(a,h)anthracene	1.90E-02	1.56	1.20E+00	12	33	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Dibenzo(a,h)anthracene	5.70E-03	1.88	3.00E-01	12	33	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Dibenzo(a,h)anthracene	2.40E-03 J	1.09	2.20E-01	12	33	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Dibenzo(a,h)anthracene	2.00E-05	2.4	8.33E-04	12	33	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Dibenzo(a,h)anthracene	1.60E-05 J	2.6	6.15E-04	12	33	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Dibenzo(a,h)anthracene	1.50E-05 J	2.8	5.36E-04	12	33	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Dibenzo(a,h)anthracene	1.50E-05 J	2.2	6.82E-04	12	33	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Dibenzo(a,h)anthracene	1.30E-05 J	2.2	5.91E-04	12	33	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Benthic	B10b	8/19/2004	Dibenzofuran	1.50E-03 J	1.09	1.38E-01	15	58	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Dibenzofuran	8.50E-06 J	2.2	3.86E-04	15	58	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Dibenzofuran	7.30E-06 J	2.8	2.61E-04	15	58	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Dibenzofuran	5.20E-06 J	2.6	2.00E-04	15	58	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Dibenzofuran	2.90E-06 J	2.4	1.21E-04	15	58	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Dibenzothiophene	8.10E-04 J	1.09	7.43E-02					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Dibutyltin as ion	4.80E-03 J	2.78	1.73E-01					
LDWRI-Benthic	B10b	8/19/2004	Dibutyltin as ion	1.70E-03 J	1.09	1.56E-01					
EPA Site Inspection	DR264	8/26/1998	Dibutyltin as ion	1.00E-03 J	1.48	6.76E-02					
EPA Site Inspection	DR285	8/25/1998	Dimethyl phthalate	8.00E-02	3.39	2.40E+00	53	53	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Dimethyl phthalate	6.60E-02	2.78	2.40E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Dimethyl phthalate	4.00E-02	1.48	2.70E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Dimethyl phthalate	4.00E-02	2.94	1.40E+00	53	53	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Dimethyl phthalate	3.40E-02	3.18	1.10E+00	53	53	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Dimethyl phthalate	3.30E-02	2.59	1.30E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Dimethyl phthalate	3.00E-02	1.45	2.10E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Dimethyl phthalate	3.00E-02	1.55	1.90E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Dimethyl phthalate	3.00E-02	2.23	1.30E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Dimethyl phthalate	3.00E-02	2.46	1.20E+00	53	53	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Dimethyl phthalate	2.20E-02	1.1	2.00E+00	53	53	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Dimethyl phthalate	2.20E-02	1.5	1.50E+00	53	53	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Dimethyl phthalate	4.90E-03	1.56	3.10E-01	53	53	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Dimethyl phthalate	1.50E-04	2.4	6.25E-03	53	53	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Dimethyl phthalate	1.00E-04	2.6	3.85E-03	53	53	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Dimethyl phthalate	9.60E-05	2.2	4.36E-03	53	53	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Dimethyl phthalate	7.20E-05	2.8	2.57E-03	53	53	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Dimethyl phthalate	5.00E-05	2.8	1.79E-03	53	53	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Dimethyl phthalate	3.10E-05 J	2.2	1.41E-03	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Di-n-butyl phthalate	2.00E-02	3.39	5.90E-01	220	1700	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Di-n-butyl phthalate	8.00E-06 J	2.8	2.86E-04	220	1700	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Di-n-Octyl phthalate	1.10E-01	1.56	7.10E+00	58	4500	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Di-n-Octyl phthalate	4.00E-02	2.94	1.40E+00	58	4500	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Di-n-Octyl phthalate	1.40E-02 J	1.75	8.00E-01	58	4500	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Di-n-Octyl phthalate	1.10E-02 J	1.25	8.80E-01	58	4500	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Dioxin/Furan TEQ	2.27E-05 J	2.78	8.17E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Dioxin/Furan TEQ	8.29E-06 J	3.18	2.61E-04					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Dioxin/Furan TEQ	3.73E-06 J	1.88	1.98E-04					
EPA Site Inspection	DR284	8/25/1998	Dioxin/Furan TEQ	2.90E-06	2.23	1.30E-04					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	Dioxin/Furan TEQ	2.35E-06	1.16	2.03E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Dioxin/Furan TEQ	1.30E-06 J	0.587	2.21E-04					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Fluoranthene	6.90E-01	2.78	2.50E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Fluoranthene	4.10E-01	3.39	1.20E+01	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Fluoranthene	4.00E-01	2.59	1.50E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Fluoranthene	3.90E-01	2.9	1.34E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Fluoranthene	3.80E-01	2.23	1.70E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Fluoranthene	3.60E-01	2.94	1.20E+01	160	1200	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Fluoranthene	3.40E-01 M	2.17	1.57E+01	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Fluoranthene	3.20E-01	1.42	2.25E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Fluoranthene	3.00E-01	1.45	2.10E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Fluoranthene	3.00E-01	1.55	1.90E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Fluoranthene	2.50E-01	2.46	1.00E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Fluoranthene	2.30E-01	0.82	2.80E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Fluoranthene	2.30E-01	1.1	2.10E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Fluoranthene	2.10E-01	1.48	1.42E+01	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Fluoranthene	2.10E-01	3.18	6.60E+00	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Fluoranthene	2.00E-01	1.56	1.30E+01	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Fluoranthene	1.60E-01	0.964	1.70E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Fluoranthene	1.60E-01	1.3	1.20E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Fluoranthene	1.50E-01	1.1	1.40E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Fluoranthene	1.50E-01	1.5	1.00E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Fluoranthene	1.40E-01	1.1	1.30E+01	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Fluoranthene	1.40E-01	1.1	1.30E+01	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Fluoranthene	1.30E-01	1.47	8.80E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Fluoranthene	1.30E-01	1.56	8.30E+00	160	1200	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Fluoranthene	1.20E-01	1.2	1.00E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Fluoranthene	1.00E-01	1.03	9.71E+00	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Fluoranthene	4.80E-02	1.56	3.08E+00	160	1200	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Fluoranthene	4.40E-02	1.88	2.30E+00	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Fluoranthene	4.20E-02	1.75	2.40E+00	160	1200	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Fluoranthene	3.50E-02	1.09	3.21E+00	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Fluoranthene	3.20E-02	0.926	3.50E+00	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Fluoranthene	3.00E-02	0.587	5.10E+00	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Fluoranthene	2.80E-02	1.35	2.10E+00	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Fluoranthene	2.10E-02	1.25	1.70E+00	160	1200	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Fluoranthene	2.10E-02	2.28	9.21E-01	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Fluoranthene	1.20E-02 J	1.35	8.90E-01	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Fluoranthene	1.10E-02 J	1.05	1.00E+00	160	1200	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Fluoranthene	7.70E-03 J	0.663	1.20E+00	160	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Fluoranthene	2.40E-04	2.2	1.09E-02	160	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Fluoranthene	1.80E-04	2.8	6.43E-03	160	1200	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Fluoranthene	1.60E-04	2.2	7.27E-03	160	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Fluoranthene	1.60E-04	2.4	6.67E-03	160	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Fluoranthene	9.50E-05	2.6	3.65E-03	160	1200	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Fluoranthene	5.80E-05	2.8	2.07E-03	160	1200	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Fluorene	9.00E-02 M	2.17	4.15E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Fluorene	2.00E-02	3.39	5.90E-01	23	79	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Fluorene	1.40E-03 J	1.09	1.28E-01	23	79	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Fluorene	2.20E-05	2.2	1.00E-03	23	79	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Fluorene	2.10E-05 J	2.8	7.50E-04	23	79	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Fluorene	1.90E-05 J	2.6	7.31E-04	23	79	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Fluorene	1.80E-05 J	2.4	7.50E-04	23	79	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Fluorene	1.60E-05 J	2.8	5.71E-04	23	79	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Fluorene	1.60E-05 J	2.2	7.27E-04	23	79	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Hexachlorobenzene	2.20E-03	1.1	2.00E-01	0.38	2	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Hexachlorobenzene	1.60E-03	2.78	5.80E-02	0.38	2	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Hexachlorobenzene	1.50E-03	1.1	1.40E-01	0.38	2	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Hexachlorobenzene	7.00E-04 J	1.2	5.80E-02	0.38	2	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Hexachlorobenzene	5.00E-04 J	1.1	4.50E-02	0.38	2	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Indeno(1,2,3-cd)pyrene	7.60E-01 M	2.17	3.50E+01	34	88	mg/kg OC	1.0	<1
EPA Site Inspection	DR262	9/1/1998	Indeno(1,2,3-cd)pyrene	1.10E-01	2.46	4.50E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Indeno(1,2,3-cd)pyrene	1.00E-01	1.1	9.10E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Indeno(1,2,3-cd)pyrene	9.00E-02	1.45	6.20E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Indeno(1,2,3-cd)pyrene	9.00E-02	1.55	5.80E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Indeno(1,2,3-cd)pyrene	9.00E-02	2.23	4.00E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Indeno(1,2,3-cd)pyrene	9.00E-02	3.39	2.70E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Indeno(1,2,3-cd)pyrene	8.20E-02	0.82	1.00E+01	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Indeno(1,2,3-cd)pyrene	8.00E-02	2.9	2.76E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Indeno(1,2,3-cd)pyrene	8.00E-02	2.94	2.70E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Indeno(1,2,3-cd)pyrene	6.40E-02	1.3	4.90E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Indeno(1,2,3-cd)pyrene	5.30E-02	1.1	4.80E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Indeno(1,2,3-cd)pyrene	5.20E-02	1.5	3.50E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Indeno(1,2,3-cd)pyrene	5.00E-02	1.48	3.38E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Indeno(1,2,3-cd)pyrene	5.00E-02	1.56	3.20E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Indeno(1,2,3-cd)pyrene	4.90E-02	1.1	4.50E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Indeno(1,2,3-cd)pyrene	4.70E-02	1.2	3.90E+00	34	88	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Indeno(1,2,3-cd)pyrene	4.70E-02	3.18	1.50E+00	34	88	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Indeno(1,2,3-cd)pyrene	4.60E-02	2.59	1.80E+00	34	88	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Indeno(1,2,3-cd)pyrene	4.50E-02	1.1	4.10E+00	34	88	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Indeno(1,2,3-cd)pyrene	4.50E-02	2.78	1.60E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Indeno(1,2,3-cd)pyrene	4.00E-02	1.03	3.88E+00	34	88	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Indeno(1,2,3-cd)pyrene	2.50E-02	1.47	1.70E+00	34	88	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Indeno(1,2,3-cd)pyrene	1.50E-02	1.09	1.38E+00	34	88	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Indeno(1,2,3-cd)pyrene	1.40E-02	1.88	7.40E-01	34	88	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Indeno(1,2,3-cd)pyrene	1.20E-02	1.56	7.69E-01	34	88	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Indeno(1,2,3-cd)pyrene	1.20E-02 J	1.75	6.90E-01	34	88	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Indeno(1,2,3-cd)pyrene	6.50E-03	1.42	4.58E-01	34	88	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Indeno(1,2,3-cd)pyrene	1.20E-04	2.4	5.00E-03	34	88	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Indeno(1,2,3-cd)pyrene	1.00E-04	2.6	3.85E-03	34	88	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Indeno(1,2,3-cd)pyrene	9.90E-05	2.8	3.54E-03	34	88	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Indeno(1,2,3-cd)pyrene	9.40E-05	2.2	4.27E-03	34	88	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Indeno(1,2,3-cd)pyrene	9.00E-05	2.8	3.21E-03	34	88	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Indeno(1,2,3-cd)pyrene	8.10E-05	2.2	3.68E-03	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Iron	3.13E+04	3.39						
EPA Site Inspection	DR263	8/25/1998	Iron	3.10E+04	2.9						
EPA Site Inspection	DR262	9/1/1998	Iron	2.93E+04 J	2.46						
EPA Site Inspection	DR259	8/25/1998	Iron	2.83E+04	2.94						
EPA Site Inspection	DR210	8/25/1998	Iron	2.80E+04	1.45						
EPA Site Inspection	DR211	8/25/1998	Iron	2.67E+04	1.56						
EPA Site Inspection	DR284	8/25/1998	Iron	2.61E+04	2.23						
EPA Site Inspection	DR258	8/25/1998	Iron	2.41E+04	1.55						
EPA Site Inspection	DR209	8/27/1998	Iron	2.40E+04	1.03						
EPA Site Inspection	DR264	8/26/1998	Iron	2.23E+04	1.48						
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Lead	1.10E+02	1.56		450	530	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Lead	7.50E+01	2.17		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Lead	2.29E+01	1.55		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Lead	2.20E+01	2.78		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Lead	2.11E+01	2.94		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Lead	2.10E+01	1.42		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Lead	2.05E+01 J	2.46		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Lead	2.03E+01	3.39		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Lead	2.00E+01	1.35		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Lead	1.90E+01	1.47		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Lead	1.90E+01	3.18		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Lead	1.90E+01	2.59		450	530	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Lead	1.90E+01	2.4		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Lead	1.86E+01	2.9		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Lead	1.80E+01	2.28		450	530	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterizatior	C3	3/4/1999	Lead	1.80E+01	2.8		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR210	8/25/1998	Lead	1.78E+01	1.45		450	530	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR284	8/25/1998	Lead	1.76E+01	2.23		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Lead	1.70E+01	0.82		450	530	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Lead	1.70E+01	2.2		450	530	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Lead	1.60E+01	2.6		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R28	10/10/1997	Lead	1.50E+01	1.1		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R32	10/10/1997	Lead	1.50E+01	1.2		450	530	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Lead	1.50E+01	2.2		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Lead	1.49E+01	1.56		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R25	10/9/1997	Lead	1.40E+01	1.3		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	Lead	1.40E+01	1.1		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R36	10/10/1997	Lead	1.40E+01	1.5		450	530	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Lead	1.40E+01	2.8		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R33	10/9/1997	Lead	1.30E+01	1.1		450	530	mg/kg DW	<1	<1
Boeing Site Characterization	R37	10/9/1997	Lead	1.30E+01	1.1		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Lead	1.30E+01	1.03		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Lead	1.20E+01	0.553		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Lead	1.15E+01 J	1.48		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Lead	1.10E+01	1.56		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Lead	1.10E+01	0.964		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Lead	1.00E+01	0.926		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Lead	1.00E+01	1.75		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Lead	9.00E+00	1.05		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Lead	9.00E+00	0.587		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Lead	8.00E+00	0.663		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Lead	7.00E+00	1.35		450	530	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Lead	7.00E+00	1.25		450	530	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Lead	6.40E+00 J	1.09		450	530	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Lead	4.00E+00	0.39		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Manganese	5.30E+02	1.03						
EPA Site Inspection	DR258	8/25/1998	Manganese	4.15E+02	1.55						
EPA Site Inspection	DR210	8/25/1998	Manganese	3.92E+02	1.45						
EPA Site Inspection	DR264	8/26/1998	Manganese	3.66E+02	1.48						
EPA Site Inspection	DR211	8/25/1998	Manganese	3.61E+02	1.56						
EPA Site Inspection	DR262	9/1/1998	Manganese	3.36E+02	2.46						
EPA Site Inspection	DR285	8/25/1998	Manganese	3.34E+02	3.39						
EPA Site Inspection	DR263	8/25/1998	Manganese	3.29E+02	2.9						
EPA Site Inspection	DR259	8/25/1998	Manganese	3.13E+02	2.94						
EPA Site Inspection	DR284	8/25/1998	Manganese	2.66E+02	2.23						
EPA Site Inspection	DR210	8/25/1998	Mercury	4.60E-01	1.45		0.41	0.59	mg/kg DW	1.1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR259	8/25/1998	Mercury	2.00E-01	2.94		0.41	0.59	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Mercury	1.70E-01	0.82		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	Mercury	1.60E-01	2.23		0.41	0.59	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Mercury	1.60E-01	2.28		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Mercury	1.20E-01	2.9		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Mercury	1.20E-01	1.48		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Mercury	1.10E-01	2.46		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Mercury	1.10E-01	3.39		0.41	0.59	mg/kg DW	<1	<1
Boeing Site Characterization	R37	10/9/1997	Mercury	1.00E-01	1.1		0.41	0.59	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Mercury	1.00E-01	1.42		0.41	0.59	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Mercury	1.00E-01	2.78		0.41	0.59	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Mercury	1.00E-01	2.59		0.41	0.59	mg/kg DW	<1	<1
Boeing Site Characterization	R25	10/9/1997	Mercury	9.00E-02	1.3		0.41	0.59	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	Mercury	9.00E-02	1.1		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Mercury	9.00E-02	1.56		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Mercury	8.00E-02	1.55		0.41	0.59	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Mercury	8.00E-02	1.35		0.41	0.59	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Mercury	8.00E-02	2.17		0.41	1.00	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Mercury	7.00E-02	1.56		0.41	0.59	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Mercury	5.00E-02	0.587		0.41	0.59	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Mercury	4.00E-02	1.75		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Mercury	4.00E-02 J	1.03		0.41	0.59	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Mercury	3.00E-02	0.553		0.41	0.59	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Mercury	3.00E-02	1.56		0.41	0.59	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Mercury	3.00E-02	1.09		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	Methoxychlor	9.00E-03	2.23						
EPA Site Inspection	DR258	8/25/1998	Methoxychlor	7.00E-03	1.55						
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Molybdenum	2.00E+00	1.42	1.41E+02					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Molybdenum	2.00E+00	2.78	7.19E+01					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Molybdenum	2.00E+00	3.18	6.29E+01					
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Molybdenum	1.40E+00	1.47	9.52E+01					
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Molybdenum	1.40E+00	2.28	6.14E+01					
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Molybdenum	1.30E+00	1.35	9.63E+01					
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Molybdenum	1.20E+00	1.56	7.69E+01					
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Molybdenum	1.00E+00	2.59	3.86E+01					
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Molybdenum	9.00E-01	0.964	9.34E+01					
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Molybdenum	8.00E-01	0.39	2.05E+02					
LDWRI-Benthic	B10b	8/19/2004	Molybdenum	3.99E-01	1.09	3.66E+01					
EPA Site Inspection	DR262	9/1/1998	Monobutyltin as ion	6.00E-03 J	2.46	2.44E-01					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors SQS	Exceedance Factors CSL
EPA Site Inspection	DR210	8/25/1998	Monobutyltin as ion	5.00E-03 J	1.45	3.45E-01					
LDWRI-Benthic	B10b	8/19/2004	Monobutyltin as ion	4.60E-04 J	1.09	4.22E-02					
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Naphthalene	1.30E-05 J	2.8	4.64E-04	99	170	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Naphthalene	1.00E-05 J	2.2	4.55E-04	99	170	mg/kg OC	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Nickel	4.50E+01							
Boeing Site Characterization	R37	10/9/1997	Nickel	2.50E+01							
Boeing Site Characterization	R25	10/9/1997	Nickel	2.40E+01							
Boeing Site Characterization	R32	10/10/1997	Nickel	2.40E+01							
Boeing Site Characterization	R33	10/9/1997	Nickel	2.40E+01							
EPA Site Inspection	DR262	9/1/1998	Nickel	2.38E+01 J							
Boeing Site Characterization	R28	10/10/1997	Nickel	2.30E+01							
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Nickel	2.30E+01							
Boeing Site Characterization	R29	10/9/1997	Nickel	2.20E+01							
Boeing Site Characterization	R36	10/10/1997	Nickel	2.20E+01							
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Nickel	2.20E+01							
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Nickel	2.20E+01 J	2.8						
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Nickel	2.20E+01 J	2.8						
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Nickel	2.10E+01 J	2.6						
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Nickel	2.10E+01 J	2.2						
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Nickel	2.10E+01 J	2.4						
EPA Site Inspection	DR284	8/25/1998	Nickel	2.03E+01							
EPA Site Inspection	DR211	8/25/1998	Nickel	2.02E+01							
EPA Site Inspection	DR285	8/25/1998	Nickel	2.01E+01							
EPA Site Inspection	DR263	8/25/1998	Nickel	2.00E+01							
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Nickel	2.00E+01							
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Nickel	2.00E+01							
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Nickel	2.00E+01 J	2.2						
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Nickel	1.90E+01							
EPA Site Inspection	DR259	8/25/1998	Nickel	1.84E+01							
Boeing Site Characterization	R20	10/10/1997	Nickel	1.80E+01							
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Nickel	1.80E+01							
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Nickel	1.80E+01							
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Nickel	1.80E+01							
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Nickel	1.80E+01							
EPA Site Inspection	DR258	8/25/1998	Nickel	1.66E+01							
EPA Site Inspection	DR264	8/26/1998	Nickel	1.59E+01 J							
EPA Site Inspection	DR210	8/25/1998	Nickel	1.52E+01							
LDWRI-Benthic	B10b	8/19/2004	Nickel	1.14E+01							
EPA Site Inspection	DR209	8/27/1998	Nickel	9.10E+00							
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Nickel	8.00E+00							

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	N-Nitrosodiphenylamine	8.00E-03	2.28	3.51E-01	11	11	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	OCDD	2.06E-03	2.78	7.41E-02					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	OCDD	1.16E-03	3.18	3.65E-02					
EPA Site Inspection	DR284	8/25/1998	OCDD	1.10E-03	2.23	4.93E-02					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	OCDD	5.48E-04	1.88	2.91E-02					
EPA Site Inspection	DR264	8/26/1998	OCDD	5.30E-04	1.48	3.58E-02					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	OCDD	3.67E-04	1.16	3.16E-02					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	OCDD	2.35E-04	0.587	4.00E-02					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	OCDD	7.05E-08	0.587	1.20E-05					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	OCDF	7.39E-05	2.78	2.66E-03					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	OCDF	5.33E-05	3.18	1.68E-03					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	OCDF	4.60E-05	1.88	2.45E-03					
LDW Dioxin Sampling	LDW-SS542	12/17/2009	OCDF	2.73E-05	1.16	2.35E-03					
EPA Site Inspection	DR284	8/25/1998	OCDF	2.70E-05	2.23	1.21E-03					
EPA Site Inspection	DR264	8/26/1998	OCDF	2.20E-05	1.48	1.49E-03					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	OCDF	9.97E-06 J	0.587	1.70E-03					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	OCDF	2.99E-09	0.587	5.09E-07					
EPA Site Inspection	DR210	8/25/1998	PCBs (total calc'd)	3.80E-01	1.45	2.60E+01	12	65	mg/kg OC	2.2	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	PCBs (total calc'd)	3.70E-01	1.35	2.70E+01	12	65	mg/kg OC	2.3	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	PCBs (total calc'd)	2.40E-01	2.28	1.05E+01	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	PCBs (total calc'd)	2.00E-01	0.553	3.60E+01	12	65	mg/kg OC	3	<1
Boeing Site Characterization	R20	10/10/1997	PCBs (total calc'd)	1.70E-01	0.82	2.07E+01	12	65	mg/kg OC	1.7	<1
EPA Site Inspection	DR259	8/25/1998	PCBs (total calc'd)	1.23E-01	2.94	4.18E+00	12	65	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	PCBs (total calc'd)	7.90E-02 J	1.47	5.40E+00	12	65	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	PCBs (total calc'd)	7.50E-02	1.3	5.80E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	PCBs (total calc'd)	6.70E-02	1.03	6.50E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	PCBs (total calc'd)	6.20E-02	1.55	4.00E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	PCBs (total calc'd)	6.10E-02	2.23	2.70E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST315	11/12/1997	PCBs (total calc'd)	6.00E-02 J	1.73	3.00E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	PCBs (total calc'd)	5.60E-02	1.56	3.60E+00	12	65	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	PCBs (total calc'd)	5.40E-02	1.5	3.60E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST314	10/1/1997	PCBs (total calc'd)	5.40E-02 J	2.15	2.50E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	PCBs (total calc'd)	5.30E-02 J	3.39	1.60E+00	12	65	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	PCBs (total calc'd)	5.20E-02	1.1	4.70E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	PCBs (total calc'd)	5.20E-02 J	2.46	2.10E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST311	11/13/1997	PCBs (total calc'd)	5.00E-02 J	2.84	2.00E+00	12	65	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	PCBs (total calc'd)	4.60E-02	1.1	4.20E+00	12	65	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	PCBs (total calc'd)	4.50E-02	1.1	4.10E+00	12	65	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	PCBs (total calc'd)	4.20E-02 J	1.2	3.50E+00	12	65	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Boeing Site Characterization	R28	10/10/1997	PCBs (total calc'd)	4.10E-02 J	1.1	3.70E+00	12	65	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	PCBs (total calc'd)	3.60E-02 J	2.59	1.40E+00	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	PCBs (total calc'd)	3.20E-02	1.56	2.10E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WIT263[a]	10/16/1997	PCBs (total calc'd)	3.20E-02 J	0.42		0.13	10	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	PCBs (total calc'd)	2.90E-02	0.926	3.10E+00	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	PCBs (total calc'd)	2.40E-02	1.75	1.40E+00	12	65	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	PCBs (total calc'd)	2.30E-02	2.78	8.30E-01	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST312	10/23/1997	PCBs (total calc'd)	2.10E-02 J	1.74	1.20E+00	12	65	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	PCBs (total calc'd)	2.10E-02 J	3.18	6.60E-01	12	65	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	PCBs (total calc'd)	1.80E-02 J	1.42	1.27E+00	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	PCBs (total calc'd)	1.70E-02	1.05	1.60E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WIT262[a]	10/16/1997	PCBs (total calc'd)	1.70E-02 J	0.39		0.13	10	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	PCBs (total calc'd)	1.60E-02	0.587	2.70E+00	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	PCBs (total calc'd)	1.40E-02	1.25	1.10E+00	12	65	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	PCBs (total calc'd)	9.80E-03 J	1.09	8.99E-01	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	PCBs (total calc'd)	9.00E-03	0.663	1.40E+00	12	65	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	PCBs (total calc'd)	8.50E-03	1.35	6.30E-01	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WIT268[a]	10/14/1997	PCBs (total calc'd)	7.10E-03 J	0.05		0.13	10	mg/kg DW	<1	<1
NOAA Site Characterization	WIT258	10/1/1997	PCBs (total-calc'd)	3.40E-01	1.59	2.14E+01	12	65	mg/kg OC	1.8	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	PCBs (total-calc'd)	1.27E-01	1.88	6.76E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WIT259	10/1/1997	PCBs (total-calc'd)	5.10E-02	0.67	7.61E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	PCBs (total-calc'd)	5.10E-02	1.48	3.45E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	PCBs (total-calc'd)	5.00E-02	2.9	1.72E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WIT264	10/2/1997	PCBs (total-calc'd)	4.90E-02 J	0.79	6.20E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST308	10/1/1997	PCBs (total-calc'd)	2.30E-02	0.9	2.56E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST309	10/1/1997	PCBs (total-calc'd)	1.60E-02	0.93	1.72E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST315	11/12/1997	PCBs + PCTs (total)	7.00E-02	1.73						
NOAA Site Characterization	WST314	10/1/1997	PCBs + PCTs (total)	6.50E-02	2.15						
NOAA Site Characterization	WST311	11/13/1997	PCBs + PCTs (total)	5.70E-02	2.84						
NOAA Site Characterization	WIT264	10/2/1997	PCBs + PCTs (total)	4.90E-02	0.79						
NOAA Site Characterization	WIT263[a]	10/16/1997	PCBs + PCTs (total)	3.70E-02	0.42						
NOAA Site Characterization	WST312	10/23/1997	PCBs + PCTs (total)	2.70E-02	1.74						
NOAA Site Characterization	WIT262[a]	10/16/1997	PCBs + PCTs (total)	2.00E-02	0.39						
NOAA Site Characterization	WIT268	10/14/1997	PCBs + PCTs (total)	7.10E-03	0.05						
NOAA Site Characterization	WIT258	10/1/1997	PCTs (total)	1.80E-02	1.59	1.13E+00					
NOAA Site Characterization	WST314	10/1/1997	PCTs (total)	1.10E-02	2.15						
NOAA Site Characterization	WST315	11/12/1997	PCTs (total)	1.00E-02	1.73						
NOAA Site Characterization	WST308	10/1/1997	PCTs (total)	7.90E-03 J	0.9	8.78E-01					
NOAA Site Characterization	WST311	11/13/1997	PCTs (total)	7.20E-03 J	2.84						

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
NOAA Site Characterization	WST312	10/23/1997	PCTs (total)	5.80E-03 J	1.74						
NOAA Site Characterization	WIT263[a]	10/16/1997	PCTs (total)	5.00E-03 J	0.42						
NOAA Site Characterization	WIT262[a]	10/16/1997	PCTs (total)	2.80E-03 J	0.39						
NOAA Site Characterization	WIT259	10/1/1997	PCTs (total)	2.20E-03 J	0.67	3.28E-01					
EPA Site Inspection	DR284	8/25/1998	Pentachlorophenol	3.00E-01 J	2.23	1.35E+01	360	690	ug/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Pentachlorophenol	1.40E-02 J	1.56	8.97E-01	360	690	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Pentachlorophenol	5.50E-06 J	2.4		360	690	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Pentachlorophenol	3.80E-06 J	2.6		360	690	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Pentachlorophenol	3.20E-06 J	2.8		360	690	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Pentachlorophenol	2.70E-06 J	2.2		360	690	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Pentachlorophenol	2.50E-06 J	2.8		360	690	ug/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Pentachlorophenol	2.40E-06 J	2.2		360	690	ug/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Perylene	1.50E-02	1.09	1.38E+00					
S 96th Street WQ Engineering Report	96-8	4/27/1993	Phenanthrene	1.50E+00 M	2.17	6.91E+01	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Phenanthrene	2.10E-01	1.55	1.40E+01	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Phenanthrene	1.90E-01	2.23	8.50E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Phenanthrene	1.60E-01	2.9	5.52E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Phenanthrene	1.50E-01	0.82	1.83E+01	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Phenanthrene	1.50E-01	3.39	4.40E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Phenanthrene	1.40E-01	1.1	1.30E+01	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Phenanthrene	1.30E-01	1.45	9.00E+00	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Phenanthrene	1.30E-01	2.78	4.70E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Phenanthrene	1.30E-01	2.94	4.40E+00	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Phenanthrene	1.20E-01	0.964	1.20E+01	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Phenanthrene	1.00E-01	1.42	7.04E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Phenanthrene	1.00E-01	2.46	4.10E+00	100	480	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Phenanthrene	9.90E-02	1.56	6.30E+00	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Phenanthrene	9.10E-02	2.59	3.50E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Phenanthrene	7.50E-02	1.3	5.80E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Phenanthrene	7.00E-02	1.48	4.73E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Phenanthrene	6.90E-02	1.1	6.30E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Phenanthrene	6.80E-02	1.5	4.50E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Phenanthrene	6.50E-02	1.1	5.90E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Phenanthrene	6.20E-02	1.1	5.60E+00	100	480	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Phenanthrene	5.50E-02	1.2	4.60E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Phenanthrene	5.00E-02	1.03	4.85E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Phenanthrene	5.00E-02	1.56	3.20E+00	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Phenanthrene	4.90E-02	3.18	1.50E+00	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Phenanthrene	4.10E-02	1.47	2.80E+00	100	480	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Phenanthrene	2.10E-02	1.75	1.20E+00	100	480	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Phenanthrene	2.00E-02	1.56	1.28E+00	100	480	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Phenanthrene	1.70E-02	1.88	9.00E-01	100	480	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Phenanthrene	1.50E-02	1.09	1.38E+00	100	480	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Phenanthrene	1.30E-02 J	0.587	2.20E+00	100	480	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Phenanthrene	1.90E-04	2.2	8.64E-03	100	480	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Phenanthrene	1.40E-04	2.6	5.38E-03	100	480	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Phenanthrene	1.40E-04	2.4	5.83E-03	100	480	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Phenanthrene	1.30E-04	2.8	4.64E-03	100	480	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Phenanthrene	1.00E-04	2.2	4.55E-03	100	480	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Phenanthrene	6.20E-05	2.8	2.21E-03	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Phenol	4.30E-01	1.03	4.17E+01	0.42	1.2	mg/kg DW	1.0	<1
EPA Site Inspection	DR258	8/25/1998	Phenol	1.40E-01 J	1.55	9.03E+00	0.42	1.2	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Phenol	5.70E-02	0.82	6.95E+00	0.42	1.2	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Phenol	3.40E-02	1.35	2.52E+00	0.42	1.2	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Phenol	2.60E-02	1.56	1.70E+00	0.42	1.2	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Phenol	1.20E-02 J	1.35	8.90E-01	0.42	1.2	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Phenol	1.20E-02 J	1.75	6.90E-01	0.42	1.2	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterizatior	C5	3/4/1999	Phenol	1.50E-05 J	2.2		0.42	1.2	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Phenol	1.30E-05 J	2.6		0.42	1.2	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Phenol	1.20E-05 J	2.4		0.42	1.2	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Phenol	1.10E-05 J	2.8		0.42	1.2	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Phenol	1.00E-05 J	2.8		0.42	1.2	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Phenol	9.20E-06 J	2.2		0.42	1.2	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Pyrene	2.60E+00 M	2.17	1.20E+02	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Pyrene	4.00E-01	2.78	1.40E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Pyrene	3.30E-01	3.39	9.70E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Pyrene	3.20E-01	2.94	1.10E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Pyrene	3.00E-01	2.23	1.30E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Pyrene	3.00E-01	2.9	1.03E+01	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Pyrene	2.80E-01	1.42	1.97E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Pyrene	2.70E-01	1.1	2.50E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Pyrene	2.60E-01	1.55	1.70E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Pyrene	2.60E-01	2.46	1.10E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Pyrene	2.50E-01	1.45	1.70E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Pyrene	2.40E-01	0.82	2.93E+01	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Pyrene	2.20E-01	2.59	8.50E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Pyrene	1.80E-01	1.48	1.22E+01	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Pyrene	1.80E-01	1.56	1.20E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Pyrene	1.70E-01	1.1	1.50E+01	1000	1400	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Boeing Site Characterization	R36	10/10/1997	Pyrene	1.70E-01	1.5	1.10E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Pyrene	1.50E-01	1.1	1.40E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Pyrene	1.50E-01	1.1	1.40E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Pyrene	1.50E-01	1.3	1.20E+01	1000	1400	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Pyrene	1.40E-01	1.2	1.20E+01	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Pyrene	1.40E-01	1.47	9.50E+00	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Pyrene	1.30E-01	3.18	4.10E+00	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Pyrene	1.20E-01	0.964	1.20E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Pyrene	1.20E-01	1.56	7.70E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Pyrene	9.00E-02	1.03	8.74E+00	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Pyrene	4.30E-02	1.56	2.76E+00	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Pyrene	3.90E-02	1.75	2.20E+00	1000	1400	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Pyrene	3.20E-02	1.09	2.94E+00	1000	1400	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Pyrene	3.20E-02	1.88	1.70E+00	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Pyrene	2.80E-02	0.587	4.80E+00	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Pyrene	2.50E-02	2.28	1.10E+00	1000	1400	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Pyrene	2.10E-02	1.35	1.60E+00	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Pyrene	1.50E-02 J	0.926	1.60E+00	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Pyrene	1.20E-02 J	1.35	8.90E-01	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Pyrene	1.10E-02 J	1.05	1.00E+00	1000	1400	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Pyrene	7.70E-03 J	0.663	1.20E+00	1000	1400	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Pyrene	4.30E-04	2.4	1.79E-02	1000	1400	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Pyrene	3.20E-04	2.2	1.45E-02	1000	1400	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Pyrene	3.00E-04	2.8	1.07E-02	1000	1400	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Pyrene	3.00E-04	2.6	1.15E-02	1000	1400	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Pyrene	2.40E-04	2.2	1.09E-02	1000	1400	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Pyrene	2.20E-04	2.8	7.86E-03	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Selenium	2.30E+01 J	2.46						
EPA Site Inspection	DR209	8/27/1998	Selenium	1.30E+01	1.03						
EPA Site Inspection	DR259	8/25/1998	Selenium	1.10E+01 J	2.94						
EPA Site Inspection	DR285	8/25/1998	Selenium	1.10E+01	3.39						
EPA Site Inspection	DR263	8/25/1998	Selenium	1.00E+01	2.9						
EPA Site Inspection	DR264	8/26/1998	Selenium	1.00E+01	1.48						
EPA Site Inspection	DR210	8/25/1998	Selenium	9.00E+00 J	1.45						
EPA Site Inspection	DR211	8/25/1998	Selenium	9.00E+00 J	1.56						
EPA Site Inspection	DR284	8/25/1998	Selenium	9.00E+00 J	2.23						
EPA Site Inspection	DR258	8/25/1998	Selenium	8.00E+00 J	1.55						
LDWRI-Benthic	B10b	8/19/2004	Selenium	7.00E-01 J	1.09						
EPA Site Inspection	DR209	8/27/1998	Silver	2.90E-01	1.03		6.1	6.1	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR284	8/25/1998	Silver	2.90E-01	2.23		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Silver	2.30E-01	2.94		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Silver	2.20E-01	3.39		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Silver	2.10E-01	2.9		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Silver	1.70E-01	2.46		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR211	8/25/1998	Silver	1.60E-01	1.56		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR210	8/25/1998	Silver	1.50E-01	1.45		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Silver	1.50E-01	1.55		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Silver	7.00E-02	1.48		6.1	6.1	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Silver	5.50E-02	1.09		6.1	6.1	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Tetrachlorometaxylene	6.90E-03	0.587	1.20E+00					
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Tetrachlorometaxylene	6.80E-03	1.05	6.50E-01					
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Tetrachlorometaxylene	6.80E-03	1.25	5.40E-01					
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Tetrachlorometaxylene	6.60E-03	1.56	4.20E-01					
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Tetrachlorometaxylene	6.40E-03	0.926	6.90E-01					
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Tetrachlorometaxylene	6.40E-03	1.35	4.70E-01					
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Tetrachlorometaxylene	6.40E-03	1.75	3.70E-01					
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Tetrachlorometaxylene	6.30E-03	0.663	9.50E-01					
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Tetrachlorometaxylene	5.40E-03	0.553	9.80E-01					
EPA Site Inspection	DR262	9/1/1998	Thallium	1.20E-01 J	2.46						
EPA Site Inspection	DR284	8/25/1998	Thallium	1.10E-01	2.23						
EPA Site Inspection	DR259	8/25/1998	Thallium	1.00E-01	2.94						
EPA Site Inspection	DR285	8/25/1998	Thallium	1.00E-01	3.39						
EPA Site Inspection	DR263	8/25/1998	Thallium	8.00E-02	2.9						
EPA Site Inspection	DR211	8/25/1998	Thallium	6.00E-02	1.56						
EPA Site Inspection	DR264	8/26/1998	Thallium	5.00E-02	1.48						
EPA Site Inspection	DR210	8/25/1998	Thallium	4.00E-02	1.45						
EPA Site Inspection	DR258	8/25/1998	Thallium	4.00E-02	1.55						
EPA Site Inspection	DR209	8/27/1998	Thallium	4.00E-02 J	1.03						
LDWRI-Benthic	B10b	8/19/2004	Thallium	4.00E-02	1.09						
EPA Site Inspection	DR210	8/25/1998	Tin	3.00E+00	1.45						
S 96th Street WQ Engineering Report	96-8	4/27/1993	Total HPAH (calc'd)	1.01E+01 M	2.17	4.66E+02	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Total HPAH (calc'd)	2.14E+00	2.78	7.70E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Total HPAH (calc'd)	1.67E+00	3.39	4.93E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Total HPAH (calc'd)	1.62E+00	2.94	5.51E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Total HPAH (calc'd)	1.53E+00	2.23	6.86E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Total HPAH (calc'd)	1.46E+00	1.45	1.01E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Total HPAH (calc'd)	1.43E+00	2.9	4.93E+01	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Total HPAH (calc'd)	1.42E+00 J	1.42	1.00E+02	960	5300	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
Boeing Site Characterization	R29	10/9/1997	Total HPAH (calc'd)	1.38E+00	1.1	1.30E+02	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Total HPAH (calc'd)	1.35E+00	2.59	5.21E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Total HPAH (calc'd)	1.34E+00	1.55	8.65E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Total HPAH (calc'd)	1.34E+00	2.46	5.45E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Total HPAH (calc'd)	1.27E+00	0.82	1.55E+02	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Total HPAH (calc'd)	9.90E-01 J	1.56	6.30E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Total HPAH (calc'd)	8.70E-01	1.3	6.70E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Total HPAH (calc'd)	8.70E-01	1.48	5.88E+01	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Total HPAH (calc'd)	8.20E-01	3.18	2.60E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Total HPAH (calc'd)	8.10E-01	1.5	5.40E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Total HPAH (calc'd)	8.00E-01	1.1	7.30E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Total HPAH (calc'd)	7.60E-01	1.1	6.90E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Total HPAH (calc'd)	7.30E-01	1.1	6.60E+01	960	5300	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Total HPAH (calc'd)	6.80E-01	1.2	5.70E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Total HPAH (calc'd)	6.80E-01	1.56	4.40E+01	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Total HPAH (calc'd)	6.20E-01	1.47	4.20E+01	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Total HPAH (calc'd)	5.50E-01	0.964	5.70E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Total HPAH (calc'd)	4.80E-01	1.03	4.66E+01	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Total HPAH (calc'd)	2.25E-01	1.56	1.44E+01	960	5300	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total HPAH (calc'd)	2.14E-01 J	1.88	1.14E+01	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Total HPAH (calc'd)	2.00E-01 J	1.75	1.10E+01	960	5300	mg/kg OC	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Total HPAH (calc'd)	1.92E-01 J	1.09	1.76E+01	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Total HPAH (calc'd)	1.50E-01 J	0.926	1.60E+01	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total HPAH (calc'd)	1.00E-01 J	0.587	1.70E+01	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Total HPAH (calc'd)	7.40E-02 J	1.25	5.90E+00	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Total HPAH (calc'd)	5.60E-02 J	1.35	4.10E+00	960	5300	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Total HPAH (calc'd)	4.60E-02	2.28	2.02E+00	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Total HPAH (calc'd)	4.30E-02 J	1.35	3.20E+00	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Total HPAH (calc'd)	3.00E-02 J	1.05	2.90E+00	960	5300	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Total HPAH (calc'd)	1.50E-02 J	0.663	2.30E+00	960	5300	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Total HPAH (calc'd)	1.86E-03	2.4	7.75E-02	960	5300	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Total HPAH (calc'd)	1.49E-03	2.2	6.75E-02	960	5300	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Total HPAH (calc'd)	1.40E-03	2.6	5.39E-02	960	5300	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Total HPAH (calc'd)	1.38E-03	2.8	4.94E-02	960	5300	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Total HPAH (calc'd)	1.24E-03	2.2	5.62E-02	960	5300	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Total HPAH (calc'd)	1.09E-03	2.8	3.88E-02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Total HpCDD	3.10E-04	2.23	1.39E-02					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total HpCDD	1.34E-04	1.88	7.13E-03					
EPA Site Inspection	DR264	8/26/1998	Total HpCDD	1.20E-04	1.48	8.11E-03					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total HpCDD	5.33E-05	0.587	9.08E-03					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total HpCDF	4.60E-05	1.88	2.45E-03					
EPA Site Inspection	DR284	8/25/1998	Total HpCDF	3.70E-05	2.23	1.66E-03					
EPA Site Inspection	DR264	8/26/1998	Total HpCDF	1.80E-05	1.48	1.22E-03					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total HpCDF	1.21E-05	0.587	2.06E-03					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total HxCDD	2.67E-05	1.88	1.42E-03					
EPA Site Inspection	DR284	8/25/1998	Total HxCDD	2.60E-05	2.23	1.17E-03					
EPA Site Inspection	DR264	8/26/1998	Total HxCDD	1.20E-05	1.48	8.11E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total HxCDD	1.01E-05	0.587	1.72E-03					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total HxCDF	2.71E-05	1.88	1.44E-03					
EPA Site Inspection	DR284	8/25/1998	Total HxCDF	1.40E-05	2.23	6.28E-04					
EPA Site Inspection	DR264	8/26/1998	Total HxCDF	9.70E-06	1.48	6.55E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total HxCDF	5.52E-06	0.587	9.40E-04					
S 96th Street WQ Engineering Report	96-8	4/27/1993	Total LPAH (calc'd)	6.88E+00 M	2.17	3.17E+02	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR258	8/25/1998	Total LPAH (calc'd)	2.30E-01	1.55	1.50E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR284	8/25/1998	Total LPAH (calc'd)	2.10E-01	2.23	9.40E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR285	8/25/1998	Total LPAH (calc'd)	1.90E-01	3.39	5.60E+00	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Total LPAH (calc'd)	1.70E-01	2.78	6.10E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R29	10/9/1997	Total LPAH (calc'd)	1.60E-01	1.1	1.50E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR263	8/25/1998	Total LPAH (calc'd)	1.60E-01	2.9	5.52E+00	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Total LPAH (calc'd)	1.52E-01	2.59	5.87E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R20	10/10/1997	Total LPAH (calc'd)	1.50E-01	0.82	1.83E+01	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Total LPAH (calc'd)	1.50E-01	0.964	1.60E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR210	8/25/1998	Total LPAH (calc'd)	1.50E-01	1.45	1.00E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR259	8/25/1998	Total LPAH (calc'd)	1.50E-01	2.94	5.10E+00	370	780	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Total LPAH (calc'd)	1.10E-01 J	1.56	7.10E+00	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Total LPAH (calc'd)	1.00E-01	1.42	7.04E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR262	9/1/1998	Total LPAH (calc'd)	1.00E-01	2.46	4.10E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R25	10/9/1997	Total LPAH (calc'd)	7.50E-02	1.3	5.80E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR264	8/26/1998	Total LPAH (calc'd)	7.00E-02	1.48	4.73E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R33	10/9/1997	Total LPAH (calc'd)	6.90E-02	1.1	6.30E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R36	10/10/1997	Total LPAH (calc'd)	6.80E-02	1.5	4.50E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R37	10/9/1997	Total LPAH (calc'd)	6.50E-02	1.1	5.90E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R28	10/10/1997	Total LPAH (calc'd)	6.20E-02	1.1	5.60E+00	370	780	mg/kg OC	<1	<1
Boeing Site Characterization	R32	10/10/1997	Total LPAH (calc'd)	5.50E-02	1.2	4.60E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR209	8/27/1998	Total LPAH (calc'd)	5.00E-02	1.03	4.85E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR211	8/25/1998	Total LPAH (calc'd)	5.00E-02	1.56	3.20E+00	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Total LPAH (calc'd)	4.90E-02	3.18	1.50E+00	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Total LPAH (calc'd)	4.10E-02	1.47	2.80E+00	370	780	mg/kg OC	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Benthic	B10b	8/19/2004	Total LPAH (calc'd)	2.30E-02 J	1.09	2.11E+00	370	780	mg/kg OC	<1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total LPAH (calc'd)	2.20E-02	1.88	1.20E+00	370	780	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Total LPAH (calc'd)	2.10E-02	1.75	1.20E+00	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Total LPAH (calc'd)	2.00E-02	1.56	1.28E+00	370	780	mg/kg OC	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total LPAH (calc'd)	1.30E-02 J	0.587	2.20E+00	370	780	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Total LPAH (calc'd)	2.62E-04	2.2	1.19E-02	370	780	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Total LPAH (calc'd)	1.96E-04	2.8	7.00E-03	370	780	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Total LPAH (calc'd)	1.88E-04	2.4	7.83E-03	370	780	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Total LPAH (calc'd)	1.86E-04	2.6	7.15E-03	370	780	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Total LPAH (calc'd)	1.31E-04	2.2	5.95E-03	370	780	mg/kg OC	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Total LPAH (calc'd)	9.10E-05	2.8	3.25E-03	370	780	mg/kg OC	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Total PAH (calc'd)	2.31E+00	2.78	8.31E+01					
EPA Site Inspection	DR285	8/25/1998	Total PAH (calc'd)	1.86E+00	3.39	5.49E+01					
EPA Site Inspection	DR259	8/25/1998	Total PAH (calc'd)	1.77E+00	2.94	6.02E+01					
EPA Site Inspection	DR284	8/25/1998	Total PAH (calc'd)	1.74E+00	2.23	7.80E+01					
EPA Site Inspection	DR210	8/25/1998	Total PAH (calc'd)	1.61E+00	1.45	1.11E+02					
EPA Site Inspection	DR263	8/25/1998	Total PAH (calc'd)	1.59E+00	2.9	5.48E+01					
EPA Site Inspection	DR258	8/25/1998	Total PAH (calc'd)	1.57E+00	1.55	1.01E+02					
Boeing Site Characterization	R29	10/9/1997	Total PAH (calc'd)	1.54E+00	1.1	1.40E+02					
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Total PAH (calc'd)	1.52E+00 J	1.42	1.07E+02					
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Total PAH (calc'd)	1.51E+00	2.59	5.83E+01					
EPA Site Inspection	DR262	9/1/1998	Total PAH (calc'd)	1.44E+00	2.46	5.85E+01					
Boeing Site Characterization	R20	10/10/1997	Total PAH (calc'd)	1.42E+00	0.82	1.73E+02					
Boeing Site Characterization	R25	10/9/1997	Total PAH (calc'd)	9.40E-01	1.3	7.23E+01					
EPA Site Inspection	DR264	8/26/1998	Total PAH (calc'd)	9.40E-01	1.48	6.35E+01					
Boeing Site Characterization	R36	10/10/1997	Total PAH (calc'd)	8.80E-01	1.5	5.87E+01					
Boeing Site Characterization	R33	10/9/1997	Total PAH (calc'd)	8.70E-01	1.1	7.91E+01					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Total PAH (calc'd)	8.70E-01	3.18	2.74E+01					
Boeing Site Characterization	R28	10/10/1997	Total PAH (calc'd)	8.30E-01	1.1	7.55E+01					
Boeing Site Characterization	R37	10/9/1997	Total PAH (calc'd)	8.00E-01	1.1	7.27E+01					
Boeing Site Characterization	R32	10/10/1997	Total PAH (calc'd)	7.30E-01	1.2	6.08E+01					
EPA Site Inspection	DR211	8/25/1998	Total PAH (calc'd)	7.30E-01	1.56	4.68E+01					
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Total PAH (calc'd)	6.90E-01	0.964	7.16E+01					
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Total PAH (calc'd)	6.60E-01	1.47	4.49E+01					
EPA Site Inspection	DR209	8/27/1998	Total PAH (calc'd)	5.30E-01	1.03	5.15E+01					
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Total PAH (calc'd)	2.45E-01	1.56	1.57E+01					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total PAH (calc'd)	2.36E-01 J	1.88	1.26E+01					
LDWRI-Benthic	B10b	8/19/2004	Total PAH (calc'd)	2.16E-01 J	1.09	1.98E+01					
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Total PAH (calc'd)	5.60E-02 J	1.35	4.15E+00					

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Total PAH (calc'd)	4.60E-02	2.28	2.02E+00					
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Total PAH (calc'd)	2.05E-03 J	2.4						
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Total PAH (calc'd)	1.75E-03 J	2.2						
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Total PAH (calc'd)	1.59E-03 J	2.6						
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Total PAH (calc'd)	1.58E-03 J	2.8						
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Total PAH (calc'd)	1.37E-03 J	2.2						
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Total PAH (calc'd)	1.18E-03 J	2.8						
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total PeCDD	5.70E-06	1.88	3.03E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total PeCDD	1.90E-06	0.587	3.24E-04					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total PeCDF	1.81E-05	1.88	9.63E-04					
EPA Site Inspection	DR284	8/25/1998	Total PeCDF	4.90E-06	2.23	2.20E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total PeCDF	3.00E-06	0.587	5.11E-04					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total TCDD	4.78E-06	1.88	2.54E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total TCDD	1.31E-06	0.587	2.23E-04					
EPA Site Inspection	DR284	8/25/1998	Total TCDD	1.20E-06	2.23	5.38E-05					
EPA Site Inspection	DR264	8/26/1998	Total TCDD	9.50E-07	1.48	6.42E-05					
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Total TCDF	1.94E-05	1.88	1.03E-03					
EPA Site Inspection	DR284	8/25/1998	Total TCDF	8.90E-06	2.23	3.99E-04					
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Total TCDF	3.45E-06	0.587	5.88E-04					
EPA Site Inspection	DR264	8/26/1998	Total TCDF	3.00E-06	1.48	2.03E-04					
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Tributyltin as ion	5.30E-02	2.78						
EPA Site Inspection	DR210	8/25/1998	Tributyltin as ion	1.20E-02 J	1.45						
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Tributyltin as ion	9.80E-03	0.964						
EPA Site Inspection	DR262	9/1/1998	Tributyltin as ion	9.00E-03 J	2.46						
EPA Site Inspection	DR284	8/25/1998	Tributyltin as ion	7.00E-03 J	2.23						
EPA Site Inspection	DR258	8/25/1998	Tributyltin as ion	6.00E-03 J	1.55						
EPA Site Inspection	DR264	8/26/1998	Tributyltin as ion	4.00E-03 J	1.48						
LDWRI-Benthic	B10b	8/19/2004	Tributyltin as ion	2.30E-03	1.09						
EPA Site Inspection	DR262	9/1/1998	Vanadium	7.20E+01	2.46						
EPA Site Inspection	DR285	8/25/1998	Vanadium	7.00E+01	3.39						
EPA Site Inspection	DR263	8/25/1998	Vanadium	6.90E+01	2.9						
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Vanadium	6.85E+01	2.78						
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Vanadium	6.84E+01	2.59						
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Vanadium	6.82E+01	3.18						
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Vanadium	6.60E+01	1.47						
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Vanadium	6.59E+01	2.28						
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Vanadium	6.42E+01	1.42						
EPA Site Inspection	DR284	8/25/1998	Vanadium	6.20E+01	2.23						
EPA Site Inspection	DR259	8/25/1998	Vanadium	6.00E+01	2.94						

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
										SQS	CSL
EPA Site Inspection	DR211	8/25/1998	Vanadium	5.80E+01	1.56						
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Vanadium	5.61E+01	1.56						
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Vanadium	5.35E+01	1.35						
EPA Site Inspection	DR258	8/25/1998	Vanadium	5.30E+01	1.55						
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Vanadium	5.17E+01	0.39						
EPA Site Inspection	DR210	8/25/1998	Vanadium	4.80E+01	1.45						
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Vanadium	4.71E+01	0.964						
LDWRI-Benthic	B10b	8/19/2004	Vanadium	4.61E+01	1.09						
EPA Site Inspection	DR264	8/26/1998	Vanadium	4.60E+01	1.48						
EPA Site Inspection	DR209	8/27/1998	Vanadium	3.90E+01	1.03						
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Zinc	1.44E+03 J	1.56		410	960	mg/kg DW	3.5	1.5
S 96th Street WQ Engineering Report	96-8	4/27/1993	Zinc	5.00E+02	2.17		410	960	mg/kg DW	1.2	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Zinc	1.13E+02	3.18		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS131	3/8/2005	Zinc	1.12E+02	2.78		410	960	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C6	3/4/1999	Zinc	1.10E+02 J	2.4		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR285	8/25/1998	Zinc	1.05E+02	3.39		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR259	8/25/1998	Zinc	1.00E+02	2.94		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR263	8/25/1998	Zinc	9.90E+01	2.9		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS133	3/9/2005	Zinc	9.90E+01	2.59		410	960	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C5	3/4/1999	Zinc	9.70E+01 J	2.2		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR284	8/25/1998	Zinc	9.30E+01	2.23		410	960	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C3	3/4/1999	Zinc	9.30E+01 J	2.8		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR262	9/1/1998	Zinc	9.20E+01	2.46		410	960	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C1	3/4/1999	Zinc	9.00E+01 J	2.8		410	960	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C4	3/4/1999	Zinc	9.00E+01 J	2.6		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR258	8/25/1998	Zinc	8.90E+01	1.55		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R36	10/10/1997	Zinc	8.80E+01	1.5		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS113b	1/20/2005	Zinc	8.60E+01	1.42		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS117	1/20/2005	Zinc	8.60E+01	1.47		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	Zinc	8.30E+01	1.35		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Zinc	8.01E+01	2.28		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R28	10/10/1997	Zinc	8.00E+01	1.1		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R32	10/10/1997	Zinc	8.00E+01	1.2		410	960	mg/kg DW	<1	<1
Duwamish Yacht Club Dredge Characterization	C2	3/4/1999	Zinc	8.00E+01 J	2.2		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R37	10/9/1997	Zinc	7.90E+01	1.1		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R25	10/9/1997	Zinc	7.80E+01	1.3		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R20	10/10/1997	Zinc	7.70E+01	0.82		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R33	10/9/1997	Zinc	7.50E+01	1.1		410	960	mg/kg DW	<1	<1
Boeing Site Characterization	R29	10/9/1997	Zinc	7.30E+01	1.1		410	960	mg/kg DW	<1	<1

Table A-1a
Chemicals Detected in Surface Sediment Samples
Near the Sea King Industrial Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors SQS	Exceedance Factors CSL
EPA Site Inspection	DR211	8/25/1998	Zinc	7.20E+01	1.56		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR210	8/25/1998	Zinc	7.00E+01	1.45		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Zinc	6.80E+01	0.553		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR209	8/27/1998	Zinc	6.60E+01	1.03		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Zinc	6.59E+01	1.56		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Zinc	6.50E+01	0.926		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Zinc	6.40E+01	1.05		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Zinc	6.40E+01 J	0.587		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Zinc	6.40E+01 J	1.75		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Zinc	6.10E+01 J	1.25		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR264	8/26/1998	Zinc	6.10E+01	1.48		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Zinc	5.80E+01	1.35		410	960	mg/kg DW	<1	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Zinc	5.60E+01	0.663		410	960	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Zinc	5.14E+01	1.09		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS124	3/15/2005	Zinc	5.07E+01	0.964		410	960	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Zinc	3.82E+01	0.39		410	960	mg/kg DW	<1	<1

mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram
ng/kg - nanograms per kilogram
DW - dry weight
TOC - total organic carbon
OC - organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level

SMS - Sediment Management Standard (Washington Administrative Code 173-204)
PAHs - polycyclic aromatic hydrocarbons
PCB - polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
M - Mean of replicate samples/analyses
LDW - Lower Duwamish Waterway
TEQ - toxic equivalency

Table presents detected chemicals only.

Sampling events are listed in Table 2.

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

[a] Due to the TOC in this sample, results were compared to the Lowest Apparent Effects Threshold (LAET) or the second LAET (2LAET) value rather than the SQS and/or CSL. The LAET is functionally equivalent to the SQS and the 2LAET is functionally equivalent to the CSL. OC-normalization is not considered to be appropriate for when TOC concentrations are less than or equal to 0.5 percent or greater than or equal to 4.0 percent.

Table A-1b
Comparison of Chemicals Detected in Surface Sediment Samples near Sea King Industrial Park Source Control Area to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Event Name	Location Name	Date Collected	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL
EPA SI	DR210	8/25/1998	Arsenic	15	7	57	mg/kg DW	2.1	<1
LDWRI-SurfaceSedimentRound1	LDW-SS117	1/20/2005	Arsenic	14.4	7	57	mg/kg DW	2.1	<1
EPA Site Inspection	DR263	8/25/1998	Arsenic	13.8	7	57	mg/kg DW	2.0	<1
EPA SI	DR211	8/25/1998	Arsenic	13.1	7	57	mg/kg DW	1.9	<1
EPA SI	DR259	8/25/1998	Arsenic	12.7	7	57	mg/kg DW	1.8	<1
EPA SI	DR285	8/25/1998	Arsenic	12.3	7	57	mg/kg DW	1.8	<1
Boeing Site Characterization	R32	10/10/1997	Arsenic	11.7	7	57	mg/kg DW	1.7	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Arsenic	11.6	7	57	mg/kg DW	1.7	<1
EPA SI	DR258	8/25/1998	Arsenic	11.5	7	57	mg/kg DW	1.6	<1
Boeing Site Characterization	R36	10/10/1997	Arsenic	11.3	7	57	mg/kg DW	1.6	<1
Boeing Site Characterization	R28	10/10/1997	Arsenic	10.9	7	57	mg/kg DW	1.6	<1
Boeing Site Characterization	R37	10/9/1997	Arsenic	10.5	7	57	mg/kg DW	1.5	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	Arsenic	10.4	7	57	mg/kg DW	1.5	<1
Boeing Site Characterization	R25	10/9/1997	Arsenic	10.1	7	57	mg/kg DW	1.4	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Arsenic	10 J	7	57	mg/kg DW	1.4	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Arsenic	10	7	57	mg/kg DW	1.4	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Arsenic	10	7	57	mg/kg DW	1.4	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Arsenic	10 J	7	57	mg/kg DW	1.4	<1
LDWRI-SurfaceSedimentRound2	LDW-SS133	3/9/2005	Arsenic	10	7	57	mg/kg DW	1.4	<1
EPA Site Inspection	DR264	8/26/1998	Arsenic	10	7	57	mg/kg DW	1.4	<1
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	Arsenic	9.8	7	57	mg/kg DW	1.4	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	Arsenic	9.6	7	57	mg/kg DW	1.4	<1
EPA SI	DR284	8/25/1998	Arsenic	9.2	7	57	mg/kg DW	1.3	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Arsenic	9	7	57	mg/kg DW	1.3	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Arsenic	9 J	7	57	mg/kg DW	1.3	<1
Boeing Site Characterization	R29	10/9/1997	Arsenic	8.8	7	57	mg/kg DW	1.3	<1
Boeing Site Characterization	R33	10/9/1997	Arsenic	8.7	7	57	mg/kg DW	1.2	<1
EPA SI	DR262	9/1/1998	Arsenic	8.5	7	57	mg/kg DW	1.2	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Arsenic	8	7	57	mg/kg DW	1.1	<1
LDWRI-SurfaceSedimentRound2	LDW-SS122	3/8/2005	Arsenic	7.5	7	57	mg/kg DW	1.1	<1
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	Arsenic	7	7	57	mg/kg DW	1.0	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Arsenic	6.4	7	57	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 2	LDW-SS136	3/15/2005	Arsenic	5.6	7	57	mg/kg DW	<1	<1
LDWRI-Benthic	B10b	8/19/2004	Arsenic	5.05 J	7	57	mg/kg DW	<1	<1
LDWRI-SurfaceSedimentRound2	LDW-SS124	3/15/2005	Arsenic	4.8	7	57	mg/kg DW	<1	<1
LDWRI-Surface Sediment Round 1	LDW-SS134	1/24/2005	Arsenic	3.5	7	57	mg/kg DW	<1	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Carcinogenic PAHs (calc'd)	6350	9	1,000	ug/kg DW	706	6
EPA Site Inspection	DR263	8/25/1998	Carcinogenic PAHs (calc'd)	660	9	1,000	ug/kg DW	73	<1

Table A-1b
Comparison of Chemicals Detected in Surface Sediment Samples near Sea King Industrial Park Source Control Area to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Event Name	Location Name	Date Collected	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL
EPA Site Inspection	DR264	8/26/1998	Carcinogenic PAHs (calc'd)	430	9	1,000	ug/kg DW	48	<1
EPA SI	DR210	8/25/1998	Carcinogenic PAHs (calc'd)	190	9	1,000	ug/kg DW	21	<1
EPA SI	DR259	8/25/1998	Carcinogenic PAHs (calc'd)	190	9	1,000	ug/kg DW	21	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	Carcinogenic PAHs (calc'd)	190	9	1,000	ug/kg DW	21	<1
Boeing Site Characterization	R29	10/9/1997	Carcinogenic PAHs (calc'd)	180	9	1,000	ug/kg DW	20	<1
EPA SI	DR285	8/25/1998	Carcinogenic PAHs (calc'd)	180	9	1,000	ug/kg DW	20	<1
EPA SI	DR258	8/25/1998	Carcinogenic PAHs (calc'd)	170	9	1,000	ug/kg DW	19	<1
EPA SI	DR284	8/25/1998	Carcinogenic PAHs (calc'd)	170	9	1,000	ug/kg DW	19	<1
EPA SI	DR262	9/1/1998	Carcinogenic PAHs (calc'd)	160	9	1,000	ug/kg DW	18	<1
LDWRI-SurfaceSedimentRound2	LDW-SS133	3/9/2005	Carcinogenic PAHs (calc'd)	150	9	1,000	ug/kg DW	17	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Carcinogenic PAHs (calc'd)	130 J	9	1,000	ug/kg DW	14	<1
Boeing Site Characterization	R25	10/9/1997	Carcinogenic PAHs (calc'd)	120	9	1,000	ug/kg DW	13	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	Carcinogenic PAHs (calc'd)	110	9	1,000	ug/kg DW	12	<1
Boeing Site Characterization	R36	10/10/1997	Carcinogenic PAHs (calc'd)	100	9	1,000	ug/kg DW	11	<1
Boeing Site Characterization	R28	10/10/1997	Carcinogenic PAHs (calc'd)	97	9	1,000	ug/kg DW	11	<1
Boeing Site Characterization	R33	10/9/1997	Carcinogenic PAHs (calc'd)	95	9	1,000	ug/kg DW	11	<1
Boeing Site Characterization	R37	10/9/1997	Carcinogenic PAHs (calc'd)	90	9	1,000	ug/kg DW	10	<1
EPA SI	DR211	8/25/1998	Carcinogenic PAHs (calc'd)	89	9	1,000	ug/kg DW	9.9	<1
Boeing Site Characterization	R32	10/10/1997	Carcinogenic PAHs (calc'd)	84	9	1,000	ug/kg DW	9.3	<1
LDWRI-SurfaceSedimentRound1	LDW-SS117	1/20/2005	Carcinogenic PAHs (calc'd)	78	9	1,000	ug/kg DW	8.7	<1
LDWRI-SurfaceSedimentRound2	LDW-SS124	3/15/2005	Carcinogenic PAHs (calc'd)	65	9	1,000	ug/kg DW	7.2	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Carcinogenic PAHs (calc'd)	29 J	9	1,000	ug/kg DW	3.2	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	Carcinogenic PAHs (calc'd)	25	9	1,000	ug/kg DW	2.8	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	Carcinogenic PAHs (calc'd)	22 J	9	1,000	ug/kg DW	2.4	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Carcinogenic PAHs (calc'd)	15 J	9	1,000	ug/kg DW	1.7	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	Carcinogenic PAHs (calc'd)	14 J	9	1,000	ug/kg DW	1.6	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	Carcinogenic PAHs (calc'd)	11 J	9	1,000	ug/kg DW	1.2	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	Carcinogenic PAHs (calc'd)	11 J	9	1,000	ug/kg DW	1.2	<1
LDWRI-SurfaceSedimentRound2	LDW-SS122	3/8/2005	Carcinogenic PAHs (calc'd)	10 J	9	1,000	ug/kg DW	1.1	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	Dioxin/furan TEQ	22.7 J	2	25	ng/kg	11	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	Dioxin/furan TEQ	8.3 J	2	25	ng/kg	4.1	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	Dioxin/furan TEQ	3.7 J	2	25	ng/kg	1.9	<1
EPA SI	DR284	8/25/1998	Dioxin/furan TEQ	2.9	2	25	ng/kg	1.5	<1
LDW Dioxin Sampling	LDW-SS542	12/17/2009	Dioxin/furan TEQ	2.4	2	25	ng/kg	1.2	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	Dioxin/furan TEQ	1.3 J	2	25	ng/kg	<1	<1
EPA SI	DR210	8/25/1998	PCBs (total calc'd)	380	2	240	ug/kg DW	190	1.6
LDWRI-SurfaceSedimentRound2	LDW-SS122	3/8/2005	PCBs (total calc'd)	370	2	240	ug/kg DW	185	1.5
NOAA Site Characterization	WIT258	10/1/1997	PCBs (total calc'd)	340	2	240	ug/kg DW	170	1.4

Table A-1b
Comparison of Chemicals Detected in Surface Sediment Samples near Sea King Industrial Park Source Control Area to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Event Name	Location Name	Date Collected	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL
LDWRI-Surface Sediment Round 2	LDW-SS135	3/15/2005	PCBs (total calc'd)	240	2	240	ug/kg DW	120	1.0
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	PCBs (total calc'd)	200	2	240	ug/kg DW	100	<1
LDW Dioxin Sampling	LDW-SS544-comp	1/12/2010	PCBs (total calc'd)	127	2	240	ug/kg DW	64	<1
EPA SI	DR259	8/25/1998	PCBs (total calc'd)	123	2	240	ug/kg DW	62	<1
LDWRI-SurfaceSedimentRound1	LDW-SS117	1/20/2005	PCBs (total calc'd)	79 J	2	240	ug/kg DW	40	<1
Boeing Site Characterization	R25	10/9/1997	PCBs (total calc'd)	75	2	240	ug/kg DW	38	<1
EPA SI	DR258	8/25/1998	PCBs (total calc'd)	62	2	240	ug/kg DW	31	<1
EPA SI	DR284	8/25/1998	PCBs (total calc'd)	61	2	240	ug/kg DW	31	<1
NOAA SiteChar	WST315	11/12/1997	PCBs (total calc'd)	60 J	2	240	ug/kg DW	30	<1
EPA SI	DR211	8/25/1998	PCBs (total calc'd)	56	2	240	ug/kg DW	28	<1
Boeing Site Characterization	R36	10/10/1997	PCBs (total calc'd)	54	2	240	ug/kg DW	27	<1
NOAA SiteChar	WST314	10/1/1997	PCBs (total calc'd)	54 J	2	240	ug/kg DW	27	<1
EPA SI	DR285	8/25/1998	PCBs (total calc'd)	53 J	2	240	ug/kg DW	27	<1
Boeing Site Characterization	R29	10/9/1997	PCBs (total calc'd)	52	2	240	ug/kg DW	26	<1
EPA SI	DR262	9/1/1998	PCBs (total calc'd)	52 J	2	240	ug/kg DW	26	<1
EPA Site Inspection	DR264	8/26/1998	PCBs (total calc'd)	51	2	240	ug/kg DW	26	<1
NOAA Site Characterization	WIT259	10/1/1997	PCBs (total calc'd)	51	2	240	ug/kg DW	26	<1
NOAA SiteChar	WST311	11/13/1997	PCBs (total calc'd)	50 J	2	240	ug/kg DW	25	<1
EPA Site Inspection	DR263	8/25/1998	PCBs (total calc'd)	50	2	240	ug/kg DW	25	<1
NOAA SiteChar	WIT264	10/2/1997	PCBs (total calc'd)	49 J	2	240	ug/kg DW	25	<1
Boeing Site Characterization	R33	10/9/1997	PCBs (total calc'd)	46	2	240	ug/kg DW	23	<1
Boeing Site Characterization	R37	10/9/1997	PCBs (total calc'd)	45	2	240	ug/kg DW	23	<1
Boeing Site Characterization	R32	10/10/1997	PCBs (total calc'd)	42 J	2	240	ug/kg DW	21	<1
Boeing Site Characterization	R28	10/10/1997	PCBs (total calc'd)	41 J	2	240	ug/kg DW	21	<1
LDWRI-SurfaceSedimentRound2	LDW-SS133	3/9/2005	PCBs (total calc'd)	36 J	2	240	ug/kg DW	18	<1
NOAA SiteChar	WIT263[a]	10/16/1997	PCBs (total calc'd)	32 J	2	240	ug/kg DW	16	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	PCBs (total calc'd)	32	2	240	ug/kg DW	16	<1
LDW Outfall Sampling	LDW-SSSP1-D	3/24/2011	PCBs (total calc'd)	29	2	240	ug/kg DW	15	<1
LDW Outfall Sampling	LDW-SSSP3-U	3/24/2011	PCBs (total calc'd)	24	2	240	ug/kg DW	12	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	PCBs (total calc'd)	23	2	240	ug/kg DW	12	<1
NOAA Site Characterization	WST308	10/1/1997	PCBs (total calc'd)	23	2	240	ug/kg DW	12	<1
NOAA SiteChar	WST312	10/23/1997	PCBs (total calc'd)	21 J	2	240	ug/kg DW	11	<1
LDWRI-SurfaceSedimentRound2	LDW-SS131	3/8/2005	PCBs (total calc'd)	21 J	2	240	ug/kg DW	11	<1
NOAA SiteChar	WIT262[a]	10/16/1997	PCBs (total calc'd)	17 J	2	240	ug/kg DW	8.5	<1
LDW Outfall Sampling	LDW-SSSP2-U	3/24/2011	PCBs (total calc'd)	17	2	240	ug/kg DW	8.5	<1
LDW Outfall Sampling	LDW-SSSP3-D	3/24/2011	PCBs (total calc'd)	16	2	240	ug/kg DW	8.0	<1
NOAA Site Characterization	WST309	10/1/1997	PCBs (total calc'd)	16	2	240	ug/kg DW	8.0	<1
LDW Outfall Sampling	LDW-SSSP2-D	3/24/2011	PCBs (total calc'd)	14	2	240	ug/kg DW	7.0	<1

Table A-1b

Comparison of Chemicals Detected in Surface Sediment Samples near Sea King Industrial Park Source Control Area to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Event Name	Location Name	Date Collected	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL
LDWRI-Benthic	B10b	8/19/2004	PCBs (total calc'd)	9.8 J	2	240	ug/kg DW	4.9	<1
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	PCBs (total calc'd)	9	2	240	ug/kg DW	4.5	<1
LDW Outfall Sampling	LDW-SSSP2-A	3/24/2011	PCBs (total calc'd)	8.5	2	240	ug/kg DW	4.3	<1

mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram
ng/kg - nanograms per kilogram
DW - dry weight
LDW - Lower Duwamish Waterway
J - Estimated value between the method detection limit and the laboratory reporting limit

PCB - polychlorinated biphenyl
PAHs - polycyclic aromatic hydrocarbons
RAL - Remedial Action Level
TEQ - toxic equivalency

Table presents detected chemicals only.
Sampling events are listed in Table 2.
Exceedance factors are the ration of the detected concentrations to the LDW Natural Background concentration (AECOM 2012) or the LDW RAL (USEPA 2013);
exceedance factors are shown only if they are greater than 1.

Table A-2a
Chemicals Detected in Subsurface Sediment Samples
Near the Sea King Industrial Park Source Control Area

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
											SQS	CSL
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Aroclor 1248	4.10E-02	1.51	2.72E+00					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Aroclor 1248	3.30E-02	1.55	2.13E+00					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Aroclor 1254	5.00E-02	1.55	3.23E+00					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Aroclor 1254	4.40E-02	1.51	2.91E+00					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Aroclor 1260	2.80E-02	1.55	1.81E+00					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Aroclor 1260	2.40E-02	1.51	1.59E+00					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Arsenic	1.20E+01	1.51	7.95E+02	57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Arsenic	1.10E+01	1.55	7.10E+02	57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Benzo(a)anthracene	8.60E-02	1.55	5.55E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Benzo(a)anthracene	8.30E-02	1.51	5.50E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Benzo(a)pyrene	9.90E-02	1.55	6.39E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Benzo(a)pyrene	7.60E-02	1.51	5.03E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Benzo(b)fluoranthene	1.50E-01	1.55	9.68E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Benzo(b)fluoranthene	1.40E-01	1.51	9.27E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Benzo(k)fluoranthene	1.60E-01	1.55	1.03E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Benzo(k)fluoranthene	1.50E-01	1.51	9.93E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Benzofluoranthenes (total-calc'd)	3.10E-01	1.55	2.00E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Benzofluoranthenes (total-calc'd)	2.90E-01	1.51	1.92E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Benzoic acid	2.80E-01 J	1.51	1.85E+01	650	650	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Benzoic acid	1.20E-01 J	1.55	7.74E+00	650	650	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Bis(2-ethylhexyl)phthalate	1.30E-01	1.55	8.39E+00	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Bis(2-ethylhexyl)phthalate	1.00E-01	1.51	6.62E+00	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Butyl benzyl phthalate	2.20E-02	1.51	1.46E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Butyl benzyl phthalate	1.60E-02	1.55	1.03E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Chromium	2.44E+01	1.55	1.57E+03	260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Chromium	2.38E+01	1.51	1.58E+03	260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Chrysene	1.10E-01	1.51	7.28E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Chrysene	1.10E-01	1.55	7.10E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Cobalt	8.50E+00	1.51	5.63E+02					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Cobalt	8.50E+00	1.55	5.48E+02					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Copper	3.65E+01	1.51	2.42E+03	390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Copper	3.59E+01	1.55	2.32E+03	390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Fluoranthene	2.10E-01	1.55	1.35E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Fluoranthene	2.00E-01	1.51	1.32E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Lead	1.80E+01	1.55	1.16E+03	450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Lead	1.70E+01	1.51	1.13E+03	450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Mercury	1.30E-01	1.55	8.39E+00	0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Mercury	1.00E-01	1.51	6.62E+00	0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Molybdenum	1.20E+00	1.55	7.74E+01					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Nickel	2.00E+01	1.55	1.29E+03					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Nickel	1.80E+01	1.51	1.19E+03					

Table A-2a
Chemicals Detected in Subsurface Sediment Samples
Near the Sea King Industrial Park Source Control Area

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
											SQS	CSL
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	PCBs (total calc'd)	1.11E-01	1.55	7.16E+00	12	65	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	PCBs (total calc'd)	1.09E-01	1.51	7.22E+00	12	65	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Phenanthrene	7.60E-02	1.55	4.90E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Phenanthrene	5.90E-02	1.51	3.91E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Pyrene	2.20E-01	1.55	1.42E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Pyrene	1.70E-01	1.51	1.13E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Total HPAH (calc'd)	1.04E+00	1.55	6.71E+01	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Total HPAH (calc'd)	9.30E-01	1.51	6.16E+01	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Total LPAH (calc'd)	7.60E-02	1.55	4.90E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Total LPAH (calc'd)	5.90E-02	1.51	3.91E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Total PAH (calc'd)	1.11E+00	1.55	7.16E+01					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Total PAH (calc'd)	9.90E-01	1.51	6.56E+01					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Vanadium	6.27E+01	1.55	4.05E+03					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Vanadium	6.10E+01	1.51	4.04E+03					
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Zinc	8.10E+01	1.51	5.36E+03	410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Zinc	8.00E+01	1.55	5.16E+03	410	960	mg/kg DW	<1	<1

mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram
ng/kg - nanograms per kilogram
DW - dry weight
TOC - total organic carbon
OC - organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
PAHs - polycyclic aromatic hydrocarbons
PCB - polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
LDW - Lower Duwamish Waterway
TEQ - toxic equivalency

Table presents detected chemicals only.
Sampling events are listed in Table 2.
Exceedance factors are the ratio of the detected concentrations to the CSL or SQS; exceedance factors are shown only if they are greater than 1.

Table A-2b
Comparison of Chemicals Detected in Subsurface Sediment Samples
Near the Sea King Industrial Park Source Control Area
to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factor	
									LDW Background	LDW RAL
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Arsenic	12	7	57	mg/kg DW	1.7	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Arsenic	11	7	57	mg/kg DW	1.6	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	Carcinogenic PAHs (calc'd)	140	9	1,000	ug/kg DW	16	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	Carcinogenic PAHs (calc'd)	113	9	1,000	ug/kg DW	13	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	2 - 4	PCBs (total calc'd)	111	2	240	ug/kg DW	56	<1
LDW Subsurface Sediment 2006	LDW-SC54	02/23/06	0 - 2	PCBs (total calc'd)	109	2	240	ug/kg DW	55	<1

mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram
DW - dry weight

PCB - polychlorinated biphenyl
LDW - Lower Duwamish Waterway
RAL - Remedial Action Level

Table presents detected chemicals only.
Sampling events are listed in Table 2.
Exceedance factors are the ration of the detected concentrations to the LDW Natural Background concentration (AECOM 2012) or the LDW RAL (USEPA 2013);
exceedance factors are shown only if they are greater than 1.

Table A-3
Chemicals Detected in Seep Samples
Sea King Industrial Park Source Control Area

Source	Sample Location	Date Sampled	Chemical	Conc'n (ug/L)		Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	GW-to-Sediment Screening Level^{a}	GW-to-Sediment Screening Level Exceedance Factor
Filtered Samples										
LDWRI-Seep	SP-39	7/1/2004	Arsenic	0.054		36	69	<1	370	<1
LDWRI-Seep	SP-41	7/1/2004	Arsenic	0.235		36	69	<1	370	<1
LDWRI-Seep	SP-39	7/1/2004	Cadmium	0.206		9.3	42	<1	3.4	<1
LDWRI-Seep	SP-41	7/1/2004	Cadmium	0.133		9.3	42	<1	3.4	<1
LDWRI-Seep	SP-39	7/1/2004	Copper	10.1	J	3.1	4.8	3.3	123	<1
LDWRI-Seep	SP-39	7/1/2004	Heptachlor epoxide	0.009						
LDWRI-Seep	SP-39	7/1/2004	Lead	0.051		8.1	210	<1	13	<1
LDWRI-Seep	SP-41	7/1/2004	Lead	0.036		8.1	210	<1	13	<1
LDWRI-Seep	SP-39	7/1/2004	Mercury	0.00087		0.025	1.8	<1	0.0074	<1
LDWRI-Seep	SP-41	7/1/2004	Mercury	0.00062		0.025	1.8	<1	0.0074	<1
LDWRI-Seep	SP-39	7/1/2004	Nickel	2.78		8.2	74	<1		
LDWRI-Seep	SP-41	7/1/2004	Nickel	2.23		8.2	74	<1		
LDWRI-Seep	SP-39	7/1/2004	Silver	0.028		1.9	1.9	<1	1.5	<1
LDWRI-Seep	SP-41	7/1/2004	Silver	0.036		1.9	1.9	<1	1.5	<1
LDWRI-Seep	SP-39	7/1/2004	Zinc	8.3		81	90	<1	76	<1
LDWRI-Seep	SP-41	7/1/2004	Zinc	6.1		81	90	<1	76	<1
Unfiltered Samples										
LDWRI-Seep	SP-39	7/1/2004	Arsenic	0.058		36	69	<1	370	<1
LDWRI-Seep	SP-41	7/1/2004	Arsenic	0.239		36	69	<1	370	<1
LDWRI-Seep	SP-41	7/1/2004	Arsenic	0.22		36	69	<1	370	<1
LDWRI-Seep	SP-39	7/1/2004	Cadmium	0.272		9.3	42	<1	3.4	<1
LDWRI-Seep	SP-41	7/1/2004	Cadmium	0.158		9.3	42	<1	3.4	<1
LDWRI-Seep	SP-39	7/1/2004	Copper	12.2	J	3.1	4.8	3.9	123	<1
LDWRI-Seep	SP-39	7/1/2004	Heptachlor epoxide	0.0076						
LDWRI-Seep	SP-39	7/1/2004	Lead	0.161		8.1	210	<1	13	<1
LDWRI-Seep	SP-41	7/1/2004	Lead	0.08		8.1	210	<1	13	<1
LDWRI-Seep	SP-39	7/1/2004	Mercury	0.00095		0.025	1.8	<1	0.0074	<1
LDWRI-Seep	SP-39	7/1/2004	Mercury	0.00092		0.025	1.8	<1	0.0074	<1
LDWRI-Seep	SP-41	7/1/2004	Mercury	0.00112		0.025	1.8	<1	0.0074	<1
LDWRI-Seep	SP-39	7/1/2004	Nickel	6.4		8.2	74	<1		
LDWRI-Seep	SP-41	7/1/2004	Nickel	4.7		8.2	74	<1		
LDWRI-Seep	SP-39	7/1/2004	Silver	0.025		1.9	1.9	<1	1.5	<1
LDWRI-Seep	SP-41	7/1/2004	Silver	0.026		1.9	1.9	<1	1.5	<1
LDWRI-Seep	SP-39	7/1/2004	Zinc	9.9		81	90	<1	76	<1
LDWRI-Seep	SP-41	7/1/2004	Zinc	7.1		81	90	<1	76	<1

Table A-3
Chemicals Detected in Seep Samples
Sea King Industrial Park Source Control Area

Source	Sample Location	Date Sampled	Chemical	Conc'n (ug/L)	Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	GW-to-Sediment Screening Level[a]	GW-to-Sediment Screening Level Exceedance Factor

WQS - Water Quality Standards
CSL - Sediment Management Standards Cleanup Screening Level
ug/L - micrograms per Liter
J - Estimated value between the method detection limit and the laboratory reporting limit

Exceedance factors are the ratio of the detected concentration to the screening level; exceedance factors are shown only if they are greater than or equal to 1.
a - Groundwater to sediment screening level, based on sediment CSLs. From SAIC 2006

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-2[a]	5/10/2011	1,2,3,4,6,7,8-HpCDD	1.20E-04							
SKI-BS-6	5/10/2011	1,2,3,4,6,7,8-HpCDD	5.12E-05							
SKI-BS-5	5/10/2011	1,2,3,4,6,7,8-HpCDD	3.87E-05							
SKI-BS-4	5/10/2011	1,2,3,4,6,7,8-HpCDD	3.31E-05							
SKI-BS-3	5/10/2011	1,2,3,4,6,7,8-HpCDD	1.07E-05							
SKI-BS-1	5/10/2011	1,2,3,4,6,7,8-HpCDD	4.35E-06							
SKI-BS-5	5/10/2011	1,2,3,4,6,7,8-HpCDF	1.97E-05							
SKI-BS-2[a]	5/10/2011	1,2,3,4,6,7,8-HpCDF	1.30E-05							
SKI-BS-6	5/10/2011	1,2,3,4,6,7,8-HpCDF	1.18E-05							
SKI-BS-4	5/10/2011	1,2,3,4,6,7,8-HpCDF	4.86E-06							
SKI-BS-6	5/10/2011	1,2,3,4,7,8,9-HpCDF	1.23E-06 T							
SKI-BS-2[a]	5/10/2011	1,2,3,4,7,8,9-HpCDF	1.03E-06 T							
SKI-BS-5	5/10/2011	1,2,3,4,7,8,9-HpCDF	6.36E-07 T							
SKI-BS-4	5/10/2011	1,2,3,4,7,8,9-HpCDF	3.79E-07 T							
SKI-BS-6	5/10/2011	1,2,3,4,7,8-HxCDD	2.04E-06							
SKI-BS-2[a]	5/10/2011	1,2,3,4,7,8-HxCDD	1.35E-06 T							
SKI-BS-4	5/10/2011	1,2,3,4,7,8-HxCDD	8.98E-07 T							
SKI-BS-5	5/10/2011	1,2,3,4,7,8-HxCDD	7.28E-07 T							
SKI-BS-3	5/10/2011	1,2,3,4,7,8-HxCDD	2.16E-07 T							
SKI-BS-6	5/10/2011	1,2,3,4,7,8-HxCDF	4.26E-06							
SKI-BS-2[a]	5/10/2011	1,2,3,4,7,8-HxCDF	1.59E-06 T							
SKI-BS-5	5/10/2011	1,2,3,4,7,8-HxCDF	1.18E-06 T							
SKI-BS-4	5/10/2011	1,2,3,4,7,8-HxCDF	1.05E-06 T							
SKI-BS-3	5/10/2011	1,2,3,4,7,8-HxCDF	3.86E-07 T							
SKI-BS-2[a]	5/10/2011	1,2,3,6,7,8-HxCDD	3.99E-06							
SKI-BS-6	5/10/2011	1,2,3,6,7,8-HxCDD	3.43E-06							
SKI-BS-5	5/10/2011	1,2,3,6,7,8-HxCDD	2.01E-06							
SKI-BS-4	5/10/2011	1,2,3,6,7,8-HxCDD	1.87E-06 T							
SKI-BS-3	5/10/2011	1,2,3,6,7,8-HxCDD	5.98E-07 T							
SKI-BS-1	5/10/2011	1,2,3,6,7,8-HxCDD	3.09E-07 T							
SKI-BS-6	5/10/2011	1,2,3,6,7,8-HxCDF	1.31E-06 T							
SKI-BS-2[a]	5/10/2011	1,2,3,6,7,8-HxCDF	1.00E-06 T							
SKI-BS-5	5/10/2011	1,2,3,6,7,8-HxCDF	8.90E-07 T							
SKI-BS-4	5/10/2011	1,2,3,6,7,8-HxCDF	7.17E-07 T							
SKI-BS-3	5/10/2011	1,2,3,6,7,8-HxCDF	1.81E-07 T							
SKI-BS-6	5/10/2011	1,2,3,7,8,9-HxCDD	3.28E-06							
SKI-BS-2[a]	5/10/2011	1,2,3,7,8,9-HxCDD	2.67E-06							
SKI-BS-4	5/10/2011	1,2,3,7,8,9-HxCDD	1.53E-06 T							
SKI-BS-5	5/10/2011	1,2,3,7,8,9-HxCDD	1.45E-06 T							
SKI-BS-3	5/10/2011	1,2,3,7,8,9-HxCDD	5.16E-07 T							
SKI-BS-1	5/10/2011	1,2,3,7,8,9-HxCDD	2.57E-07 T							
SKI-BS-6	5/10/2011	1,2,3,7,8,9-HxCDF	8.00E-07 T							
SKI-BS-2[a]	5/10/2011	1,2,3,7,8,9-HxCDF	4.60E-07 T							

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-6	5/10/2011	1,2,3,7,8-PeCDD	1.96E-06							
SKI-BS-2[a]	5/10/2011	1,2,3,7,8-PeCDD	1.53E-06							
SKI-BS-4	5/10/2011	1,2,3,7,8-PeCDD	1.12E-06							
SKI-BS-5	5/10/2011	1,2,3,7,8-PeCDD	1.02E-06							
SKI-BS-3	5/10/2011	1,2,3,7,8-PeCDD	3.71E-07 T							
SKI-BS-2[a]	5/10/2011	1,2,3,7,8-PeCDF	8.34E-07 T							
SKI-BS-4	5/10/2011	1,2,3,7,8-PeCDF	7.51E-07 T							
SKI-BS-6	5/10/2011	1,2,3,7,8-PeCDF	6.16E-07 T							
SKI-BS-5	5/10/2011	1,2,3,7,8-PeCDF	6.04E-07 T							
SKI-BS-3	5/10/2011	1,2,3,7,8-PeCDF	2.23E-07 T							
SKI-BS-5	5/10/2011	1-Methylnaphthalene	9.70E-03	0.952	1.02E+00					
SKI-BS-2[a]	5/10/2011	1-Methylnaphthalene	3.40E-03 T	0.137						
SKI-BS-1	5/10/2011	1-Methylnaphthalene	3.00E-03 T	1.29	2.33E-01					
SKI-BS-5	5/10/2011	2,3,4,6,7,8-HxCDF	1.47E-06 T							
SKI-BS-2[a]	5/10/2011	2,3,4,6,7,8-HxCDF	1.42E-06 T							
SKI-BS-4	5/10/2011	2,3,4,6,7,8-HxCDF	1.14E-06 T							
SKI-BS-6	5/10/2011	2,3,4,7,8-PeCDF	1.13E-06							
SKI-BS-4	5/10/2011	2,3,4,7,8-PeCDF	1.07E-06							
SKI-BS-2[a]	5/10/2011	2,3,4,7,8-PeCDF	9.87E-07							
SKI-BS-4	5/10/2011	2,3,7,8-TCDD	4.25E-07 T							
SKI-BS-4	5/10/2011	2,3,7,8-TCDF	1.57E-06							
SKI-BS-2[a]	5/10/2011	2,3,7,8-TCDF	1.52E-06							
SKI-BS-5	5/10/2011	2,3,7,8-TCDF	1.23E-06							
SKI-BS-6	5/10/2011	2,3,7,8-TCDF	1.05E-06							
SKI-BS-3	5/10/2011	2,3,7,8-TCDF	4.51E-07 T							
SKI-BS-4	5/10/2011	2-Methylnaphthalene	9.80E-02	2.81	3.49E+00	38	64	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	2-Methylnaphthalene	1.20E-02	0.952	1.26E+00	38	64	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	2-Methylnaphthalene	6.60E-03	1.29	5.12E-01	38	64	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	2-Methylnaphthalene	4.80E-03	0.137		670	1400	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	2-Methylnaphthalene	2.90E-03 T	2.81	1.03E-01	38	64	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Acenaphthene	4.40E-03 T	0.952	4.62E-01	16	57	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Acenaphthene	2.70E-03 T	0.137		500	730	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Acenaphthylene	3.20E-03 T	0.137		1300	1300	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Acenaphthylene	3.00E-03 T	0.952	3.15E-01	66	66	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Anthracene	1.10E-02 T	0.137		960	4400	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Anthracene	7.70E-03	0.137		960	4400	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Anthracene	3.00E-03 T	0.952	3.15E-01	220	1200	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Aroclor 1248	4.70E-02	0.82	5.73E+00					

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-6	5/10/2011	Aroclor 1254	6.40E-02	0.971	6.59E+00					
SKI-BS-3	5/10/2011	Aroclor 1254	2.60E-02	0.82	3.17E+00					
SKI-BS-2[a]	5/10/2011	Aroclor 1254	1.50E-02	0.137						
SKI-BS-4	5/10/2011	Aroclor 1254	5.00E-03	2.81	1.78E-01					
SKI-BS-5	5/10/2011	Aroclor 1260	7.30E-02	0.952	7.67E+00					
SKI-BS-2[a]	5/10/2011	Aroclor 1260	2.80E-02	0.137						
SKI-BS-6	5/10/2011	Aroclor 1260	9.60E-03	0.971	9.89E-01					
SKI-BS-4	5/10/2011	Aroclor 1260	6.60E-03	2.81	2.35E-01					
SKI-BS-1	5/10/2011	Aroclor 1260	3.80E-03	1.29	2.95E-01					
SKI-BS-4	5/10/2011	Arsenic	1.97E+01	2.81		57	93	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Arsenic	1.44E+01	0.137		57	93	mg/kg DW	<1	<1
SKI-BS-5	5/10/2011	Arsenic	1.30E+01	0.952		57	93	mg/kg DW	<1	<1
SKI-BS-3	5/10/2011	Arsenic	1.27E+01	0.82		57	93	mg/kg DW	<1	<1
SKI-BS-6	5/10/2011	Arsenic	8.70E+00	0.971		57	93	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Benzo(a)anthracene	4.50E-02	0.137		1300	1600	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Benzo(a)anthracene	2.10E-02	0.137		1300	1600	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Benzo(a)anthracene	1.10E-02	0.952	1.16E+00	110	270	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Benzo(a)anthracene	1.00E-02 T	2.81	3.56E-01	110	270	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Benzo(a)anthracene	8.20E-03	2.81	2.92E-01	110	270	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Benzo(a)anthracene	3.70E-03 T	0.971	3.81E-01	110	270	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Benzo(a)pyrene	6.70E-02	0.137		1600	3000	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Benzo(a)pyrene	2.60E-02	0.137		1600	3000	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Benzo(a)pyrene	9.20E-03	0.952	9.66E-01	99	210	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Benzo(a)pyrene	9.20E-03	2.81	3.27E-01	99	210	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Benzo(a)pyrene	1.90E-03 T	0.82	2.32E-01	99	210	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Benzo(g,h,i)perylene	6.80E-02	0.137		670	720	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Benzo(g,h,i)perylene	2.40E-02	0.137		670	720	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Benzo(g,h,i)perylene	1.40E-02 T	2.81	4.98E-01	31	78	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Benzo(g,h,i)perylene	1.20E-02	0.952	1.26E+00	31	78	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Benzo(g,h,i)perylene	9.50E-03	2.81	3.38E-01	31	78	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Benzo(g,h,i)perylene	3.60E-03 T	0.82	4.39E-01	31	78	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Benzo(g,h,i)perylene	3.00E-03 T	0.971	3.09E-01	31	78	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Benzofluoranthenes (total-calc'd)	1.40E-01	0.137		3200	3600	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Benzofluoranthenes (total-calc'd)	6.20E-02	0.137		3200	3600	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Benzofluoranthenes (total-calc'd)	2.90E-02	2.81	1.03E+00	230	450	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Benzofluoranthenes (total-calc'd)	2.60E-02	0.952	2.73E+00	230	450	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Benzofluoranthenes (total-calc'd)	2.00E-02	2.81	7.12E-01	230	450	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Benzofluoranthenes (total-calc'd)	1.20E-02	0.82	1.46E+00	230	450	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Benzofluoranthenes (total-calc'd)	1.10E-02 T	0.952	1.16E+00	230	450	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Benzofluoranthenes (total-calc'd)	8.00E-03	0.971	8.24E-01	230	450	mg/kg OC	<1	<1

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-4	5/10/2011	Benzoic acid	1.30E-01 JT	2.81	4.63E+00	650	650	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Benzyl alcohol	1.00E-02 T	2.81	3.56E-01	57	73	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Butyl benzyl phthalate	2.40E-02	0.137		63	900	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Cadmium	6.00E-01	2.81		5.1	93	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Cadmium	4.00E-01	0.137		5.1	93	mg/kg DW	<1	<1
SKI-BS-6	5/10/2011	Cadmium	4.00E-01	0.971		5.1	93	mg/kg DW	<1	<1
SKI-BS-3	5/10/2011	Cadmium	3.00E-01	0.82		5.1	93	mg/kg DW	<1	<1
SKI-BS-4	5/10/2011	Chromium	4.86E+01	2.81		260	270	mg/kg DW	<1	<1
SKI-BS-3	5/10/2011	Chromium	3.21E+01	0.82		260	270	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Chromium	3.03E+01	0.137		260	270	mg/kg DW	<1	<1
SKI-BS-5	5/10/2011	Chromium	2.77E+01	0.952		260	270	mg/kg DW	<1	<1
SKI-BS-6	5/10/2011	Chromium	2.65E+01	0.971		260	270	mg/kg DW	<1	<1
SKI-BS-1	5/10/2011	Chromium	1.09E+01	1.29		260	270	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Chrysene	7.90E-02	0.137		1400	1400	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Chrysene	4.10E-02	0.137		1400	1400	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Chrysene	2.50E-02	2.81	8.90E-01	110	460	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Chrysene	2.20E-02	0.952	2.31E+00	110	460	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Chrysene	1.40E-02	2.81	4.98E-01	110	460	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Chrysene	6.40E-03	0.971	6.59E-01	110	460	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Chrysene	4.00E-03 T	0.82	4.88E-01	110	460	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	Chrysene	2.30E-03 T	1.29	1.78E-01	110	460	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Copper	4.61E+01	2.81		390	390	mg/kg DW	<1	<1
SKI-BS-5	5/10/2011	Copper	4.48E+01	0.952		390	390	mg/kg DW	<1	<1
SKI-BS-6	5/10/2011	Copper	2.84E+01	0.971		390	390	mg/kg DW	<1	<1
SKI-BS-3	5/10/2011	Copper	2.80E+01	0.82		390	390	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Copper	2.78E+01	0.137		390	390	mg/kg DW	<1	<1
SKI-BS-1	5/10/2011	Copper	1.22E+01	1.29		390	390	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Dibenzo(a,h)anthracene	1.70E-02 T	0.137		230	540	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Dibenzofuran	2.60E-02	2.81	9.25E-01	15	58	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Dibenzofuran	8.60E-03	0.952	9.03E-01	15	58	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Dibenzofuran	3.60E-03 T	0.137		540	700	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Dimethyl phthalate	1.10E-02 T	0.137		200	1200	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Fluoranthene	1.30E-01 J	0.137		1700	2500	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Fluoranthene	4.30E-02	0.137		1700	2500	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Fluoranthene	3.80E-02 J	2.81	1.35E+00	160	1200	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Fluoranthene	3.40E-02	0.952	3.57E+00	160	1200	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Fluoranthene	1.80E-02	2.81	6.41E-01	160	1200	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Fluoranthene	7.20E-03	0.971	7.42E-01	160	1200	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Fluoranthene	2.40E-03 T	0.82	2.93E-01	160	1200	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	Fluoranthene	2.40E-03 T	1.29	1.86E-01	160	1200	mg/kg OC	<1	<1

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-2[a]	5/10/2011	Fluorene	2.30E-03 T	0.137		540	1000	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Indeno(1,2,3-cd)pyrene	4.70E-02	0.137		600	690	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Indeno(1,2,3-cd)pyrene	1.90E-02	0.137		600	690	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Indeno(1,2,3-cd)pyrene	9.20E-03	0.952	9.66E-01	34	88	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Indeno(1,2,3-cd)pyrene	6.80E-03	2.81	2.42E-01	34	88	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Indeno(1,2,3-cd)pyrene	3.80E-03 JT	0.82	4.63E-01	34	88	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Indeno(1,2,3-cd)pyrene	2.70E-03 JT	0.971	2.78E-01	34	88	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Lead	4.40E+01	2.81		450	530	mg/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Lead	3.00E+01	0.137		450	530	mg/kg DW	<1	<1
SKI-BS-5	5/10/2011	Lead	1.60E+01	0.952		450	530	mg/kg DW	<1	<1
SKI-BS-6	5/10/2011	Lead	1.50E+01	0.971		450	530	mg/kg DW	<1	<1
SKI-BS-3	5/10/2011	Lead	1.00E+01	0.82		450	530	mg/kg DW	<1	<1
SKI-BS-5	5/10/2011	Mercury	1.40E-01	0.952		0.41	0.59	mg/kd DW	<1	<1
SKI-BS-4	5/10/2011	Mercury	1.00E-01	2.81		0.41	0.59	mg/kd DW	<1	<1
SKI-BS-2[a]	5/10/2011	Mercury	5.00E-02	0.137		0.41	0.59	mg/kd DW	<1	<1
SKI-BS-6	5/10/2011	Mercury	4.00E-02	0.971		0.41	0.59	mg/kd DW	<1	<1
SKI-BS-3	5/10/2011	Mercury	3.00E-02	0.82		0.41	0.59	mg/kd DW	<1	<1
SKI-BS-4	5/10/2011	Naphthalene	8.40E-02	2.81	2.99E+00	99	170	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Naphthalene	2.80E-02	0.952	2.94E+00	99	170	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Naphthalene	1.40E-02 T	0.137		2100	2400	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Naphthalene	1.20E-02	0.137		2100	2400	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Naphthalene	4.30E-03 T	2.81	1.53E-01	99	170	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Naphthalene	3.20E-03 T	0.971	3.30E-01	99	170	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	OCDD	9.79E-04							
SKI-BS-6	5/10/2011	OCDD	2.48E-04							
SKI-BS-4	5/10/2011	OCDD	2.44E-04							
SKI-BS-5	5/10/2011	OCDD	2.23E-04							
SKI-BS-3	5/10/2011	OCDD	1.06E-04							
SKI-BS-1	5/10/2011	OCDD	3.24E-05							
SKI-BS-5	5/10/2011	OCDF	2.72E-05							
SKI-BS-2[a]	5/10/2011	OCDF	2.35E-05							
SKI-BS-6	5/10/2011	OCDF	1.35E-05							
SKI-BS-4	5/10/2011	OCDF	8.22E-06							
SKI-BS-1	5/10/2011	OCDF	1.59E-06 T							
SKI-BS-3	5/10/2011	OCDF	8.37E-07 T							
SKI-BS-6	5/10/2011	PCBs (total calc'd)	7.36E-02	0.971	7.58E+00	12	65	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	PCBs (total calc'd)	7.30E-02	0.82	8.90E+00	12	65	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	PCBs (total calc'd)	7.30E-02	0.952	7.67E+00	12	65	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	PCBs (total calc'd)	4.30E-02	0.137		130	1000	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	PCBs (total calc'd)	1.16E-02	2.81	4.13E-01	12	65	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	PCBs (total calc'd)	3.80E-03	1.29	2.95E-01	12	65	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Phenanthrene	8.60E-02	0.137		1500	5400	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Phenanthrene	7.90E-02	2.81	2.81E+00	100	480	mg/kg OC	<1	<1

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-5	5/10/2011	Phenanthrene	4.00E-02	0.952	4.20E+00	100	480	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Phenanthrene	2.60E-02	0.137		1500	5400	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Phenanthrene	1.00E-02	2.81	3.56E-01	100	480	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Phenanthrene	5.00E-03	0.971	5.15E-01	100	480	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	Phenanthrene	3.10E-03 T	1.29	2.40E-01	100	480	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Phenol	1.00E-02 T	2.81	3.56E-01	420	1200	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Pyrene	1.30E-01	0.137		2600	3300	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Pyrene	5.10E-02	0.137		2600	3300	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Pyrene	3.00E-02	2.81	1.07E+00	1000	1000	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Pyrene	2.90E-02	0.952	3.05E+00	1000	1000	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Pyrene	2.00E-02	2.81	7.12E-01	1000	1000	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Pyrene	7.40E-03	0.971	7.62E-01	1000	1000	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	Pyrene	2.90E-03 T	1.29	2.25E-01	1000	1000	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Pyrene	2.80E-03 T	0.82	3.41E-01	1000	1000	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Total HPAH (calc'd)	7.23E-01 J	0.137		12000	17000	ug/kg DW	<1	<1
SKI-BS-2[a]	5/10/2011	Total HPAH (calc'd)	2.87E-01	0.137		12000	17000	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Total HPAH (calc'd)	1.52E-01	0.952	1.60E+01	960	5300	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Total HPAH (calc'd)	1.46E-01 J	2.81	5.20E+00	960	5300	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Total HPAH (calc'd)	1.06E-01	2.81	3.76E+00	960	5300	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Total HPAH (calc'd)	3.84E-02 J	0.971	3.95E+00	960	5300	mg/kg OC	<1	<1
SKI-BS-3	5/10/2011	Total HPAH (calc'd)	3.05E-02 J	0.82	3.72E+00	960	5300	mg/kg OC	<1	<1
SKI-BS-5	5/10/2011	Total HPAH (calc'd)	1.10E-02 J	0.952	1.16E+00	960	5300	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	Total HPAH (calc'd)	7.60E-03 J	1.29	5.89E-01	960	5300	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Total HpCDD	2.87E-04							
SKI-BS-6	5/10/2011	Total HpCDD	1.09E-04							
SKI-BS-4	5/10/2011	Total HpCDD	8.56E-05							
SKI-BS-5	5/10/2011	Total HpCDD	7.45E-05							
SKI-BS-3	5/10/2011	Total HpCDD	5.59E-05							
SKI-BS-1	5/10/2011	Total HpCDD	1.02E-05							
SKI-BS-5	5/10/2011	Total HpCDF	4.45E-05							
SKI-BS-2[a]	5/10/2011	Total HpCDF	3.85E-05							
SKI-BS-6	5/10/2011	Total HpCDF	3.02E-05							
SKI-BS-4	5/10/2011	Total HpCDF	1.25E-05							
SKI-BS-1	5/10/2011	Total HpCDF	1.77E-06							
SKI-BS-3	5/10/2011	Total HpCDF	1.26E-06							
SKI-BS-2[a]	5/10/2011	Total HxCDD	4.05E-05							
SKI-BS-6	5/10/2011	Total HxCDD	3.76E-05							
SKI-BS-4	5/10/2011	Total HxCDD	2.43E-05							
SKI-BS-5	5/10/2011	Total HxCDD	2.05E-05							
SKI-BS-3	5/10/2011	Total HxCDD	6.43E-06							
SKI-BS-1	5/10/2011	Total HxCDD	2.04E-06							
SKI-BS-6	5/10/2011	Total HxCDF	2.90E-05							
SKI-BS-2[a]	5/10/2011	Total HxCDF	2.71E-05							

Table A-4a
Chemicals Detected in Bank Soil Samples Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL
SKI-BS-5	5/10/2011	Total HxCDF	2.49E-05							
SKI-BS-4	5/10/2011	Total HxCDF	1.63E-05							
SKI-BS-3	5/10/2011	Total HxCDF	2.36E-06							
SKI-BS-1	5/10/2011	Total HxCDF	8.90E-07							
SKI-BS-4	5/10/2011	Total LPAH (calc'd)	1.63E-01	2.81	5.80E+00	370	780	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Total LPAH (calc'd)	1.11E-01 J	0.137		5200	13000	ug/kg DW	<1	<1
SKI-BS-5	5/10/2011	Total LPAH (calc'd)	7.84E-02 J	0.952	8.24E+00	370	780	mg/kg OC	<1	<1
SKI-BS-2[a]	5/10/2011	Total LPAH (calc'd)	5.39E-02 J	0.137		5200	13000	ug/kg DW	<1	<1
SKI-BS-4	5/10/2011	Total LPAH (calc'd)	1.43E-02 J	2.81	5.09E-01	370	780	mg/kg OC	<1	<1
SKI-BS-6	5/10/2011	Total LPAH (calc'd)	8.20E-03 J	0.971	8.44E-01	370	780	mg/kg OC	<1	<1
SKI-BS-1	5/10/2011	Total LPAH (calc'd)	3.10E-03 J	1.29	2.40E-01	370	780	mg/kg OC	<1	<1
SKI-BS-4	5/10/2011	Total PeCDD	1.59E-05							
SKI-BS-6	5/10/2011	Total PeCDD	1.48E-05							
SKI-BS-5	5/10/2011	Total PeCDD	1.36E-05							
SKI-BS-2[a]	5/10/2011	Total PeCDD	1.28E-05							
SKI-BS-3	5/10/2011	Total PeCDD	3.06E-06							
SKI-BS-1	5/10/2011	Total PeCDD	6.38E-07							
SKI-BS-5	5/10/2011	Total PeCDF	3.10E-05							
SKI-BS-2[a]	5/10/2011	Total PeCDF	2.82E-05							
SKI-BS-4	5/10/2011	Total PeCDF	2.08E-05							
SKI-BS-6	5/10/2011	Total PeCDF	1.92E-05							
SKI-BS-3	5/10/2011	Total PeCDF	1.51E-06							
SKI-BS-1	5/10/2011	Total PeCDF	9.99E-07							
SKI-BS-4	5/10/2011	Total TCDD	1.41E-05							
SKI-BS-5	5/10/2011	Total TCDD	1.22E-05							
SKI-BS-6	5/10/2011	Total TCDD	9.79E-06							
SKI-BS-2[a]	5/10/2011	Total TCDD	9.30E-06							
SKI-BS-3	5/10/2011	Total TCDD	2.77E-06							
SKI-BS-1	5/10/2011	Total TCDD	2.27E-06							
SKI-BS-2[a]	5/10/2011	Total TCDF	2.80E-05							
SKI-BS-5	5/10/2011	Total TCDF	2.65E-05							
SKI-BS-4	5/10/2011	Total TCDF	2.45E-05							
SKI-BS-6	5/10/2011	Total TCDF	2.04E-05							
SKI-BS-3	5/10/2011	Total TCDF	7.13E-06							
SKI-BS-1	5/10/2011	Total TCDF	4.94E-07							
SKI-BS-4	5/10/2011	Zinc	1.22E+02	2.81		410	960	mg/kd DW	<1	<1
SKI-BS-2[a]	5/10/2011	Zinc	7.20E+01	0.137		410	960	mg/kd DW	<1	<1
SKI-BS-6	5/10/2011	Zinc	6.30E+01	0.971		410	960	mg/kd DW	<1	<1
SKI-BS-3	5/10/2011	Zinc	5.90E+01	0.82		410	960	mg/kd DW	<1	<1
SKI-BS-5	5/10/2011	Zinc	5.00E+01	0.952		410	960	mg/kd DW	<1	<1
SKI-BS-1	5/10/2011	Zinc	3.20E+01	1.29		410	960	mg/kd DW	<1	<1

Table A-4a
Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area

Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	Exceedance Factors	
									SQS	CSL

mg/kg - milligrams per kilogram	SQS - SMS Sediment Quality Standard
ug/kg - micrograms per kilogram	CSL - SMS Cleanup Screening Level
DW - dry weight	SMS - Sediment Management Standard (Washington Administrative Code 173-204)
TOC - total organic carbon	J - Estimated value between the method detection limit and the laboratory reporting limit
OC - organic carbon normalized	T - Value is between the method detection limit and the laboratory reporting limit

Table presents detected chemicals only.

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

[a] Due to the TOC in this sample, results were compared to the Lowest Apparent Effects Threshold (LAET) or the second LAET (2LAET) value rather than the SQS and/or CSL. The LAET is functionally equivalent to the SQS and the 2LAET is functionally equivalent to the CSL. OC-normalization is not considered to be appropriate for when TOC concentrations are less than or equal to 0.5 percent or greater than or equal to 4.0 percent.

Table A-4b
Comparison of Chemicals Detected in Bank Soil Samples
Near the Sea King Industrial Park Source Control Area
to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Location Name	Date Collected	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factor	
							LDW Background	LDW RAL
SKI-BS-4	5/10/2011	Arsenic	19.7	7	57	mg/kg	2.8	<1
SKI-BS-2	5/10/2011	Arsenic	14.4	7	57	mg/kg	2.1	<1
SKI-BS-5	5/10/2011	Arsenic	13.0	7	57	mg/kg	1.9	<1
SKI-BS-3	5/10/2011	Arsenic	12.7	7	57	mg/kg	1.8	<1
SKI-BS-6	5/10/2011	Arsenic	8.7	7	57	mg/kg	1.2	<1
SKI-BS-2	5/10/2011	Carcinogenic PAHs (calc'd)	36.84	9	1,000	ug/kg	4.1	<1
SKI-BS-5	5/10/2011	Carcinogenic PAHs (calc'd)	14.28	9	1,000	ug/kg	1.6	<1
SKI-BS-4	5/10/2011	Carcinogenic PAHs (calc'd)	13.08	9	1,000	ug/kg	1.5	<1
SKI-BS-6	5/10/2011	Carcinogenic PAHs (calc'd)	4.03	9	1,000	ug/kg	<1	<1
SKI-BS-3	5/10/2011	Carcinogenic PAHs (calc'd)	3.96	9	1,000	ug/kg	<1	<1
SKI-BS-1	5/10/2011	Carcinogenic PAHs (calc'd)	3.10	9	1,000	ug/kg	<1	<1
SKI-BS-2	5/10/2011	Dioxin/Furans TEQ	5.12	2	25	ng/kg	2.6	<1
SKI-BS-6	5/10/2011	Dioxin/Furans TEQ	5.03	2	25	ng/kg	2.5	<1
SKI-BS-4	5/10/2011	Dioxin/Furans TEQ	3.24	2	25	ng/kg	1.6	<1
SKI-BS-5	5/10/2011	Dioxin/Furans TEQ	2.90	2	25	ng/kg	1.4	<1
SKI-BS-3	5/10/2011	Dioxin/Furans TEQ	0.88	2	25	ng/kg	<1	<1
SKI-BS-1	5/10/2011	Dioxin/Furans TEQ	0.20	2	25	ng/kg	<1	<1
SKI-BS-6	5/10/2011	PCBs	73.6	2	240	ug/kg	37	<1
SKI-BS-3	5/10/2011	PCBs	73	2	240	ug/kg	37	<1
SKI-BS-5	5/10/2011	PCBs	73	2	240	ug/kg	37	<1
SKI-BS-2	5/10/2011	PCBs	43	2	240	ug/kg	22	<1
SKI-BS-4	5/10/2011	PCBs	11.6	2	240	ug/kg	5.8	<1
SKI-BS-1	5/10/2011	PCBs	3.8	2	240	ug/kg	1.9	<1

mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram
ng/kg - nanograms per kilogram
LDW - Lower Duwamish Waterway

PAHs - polycyclic aromatic hydrocarbons
PCBs - polychlorinated biphenyls
RAL - Remedial Action Level
TEQ - toxic equivalency

Table presents detected chemicals only.
Exceedance factors are the ration of the detected concentrations to the LDW Natural Background concentration (AECOM 2012) or the LDW RAL (USEPA 2013); exceedance factors are shown only if they are greater than 1.

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
96-ST2	12/1/2010	Inline	1,2,3,4,6,7,8-HPCDD	52.8	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDD	238	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDD	45.9	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDD	23.6	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDD	9.22	1.5				ng/kg DW		
96-ST2	12/1/2010	Inline	1,2,3,4,6,7,8-HPCDF	11.7	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDF	46.5	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDF	9.31	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,4,6,7,8-HPCDF	5.32	3.9				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,4,7,8,9-HPCDF	0.594 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,4,7,8,9-HPCDF	0.34 J	3.9				ng/kg DW		
96-ST2	12/1/2010	Inline	1,2,3,4,7,8-HXCDD	0.926 J	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,4,7,8-HXCDD	3.8 J	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,4,7,8-HXCDD	0.818 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,4,7,8-HXCDD	0.452 J	3.9				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,4,7,8-HXCDF	4.26 J	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,4,7,8-HXCDF	1.07 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,4,7,8-HXCDF	0.451 J	3.9				ng/kg DW		
96-ST2	12/1/2010	Inline	1,2,3,6,7,8-HXCDD	2.24 J	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,6,7,8-HXCDD	10.1	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,6,7,8-HXCDD	2.08 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,6,7,8-HXCDD	1.14 J	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	1,2,3,6,7,8-HXCDD	0.46 J	1.5				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,6,7,8-HXCDF	2.69 J	8.5				ng/kg DW		
96-ST2	12/1/2010	Inline	1,2,3,7,8,9-HXCDD	1.46 J	4.6				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,7,8,9-HXCDD	2.31 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,7,8,9-HXCDD	1.17 J	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	1,2,3,7,8,9-HXCDD	0.363 J	1.5				ng/kg DW		
96-ST2	12/1/2010	Inline	1,2,3,7,8-PECDD	0.577 J	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	1,2,3,7,8-PECDD	2.06 J	8.5				ng/kg DW		
RCB268	5/13/2011	RCB	1,2,3,7,8-PECDD	0.324 J	3.9				ng/kg DW		
RCB267	5/13/2011	RCB	1,2,3,7,8-PECDF	0.404 J	7.8				ng/kg DW		
KCS96E1	11/7/2011	Inline	1,4-Dichlorobenzene	0.011 J	1.1	1.0	3.1	9	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	1-Methylnaphthalene	0.24 J	3.3	7.3			mg/kg OC		
KC-09	4/4/2012	Inline	1-Methylnaphthalene	0.064 J	2.9	2.2			mg/kg OC		
KCS96E1	11/7/2011	Inline	1-Methylnaphthalene	0.017 J	1.1	1.6			mg/kg OC		
KC-03	4/4/2012	Inline	1-Methylnaphthalene	0.01 J	3.1	0.3			mg/kg OC		
RCB271	5/13/2011	RCB	2,3,4,6,7,8-HXCDF	3.63 J	8.5				ng/kg DW		

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB267	5/13/2011	RCB	2,3,4,6,7,8-HXCDF	0.34 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	2,3,4,6,7,8-HXCDF	0.3 J	3.9				ng/kg DW		
RCB271	5/13/2011	RCB	2,3,4,7,8-PECDF	1.17 J	8.5				ng/kg DW		
RCB268	5/13/2011	RCB	2,3,4,7,8-PECDF	0.139 J	3.9				ng/kg DW		
RCB271	5/13/2011	RCB	2,3,7,8-TCDF	0.836 J	8.5				ng/kg DW		
96-ST1	4/24/2009	Trap	2-Methylnaphthalene	0.15	16.9		0.67	1.4	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	2-Methylnaphthalene	0.53 J	3.3	16.2	38	64	mg/kg OC	<1	<1
KC-05	4/4/2012	Inline	2-Methylnaphthalene	0.18 J	24.0		0.67	1.4	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	2-Methylnaphthalene	0.11 J	2.9	3.8	38	64	mg/kg OC	<1	<1
KC-06	4/4/2012	Inline	2-Methylnaphthalene	0.066 J	6.8		0.67	1.4	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	2-Methylnaphthalene	0.038	1.3	2.9	38	64	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	2-Methylnaphthalene	0.02	1.1	1.8	38	64	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	2-Methylnaphthalene	0.016 J	3.1	0.5	38	64	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	2-Methylnaphthalene	0.099 J	5.0		0.67	1.4	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	2-Methylnaphthalene	0.026	2.6	1.0	38	64	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	2-Methylphenol	0.073 J	8.5		0.063	0.063	mg/kg DW	1.2	1.2
MH239	6/3/2009	Inline	4-Methylphenol	2.8	6.7		0.67	0.67	mg/kg DW	4.2	4.2
96-ST1	4/24/2009	Trap	4-Methylphenol	2.5	16.9		0.67	0.67	mg/kg DW	3.7	3.7
KC-04	4/4/2012	Inline	4-Methylphenol	1.4	18.4		0.67	0.67	mg/kg DW	2.1	2.1
KCS96C2	11/7/2011	Inline	4-Methylphenol	1	14.9		0.67	0.67	mg/kg DW	1.5	1.5
CB129	10/10/2008	CB	4-Methylphenol	0.96 J	4.6		0.67	0.67	mg/kg DW	1.4	1.4
KCS96B	11/7/2011	Inline	4-Methylphenol	0.9	31.5		0.67	0.67	mg/kg DW	1.3	1.3
KC-05	4/4/2012	Inline	4-Methylphenol	0.72	24.0		0.67	0.67	mg/kg DW	1.1	1.1
96-ST2	4/24/2009	Trap	4-Methylphenol	0.48	8.9		0.67	0.67	mg/kg DW	<1	<1
KCS96B1	11/7/2011	Inline	4-Methylphenol	0.36 J	8.9		0.67	0.67	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	4-Methylphenol	0.28	2.9		0.67	0.67	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	4-Methylphenol	0.23	3.9		0.67	0.67	mg/kg DW	<1	<1
KCS96D1	11/7/2011	Inline	4-Methylphenol	0.12	1.6		0.67	0.67	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	4-Methylphenol	0.07 J	6.8		0.67	0.67	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	4-Methylphenol	0.069 J	11.7		0.67	0.67	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	4-Methylphenol	0.041 J	3.3		0.67	0.67	mg/kg DW	<1	<1
KCS96F	11/7/2011	Inline	4-Methylphenol	0.021 J	2.2		0.67	0.67	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	4-Methylphenol	0.013 J	3.1		0.67	0.67	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	4-Methylphenol	0.4	8.5		0.67	0.67	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	4-Methylphenol	0.11	3.9		0.67	0.67	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	4-Methylphenol	0.081 J	7.8		0.67	0.67	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	4-Methylphenol	0.038	2.6		0.67	0.67	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Acenaphthene	0.21	16.9		0.5	0.73	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-09	4/4/2012	Inline	Acenaphthene	0.13	2.9	4.5	16	57	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Acenaphthene	0.11	4.6		0.5	0.73	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Acenaphthene	0.086	2.8	3.0	16	57	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Acenaphthene	0.022	1.1	2.0	16	57	mg/kg OC	<1	<1
96-ST1	12/11/2008	Inline	Acenaphthene	0.022	1.3	1.7	16	57	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Acenaphthene	0.021 J	3.3	0.6	16	57	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Acenaphthene	0.013 J	1.6	0.8	16	57	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Acenaphthene	0.0094 J	5.5		0.5	0.73	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Acenaphthene	0.024	2.6	0.9	16	57	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Acenaphthylene	0.012 J	3.1	0.4	66	66	mg/kg OC	<1	<1
96-ST1	4/24/2009	Trap	Anthracene	0.58	16.9		0.96	4.4	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Anthracene	0.21 J	9.1		0.96	4.4	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Anthracene	0.53	2.9	18.4	220	1200	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Anthracene	0.29	4.6		0.96	4.4	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Anthracene	0.28	2.8	9.9	220	1200	mg/kg OC	<1	<1
KC-06	4/4/2012	Inline	Anthracene	0.07 J	6.8		0.96	4.4	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Anthracene	0.054	1.3	4.2	220	1200	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Anthracene	0.032	0.8	3.8	220	1200	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Anthracene	0.02	1.1	1.8	220	1200	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Anthracene	0.018 J	5.5		0.96	4.4	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Anthracene	0.015 J	3.1	0.5	220	1200	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Anthracene	0.14	5.0		0.96	4.4	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Aroclor 1232	0.02	0.9	2.2			mg/kg OC		
RCB154	4/13/2011	RCB	Aroclor 1232	0.02	2.6	0.8			mg/kg OC		
KCS96C2	11/7/2011	Inline	Aroclor 1248	0.11 J	14.9				mg/kg DW		
KCS96B1	11/7/2011	Inline	Aroclor 1248	0.049 Y	8.9				mg/kg DW		
KC-06	4/4/2012	Inline	Aroclor 1248	0.039 Y	6.8				mg/kg DW		
KC-03	4/4/2012	Inline	Aroclor 1248	0.038 Y	3.1	1.2			mg/kg OC		
KCS96C1	11/7/2011	Inline	Aroclor 1248	0.038 Y	3.3	1.2			mg/kg OC		
KC-09	4/4/2012	Inline	Aroclor 1248	0.036	2.9	1.3			mg/kg OC		
RCB154	10/10/2008	RCB	Aroclor 1248	0.028	5.0				mg/kg DW		
RCB154	4/13/2011	RCB	Aroclor 1248	0.024 Y	2.6	0.9			mg/kg OC		
96-ST2	12/1/2010	Trap	Aroclor 1254	0.037	9.1				mg/kg DW		
96-ST1	12/1/2010	Trap	Aroclor 1254	0.028	5.9				mg/kg DW		
CB129	10/10/2008	CB	Aroclor 1254	0.053	4.6				mg/kg DW		
KCS96C2	11/7/2011	Inline	Aroclor 1254	0.31 Y	14.9				mg/kg DW		
KC-03	4/4/2012	Inline	Aroclor 1254	0.25 J	3.1	8.0			mg/kg OC		
KCS96B1	11/7/2011	Inline	Aroclor 1254	0.098 Y	8.9				mg/kg DW		

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-05	4/4/2012	Inline	Aroclor 1254	0.096 J	24.0				mg/kg DW		
KCS96C1	11/7/2011	Inline	Aroclor 1254	0.09	3.3	2.8			mg/kg OC		
KC-06	4/4/2012	Inline	Aroclor 1254	0.067 J	6.8				mg/kg DW		
MH239	6/3/2009	Inline	Aroclor 1254	0.053	6.7				mg/kg DW		
KC-09	4/4/2012	Inline	Aroclor 1254	0.046 J	2.9	1.6			mg/kg OC		
KCS96A1	11/7/2011	Inline	Aroclor 1254	0.043	5.5				mg/kg DW		
96-ST1	12/11/2008	Inline	Aroclor 1254	0.039	1.3	3.0			mg/kg OC		
KCS96B	11/7/2011	Inline	Aroclor 1254	0.034	31.5				mg/kg DW		
KC-04	4/4/2012	Inline	Aroclor 1254	0.033 J	18.4				mg/kg DW		
KCS96E1	11/7/2011	Inline	Aroclor 1254	0.021	1.1	1.9			mg/kg OC		
KC-01	4/4/2012	Inline	Aroclor 1254	0.014 J	3.9	0.4			mg/kg OC		
RCB154	4/13/2011	RCB	Aroclor 1254	0.024	2.6	0.9			mg/kg OC		
RCB154	10/10/2008	RCB	Aroclor 1254	0.021	5.0				mg/kg DW		
96-ST2	12/1/2010	Trap	Aroclor 1260	0.025	9.1				mg/kg DW		
CB129	10/10/2008	CB	Aroclor 1260	0.034	4.6				mg/kg DW		
KCS96C2	11/7/2011	Inline	Aroclor 1260	1.2 J	14.9				mg/kg DW		
MH239	6/3/2009	Inline	Aroclor 1260	0.12	6.7				mg/kg DW		
KC-03	4/4/2012	Inline	Aroclor 1260	0.066 J	3.1	2.1			mg/kg OC		
KCS96C1	11/7/2011	Inline	Aroclor 1260	0.059	3.3	1.8			mg/kg OC		
96-ST1	12/11/2008	Inline	Aroclor 1260	0.05	1.3	3.8			mg/kg OC		
KC-06	4/4/2012	Inline	Aroclor 1260	0.047 J	6.8				mg/kg DW		
KCS96A1	11/7/2011	Inline	Aroclor 1260	0.036 J	5.5				mg/kg DW		
KC-04	4/4/2012	Inline	Aroclor 1260	0.034 J	18.4				mg/kg DW		
KC-09	4/4/2012	Inline	Aroclor 1260	0.032 J	2.9	1.1			mg/kg OC		
KCS96B1	11/7/2011	Inline	Aroclor 1260	0.03 J	8.9				mg/kg DW		
KC-01	4/4/2012	Inline	Aroclor 1260	0.011 J	3.9	0.3			mg/kg OC		
KC-02	4/4/2012	Inline	Aroclor 1260	0.0094 J	1.7	0.5			mg/kg OC		
RCB223	6/3/2009	RCB	Aroclor 1260	0.02	2.6	0.8			mg/kg OC		
96-ST2	12/1/2010	Trap	Arsenic	30	9.1		57	93	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Arsenic	20	16.9		57	93	mg/kg DW	<1	<1
CB114	3/25/2008	CB	Arsenic	20.5	0.4		57	93	mg/kg DW	<1	<1
CB129	10/10/2008	CB	Arsenic	8	4.6		57	93	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Arsenic	20	6.8		57	93	mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Arsenic	20	1.1		57	93	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Arsenic	16	4.6		57	93	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Arsenic	11	0.9		57	93	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Arsenic	11	3.1		57	93	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Arsenic	10 J	6.7		57	93	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96F	11/7/2011	Inline	Arsenic	10	2.2		57	93	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Arsenic	7.5	14.9		57	93	mg/kg DW	<1	<1
96-ST1	12/1/2010	Inline	Arsenic	7	0.8		57	93	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Arsenic	7	1.3		57	93	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Arsenic	7	2.8		57	93	mg/kg DW	<1	<1
KCS96A1	11/7/2011	Inline	Arsenic	5	5.5		57	93	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Arsenic	19	2.6		57	93	mg/kg DW	<1	<1
RCB154	10/10/2008	RCB	Arsenic	12	5.0		57	93	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Arsenic	11 J	2.6		57	93	mg/kg DW	<1	<1
RCB221	6/3/2009	RCB	Arsenic	9 J	0.4		57	93	mg/kg DW	<1	<1
RCB222	6/3/2009	RCB	Arsenic	8 J	0.6		57	93	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Arsenic	7	7.8		57	93	mg/kg DW	<1	<1
RCB136	3/25/2008	RCB	Arsenic	5.6	0.8		57	93	mg/kg DW	<1	<1
CB129	10/10/2008	CB	BBP	25	4.6		0.063	0.9	mg/kg DW	397	28
KC-04	4/4/2012	Inline	BBP	19	18.4		0.063	0.9	mg/kg DW	302	21
RCB154	10/10/2008	RCB	BBP	8.2	5.0		0.063	0.9	mg/kg DW	130	9.1
KCS96C2	11/7/2011	Inline	BBP	4.2	14.9		0.063	0.9	mg/kg DW	67	4.7
KC-05	4/4/2012	Inline	BBP	4.2	24.0		0.063	0.9	mg/kg DW	67	4.7
RCB154	4/13/2011	RCB	BBP	3	2.6	117.5	4.9	64	mg/kg OC	24	1.8
MH239	6/3/2009	Inline	BBP	1.2	6.7		0.063	0.9	mg/kg DW	19	1.3
KCS96C1	11/7/2011	Inline	BBP	2.9	3.3	88.7	4.9	64	mg/kg OC	18	1.4
KCS96B1	11/7/2011	Inline	BBP	1	8.9		0.063	0.9	mg/kg DW	16	1.1
KCS96E1	11/7/2011	Inline	BBP	0.8	1.1	73.4	4.9	64	mg/kg OC	15	1.1
KCS96B	11/7/2011	Inline	BBP	0.7	31.5		0.063	0.9	mg/kg DW	11	<1
96-ST2	12/1/2010	Trap	BBP	0.55	9.1		0.063	0.9	mg/kg DW	8.7	<1
RCB267	5/13/2011	RCB	BBP	0.28	7.8		0.063	0.9	mg/kg DW	4.4	<1
KC-01	4/4/2012	Inline	BBP	0.74	3.9	18.8	4.9	64	mg/kg OC	3.8	<1
KCS96A1	11/7/2011	Inline	BBP	0.22	5.5		0.063	0.9	mg/kg DW	3.5	<1
KCS96D1	11/7/2011	Inline	BBP	0.25	1.6	15.4	4.9	64	mg/kg OC	3.1	<1
KC-09	4/4/2012	Inline	BBP	0.39	2.9	13.5	4.9	64	mg/kg OC	2.8	<1
KC-06	4/4/2012	Inline	BBP	0.17	6.8		0.063	0.9	mg/kg DW	2.7	<1
RCB268	5/13/2011	RCB	BBP	0.445	3.9	11.4	4.9	64	mg/kg OC	2.3	<1
KC-02	4/4/2012	Inline	BBP	0.19	1.7	11.1	4.9	64	mg/kg OC	2.3	<1
96-ST1	4/24/2009	Trap	BBP	0.13	16.9		0.063	0.9	mg/kg DW	2.1	<1
96-ST2	4/24/2009	Trap	BBP	0.11	8.9		0.063	0.9	mg/kg DW	1.7	<1
96-ST2	12/1/2010	Inline	BBP	0.1	4.6		0.063	0.9	mg/kg DW	1.6	<1
CB114	3/25/2008	CB	BBP	0.091	0.4		0.063	0.9	mg/kg DW	1.4	<1
96-ST1	12/1/2010	Trap	BBP	0.085 J	5.9		0.063	0.9	mg/kg DW	1.3	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB223	6/3/2009	RCB	BBP	0.17	2.6	6.6	4.9	64	mg/kg OC	1.3	<1
KCS96H	11/7/2011	Inline	BBP	0.074	11.7		0.063	0.9	mg/kg DW	1.2	<1
KC-03	4/4/2012	Inline	BBP	0.17	3.1	5.4	4.9	64	mg/kg OC	1.1	<1
96-ST1	4/24/2009	Inline	BBP	0.14	2.8	4.9	4.9	64	mg/kg OC	1.0	<1
96-ST3	12/3/2010	Trap	BBP	0.091	2.9	3.1	4.9	64	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	BBP	0.044 J	0.9	4.8	4.9	64	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	BBP	0.037	0.8	4.4	4.9	64	mg/kg OC	<1	<1
96-ST1	12/11/2008	Inline	BBP	0.028	1.3	2.2	4.9	64	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	BBP	0.011 J	1.4	0.8	4.9	64	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	BEHP	70 B	18.4		1.3	1.9	mg/kg DW	54	37
KC-05	4/4/2012	Inline	BEHP	68	24.0		1.3	1.9	mg/kg DW	52	36
KCS96C2	11/7/2011	Inline	BEHP	49 B	14.9		1.3	1.9	mg/kg DW	38	26
KCS96B1	11/7/2011	Inline	BEHP	38 B	8.9		1.3	1.9	mg/kg DW	29	20
MH239	6/3/2009	Inline	BEHP	20	6.7		1.3	1.9	mg/kg DW	15	11
CB129	10/10/2008	CB	BEHP	8.7	4.6		1.3	1.9	mg/kg DW	6.7	4.6
RCB154	10/10/2008	RCB	BEHP	5.1	5.0		1.3	1.9	mg/kg DW	3.9	2.7
KC-06	4/4/2012	Inline	BEHP	4.7 B	6.8		1.3	1.9	mg/kg DW	3.6	2.5
96-ST2	12/1/2010	Trap	BEHP	4.5 B	9.1		1.3	1.9	mg/kg DW	3.5	2.4
KCS96H	11/7/2011	Inline	BEHP	3.5 B	11.7		1.3	1.9	mg/kg DW	2.7	1.8
96-ST1	4/24/2009	Trap	BEHP	3.3	16.9		1.3	1.9	mg/kg DW	2.5	1.7
KC-02	4/4/2012	Inline	BEHP	2 B	1.7	117.0	47	78	mg/kg OC	2.5	1.5
KCS96B	11/7/2011	Inline	BEHP	2.8 B	31.5		1.3	1.9	mg/kg DW	2.2	1.5
RCB154	4/13/2011	RCB	BEHP	2.4	2.6	94.0	47	78	mg/kg OC	2.0	1.2
KCS96C1	11/7/2011	Inline	BEHP	2.7 B	3.3	82.6	47	78	mg/kg OC	1.8	1.1
KC-09	4/4/2012	Inline	BEHP	2.3 B	2.9	79.9	47	78	mg/kg OC	1.7	1.0
96-ST1	12/11/2008	Inline	BEHP	0.92	1.3	70.8	47	78	mg/kg OC	1.5	<1
KCS96D1	11/7/2011	Inline	BEHP	1.1 B	1.6	67.9	47	78	mg/kg OC	1.4	<1
KCS96E1	11/7/2011	Inline	BEHP	0.73 B	1.1	67.0	47	78	mg/kg OC	1.4	<1
KC-01	4/4/2012	Inline	BEHP	2.4 B	3.9	61.1	47	78	mg/kg OC	1.3	<1
96-ST2	4/24/2009	Trap	BEHP	1.5	8.9		1.3	1.9	mg/kg DW	1.2	<1
RCB267	5/13/2011	RCB	BEHP	1.5	7.8		1.3	1.9	mg/kg DW	1.2	<1
RCB222	6/3/2009	RCB	BEHP	0.3	0.6	52.9	47	78	mg/kg OC	1.1	<1
KCS96A1	11/7/2011	Inline	BEHP	1.4 B	5.5		1.3	1.9	mg/kg DW	1.1	<1
96-ST1	12/1/2010	Trap	BEHP	1.1 B	5.9		1.3	1.9	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	BEHP	1.1 B	2.9	38.1	47	78	mg/kg OC	<1	<1
CB114	3/25/2008	CB	BEHP	0.2	0.4		1.3	1.9	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	BEHP	1 B	3.1	31.8	47	78	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	BEHP	0.98 B	2.2	44.7	47	78	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
96-ST2	12/1/2010	Inline	BEHP	0.73 B	4.6		1.3	1.9	mg/kg DW	<1	<1
96-ST2	4/24/2009	Inline	BEHP	0.64	3.4	18.9	47	78	mg/kg OC	<1	<1
96-ST1	4/24/2009	Inline	BEHP	0.62	2.8	21.8	47	78	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	BEHP	0.33	0.9	36.3	47	78	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	BEHP	0.22 B	1.4	15.7	47	78	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	BEHP	0.17	0.8	20.3	47	78	mg/kg OC	<1	<1
KC-08	4/4/2012	Inline	BEHP	0.12 J	0.5	25.5	47	78	ug/kg DW	<1	<1
RCB271	5/13/2011	RCB	BEHP	1	8.5		1.3	1.9	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	BEHP	0.425	3.9	10.9	47	78	mg/kg OC	<1	<1
RCB136	3/25/2008	RCB	BEHP	0.2	0.8	25.9	47	78	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	BEHP	0.2	2.6	7.7	47	78	mg/kg OC	<1	<1
RCB269	5/13/2011	RCB	BEHP	0.048 J	1.5	3.3	47	78	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	BEHP	0.024	0.4		1.3	1.9	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Benzo(a)anthracene	1.1	16.9		1.3	1.6	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Benzo(a)anthracene	0.7	9.1		1.3	1.6	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Benzo(a)anthracene	0.16	8.9		1.3	1.6	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Benzo(a)anthracene	0.15	5.9		1.3	1.6	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Benzo(a)anthracene	0.11	2.9	3.8	110	270	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Benzo(a)anthracene	2	2.9	69.4	110	270	mg/kg OC	<1	<1
96-ST1	4/24/2009	Inline	Benzo(a)anthracene	0.71	2.8	25.0	110	270	mg/kg OC	<1	<1
KCS96C2	11/7/2011	Inline	Benzo(a)anthracene	0.65	14.9		1.3	1.6	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Benzo(a)anthracene	0.61	4.6		1.3	1.6	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Benzo(a)anthracene	0.57	24.0		1.3	1.6	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Benzo(a)anthracene	0.48	6.7		1.3	1.6	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Benzo(a)anthracene	0.34	6.8		1.3	1.6	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Benzo(a)anthracene	0.26	31.5		1.3	1.6	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Benzo(a)anthracene	0.16	18.4		1.3	1.6	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Benzo(a)anthracene	0.16	1.3	12.3	110	270	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Benzo(a)anthracene	0.14	3.4	4.1	110	270	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Benzo(a)anthracene	0.12	0.8	14.4	110	270	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Benzo(a)anthracene	0.11	5.5		1.3	1.6	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Benzo(a)anthracene	0.11 J	3.9	2.8	110	270	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Benzo(a)anthracene	0.085	3.3	2.6	110	270	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Benzo(a)anthracene	0.054	1.1	5.0	110	270	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Benzo(a)anthracene	0.054 J	1.7	3.2	110	270	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Benzo(a)anthracene	0.053	1.6	3.3	110	270	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Benzo(a)anthracene	0.053	3.1	1.7	110	270	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Benzo(a)anthracene	0.032	0.9	3.5	110	270	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96H	11/7/2011	Inline	Benzo(a)anthracene	0.028 J	11.7		1.3	1.6	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Benzo(a)anthracene	0.025	1.4	1.8	110	270	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	Benzo(a)anthracene	0.018 J	2.2	0.8	110	270	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Benzo(a)anthracene	0.017 J	0.8	2.2	110	270	mg/kg OC	<1	<1
RCB267	5/13/2011	RCB	Benzo(a)anthracene	0.33	7.8		1.3	1.6	mg/kg DW	<1	<1
RCB154	10/10/2008	RCB	Benzo(a)anthracene	0.29	5.0		1.3	1.6	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Benzo(a)anthracene	0.25	2.6	9.8	110	270	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Benzo(a)anthracene	0.12	8.5		1.3	1.6	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Benzo(a)anthracene	0.098 J	3.9	2.5	110	270	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Benzo(a)anthracene	0.065	2.6	2.5	110	270	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Benzo(a)anthracene	0.014 J	0.6	2.5	110	270	mg/kg OC	<1	<1
96-ST1	4/24/2009	Trap	Benzo(a)pyrene	1.2	16.9		1.6	3	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Benzo(a)pyrene	0.77	9.1		1.6	3	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Benzo(a)pyrene	0.19	5.9		1.6	3	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Benzo(a)pyrene	0.17	8.9		1.6	3	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Benzo(a)pyrene	0.13	2.9	4.5	99	210	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Benzo(a)pyrene	2.4	2.9	83.3	99	210	mg/kg OC	<1	<1
KCS96C2	11/7/2011	Inline	Benzo(a)pyrene	0.95	14.9		1.6	3	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Benzo(a)pyrene	0.75	2.8	26.4	99	210	mg/kg OC	<1	<1
KC-05	4/4/2012	Inline	Benzo(a)pyrene	0.66	24.0		1.6	3	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Benzo(a)pyrene	0.62	6.7		1.6	3	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Benzo(a)pyrene	0.55	4.6		1.6	3	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Benzo(a)pyrene	0.43	6.8		1.6	3	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Benzo(a)pyrene	0.32	31.5		1.6	3	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Benzo(a)pyrene	0.2	18.4		1.6	3	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Benzo(a)pyrene	0.16	1.3	12.3	99	210	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Benzo(a)pyrene	0.16	3.4	4.7	99	210	mg/kg OC	<1	<1
KC-01	4/4/2012	Inline	Benzo(a)pyrene	0.15	3.9	3.8	99	210	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Benzo(a)pyrene	0.14	5.5		1.6	3	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Benzo(a)pyrene	0.12	3.3	3.7	99	210	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Benzo(a)pyrene	0.11	0.8	13.2	99	210	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Benzo(a)pyrene	0.072	1.7	4.2	99	210	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Benzo(a)pyrene	0.071	1.6	4.4	99	210	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Benzo(a)pyrene	0.064	3.1	2.0	99	210	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Benzo(a)pyrene	0.058	1.1	5.3	99	210	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Benzo(a)pyrene	0.05 J	11.7		1.6	3	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Benzo(a)pyrene	0.04	0.9	4.4	99	210	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	Benzo(a)pyrene	0.035	1.4	2.5	99	210	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96F	11/7/2011	Inline	Benzo(a)pyrene	0.026	2.2	1.2	99	210	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Benzo(a)pyrene	0.017 J	0.8	2.2	99	210	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Benzo(a)pyrene	0.6	5.0		1.6	3	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Benzo(a)pyrene	0.33	2.6	12.9	99	210	mg/kg OC	<1	<1
RCB267	5/13/2011	RCB	Benzo(a)pyrene	0.32	7.8		1.6	3	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	Benzo(a)pyrene	0.15	8.5		1.6	3	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Benzo(a)pyrene	0.1195 J	3.9	3.1	99	210	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Benzo(a)pyrene	0.085	2.6	3.3	99	210	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Benzo(a)pyrene	0.017 J	0.6	3.0	99	210	mg/kg OC	<1	<1
96-ST2	12/1/2010	Trap	Benzo(g,h,i)perylene	1.5	9.1		0.67	0.72	mg/kg DW	2.2	2.1
96-ST2	12/1/2010	Inline	Benzo(g,h,i)perylene	1	4.6		0.67	0.72	mg/kg DW	1.5	1.4
KC-09	4/4/2012	Inline	Benzo(g,h,i)perylene	1.2	2.9	41.7	31	78	mg/kg OC	1.3	<1
RCB267	5/13/2011	RCB	Benzo(g,h,i)perylene	0.71	7.8		0.67	0.72	mg/kg DW	1.1	<1
KCS96C2	11/7/2011	Inline	Benzo(g,h,i)perylene	0.7	14.9		0.67	0.72	mg/kg DW	1.0	<1
96-ST1	4/24/2009	Trap	Benzo(g,h,i)perylene	0.49	16.9		0.67	0.72	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Benzo(g,h,i)perylene	0.37	5.9		0.67	0.72	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Benzo(g,h,i)perylene	0.27	2.9	9.3	31	78	mg/kg OC	<1	<1
96-ST2	4/24/2009	Trap	Benzo(g,h,i)perylene	0.074	8.9		0.67	0.72	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Benzo(g,h,i)perylene	0.53	24.0		0.67	0.72	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Benzo(g,h,i)perylene	0.38	6.7		0.67	0.72	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Benzo(g,h,i)perylene	0.34	6.8		0.67	0.72	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Benzo(g,h,i)perylene	0.3	31.5		0.67	0.72	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Benzo(g,h,i)perylene	0.27	2.8	9.5	31	78	mg/kg OC	<1	<1
KC-01	4/4/2012	Inline	Benzo(g,h,i)perylene	0.21	3.9	5.3	31	78	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	Benzo(g,h,i)perylene	0.2	18.4		0.67	0.72	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Benzo(g,h,i)perylene	0.095	0.9	10.5	31	78	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Benzo(g,h,i)perylene	0.089 J	3.3	2.7	31	78	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Benzo(g,h,i)perylene	0.088	11.7		0.67	0.72	mg/kg DW	<1	<1
KC-02	4/4/2012	Inline	Benzo(g,h,i)perylene	0.083	1.7	4.9	31	78	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Benzo(g,h,i)perylene	0.077	5.5		0.67	0.72	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Benzo(g,h,i)perylene	0.07	3.1	2.2	31	78	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Benzo(g,h,i)perylene	0.069	3.4	2.0	31	78	mg/kg OC	<1	<1
96-ST1	12/11/2008	Inline	Benzo(g,h,i)perylene	0.054	1.3	4.2	31	78	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Benzo(g,h,i)perylene	0.036	0.8	4.7	31	78	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Benzo(g,h,i)perylene	0.035	0.8	4.2	31	78	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Benzo(g,h,i)perylene	0.029	1.6	1.8	31	78	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	Benzo(g,h,i)perylene	0.023	1.4	1.6	31	78	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Benzo(g,h,i)perylene	0.022	1.1	2.0	31	78	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB154	4/13/2011	RCB	Benzo(g,h,i)perylene	0.68	2.6	26.6	31	78	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Benzo(g,h,i)perylene	0.3	8.5		0.67	0.72	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Benzo(g,h,i)perylene	0.27	3.9	6.9	31	78	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Benzo(g,h,i)perylene	0.2	5.0		0.67	0.72	mg/kg DW	<1	<1
RCB269	5/13/2011	RCB	Benzo(g,h,i)perylene	0.066 J	1.5	4.6	31	78	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Benzo(g,h,i)perylene	0.041	2.6	1.6	31	78	mg/kg OC	<1	<1
96-ST1	4/24/2009	Trap	Benzofluoranthenes (total calc'd)	2.7	16.9		3.2	3.6	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Benzofluoranthenes (total calc'd)	0.61	9.1		3.2	3.6	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Benzofluoranthenes (total calc'd)	0.49	8.9		3.2	3.6	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Benzofluoranthenes (total calc'd)	0.15	5.9		3.2	3.6	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Benzofluoranthenes (total calc'd)	0.12	2.9	4.2	230	450	mg/kg OC	<1	<1
MH239	6/3/2009	Inline	Benzofluoranthenes (total calc'd)	1.96	6.7		3.2	3.6	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Benzofluoranthenes (total calc'd)	1.7	2.8	59.9	230	450	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Benzofluoranthenes (total calc'd)	0.41	3.4	12.1	230	450	mg/kg OC	<1	<1
96-ST1	12/11/2008	Inline	Benzofluoranthenes (total calc'd)	0.32	1.3	24.6	230	450	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Benzofluoranthenes (total calc'd)	0.27	4.6		3.2	3.6	mg/kg DW	<1	<1
96-ST2	12/11/2008	Inline	Benzofluoranthenes (total calc'd)	0.22	0.8	26.3	230	450	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Benzofluoranthenes (total calc'd)	0.044	0.9	4.8	230	450	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Benzofluoranthenes (total calc'd)	0.013 J	0.8	1.7	230	450	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Benzofluoranthenes (total calc'd)	0.99	5.0		3.2	3.6	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Benzofluoranthenes (total calc'd)	0.29	7.8		3.2	3.6	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Benzofluoranthenes (total calc'd)	0.2	2.6	7.7	230	450	mg/kg OC	<1	<1
RCB154	4/13/2011	RCB	Benzofluoranthenes (total calc'd)	0.17	2.6	6.7	230	450	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Benzofluoranthenes (total calc'd)	0.13	8.5		3.2	3.6	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Benzofluoranthenes (total calc'd)	0.124 J	3.9	3.2	230	450	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	4.1	2.9	142.4	230	450	mg/kg OC	<1	<1
KCS96C2	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	3	14.9		3.2	3.6	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	1.5	24.0		3.2	3.6	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.93	6.8		3.2	3.6	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.63	31.5		3.2	3.6	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.54	18.4		3.2	3.6	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.38	3.9	9.7	230	450	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.33	5.5		3.2	3.6	mg/kg DW	<1	<1
KCS96B1	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.32 J	8.9		3.2	3.6	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.26	3.3	8.0	230	450	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.18	1.6	11.1	230	450	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.16	1.7	9.4	230	450	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.13	1.1	11.9	230	450	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-03	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.13	3.1	4.1	230	450	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.1	11.7		3.2	3.6	mg/kg DW	<1	<1
KCS96F	11/7/2011	Inline	Benzofluoranthenes (total calc'd)	0.073	2.2	3.3	230	450	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.065	1.4	4.6	230	450	mg/kg OC	<1	<1
KC-08	4/4/2012	Inline	Benzofluoranthenes (total calc'd)	0.017 J	0.5	3.6	230	450	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Benzofluoranthenes (total calc'd)	0.046	0.6	8.1	230	450	mg/kg OC	<1	<1
KCS96B	11/7/2011	Inline	Benzoic Acid	6.8	31.5		0.65	0.65	mg/kg DW	10	10
RCB271	5/13/2011	RCB	Benzoic Acid	3.8	8.5		0.65	0.65	mg/kg DW	5.8	5.8
KC-05	4/4/2012	Inline	Benzoic Acid	2.2 J	24.0		0.65	0.65	mg/kg DW	3.4	3.4
96-ST3	12/3/2010	Trap	Benzoic Acid	130 J	2.9		650	650	ug/kg DW	<1	<1
KC-03	4/4/2012	Inline	Benzoic Acid	120 J	3.1		650	650	ug/kg DW	<1	<1
MH244	4/13/2011	Inline	Benzoic Acid	54 J	0.9		650	650	ug/kg DW	<1	<1
KC-06	4/4/2012	Inline	Benzoic Acid	0.49 J	6.8		0.65	0.65	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Benzoic Acid	0.36 J	11.7		0.65	0.65	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Benzoic Acid	180 J	2.6		650	650	ug/kg DW	<1	<1
RCB267	5/13/2011	RCB	Benzoic Acid	0.24 J	7.8		0.65	0.65	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Benzyl Alcohol	9.5	31.5		0.057	0.073	mg/kg DW	167	130
KCS96C2	11/7/2011	Inline	Benzyl Alcohol	2.9	14.9		0.057	0.073	mg/kg DW	51	40
KCS96D1	11/7/2011	Inline	Benzyl Alcohol	1.8	1.6		0.057	0.073	mg/kg DW	32	25
KCS96B1	11/7/2011	Inline	Benzyl Alcohol	1	8.9		0.057	0.073	mg/kg DW	18	14
KC-05	4/4/2012	Inline	Benzyl Alcohol	0.93	24.0		0.057	0.073	mg/kg DW	16	13
KCS96C1	11/7/2011	Inline	Benzyl Alcohol	910 J	3.3		0.057	0.073	mg/kg DW	16	12
MH239	6/3/2009	Inline	Benzyl Alcohol	0.41	6.7		0.057	0.073	mg/kg DW	7.2	5.6
RCB271	5/13/2011	RCB	Benzyl Alcohol	0.27	8.5		0.057	0.073	mg/kg DW	4.7	3.7
96-ST2	4/24/2009	Inline	Benzyl Alcohol	0.094	3.4		0.057	0.073	mg/kg DW	1.6	1.3
KC-06	4/4/2012	Inline	Benzyl Alcohol	0.094	6.8		0.057	0.073	mg/kg DW	1.6	1.3
96-ST2	4/24/2009	Trap	Benzyl Alcohol	0.092	8.9		0.057	0.073	mg/kg DW	1.6	1.3
CB114	3/25/2008	CB	Benzyl Alcohol	0.036	0.4		0.057	0.073	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Benzyl Alcohol	0.055	3.1		0.057	0.073	mg/kg DW	<1	<1
KCS96A1	11/7/2011	Inline	Benzyl Alcohol	0.036	5.5		0.057	0.073	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Benzyl Alcohol	0.036 J	11.7		0.057	0.073	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Benzyl Alcohol	0.044	2.6		0.057	0.073	mg/kg DW	<1	<1
RCB222	6/3/2009	RCB	Benzyl Alcohol	0.022 NJ	0.6		0.057	0.073	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Carbazole	0.31	16.9				mg/kg DW		
96-ST2	12/1/2010	Trap	Carbazole	0.18 J	9.1				mg/kg DW		
KC-09	4/4/2012	Inline	Carbazole	0.41	2.9	14.2			mg/kg DW		
KCS96C2	11/7/2011	Inline	Carbazole	0.25 J	14.9				mg/kg DW		
96-ST1	4/24/2009	Inline	Carbazole	0.19	2.8	6.7			mg/kg DW		

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
96-ST2	12/1/2010	Inline	Carbazole	0.14	4.6				mg/kg DW		
KC-06	4/4/2012	Inline	Carbazole	0.061 J	6.8				mg/kg DW		
96-ST1	12/11/2008	Inline	Carbazole	0.034	1.3	2.6			mg/kg DW		
KCS96D1	11/7/2011	Inline	Carbazole	0.026	1.6	1.6			mg/kg DW		
KCS96A1	11/7/2011	Inline	Carbazole	0.025	5.5				mg/kg DW		
96-ST2	12/11/2008	Inline	Carbazole	0.021	0.8	2.5			mg/kg DW		
KCS96E1	11/7/2011	Inline	Carbazole	0.017	1.1	1.6			mg/kg DW		
RCB154	10/10/2008	RCB	Carbazole	0.094 J	5.0				mg/kg DW		
RCB267	5/13/2011	RCB	Carbazole	0.057 J	7.8				mg/kg DW		
RCB154	4/13/2011	RCB	Carbazole	0.054	2.6	2.1			mg/kg DW		
KCS96C2	11/7/2011	Inline	Chrysene	1.8	14.9		1.4	2.8	mg/kg DW	1.3	<1
96-ST1	4/24/2009	Trap	Chrysene	1.4	16.9		1.4	2.8	mg/kg DW	1	<1
96-ST2	12/1/2010	Trap	Chrysene	1	9.1		1.4	2.8	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Chrysene	0.27	5.9		1.4	2.8	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Chrysene	0.24	8.9		1.4	2.8	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Chrysene	0.17	2.9	5.9	110	460	mg/kg OC	<1	<1
96-ST3	5/13/2009	Trap	Chrysene	0.011 J	1.4	0.8	110	460	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Chrysene	2.5	2.9	86.8	110	460	mg/kg OC	<1	<1
MH239	6/3/2009	Inline	Chrysene	1.2	6.7		1.4	2.8	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Chrysene	1.1	24.0		1.4	2.8	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Chrysene	0.82	2.8	28.9	110	460	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Chrysene	0.68	4.6		1.4	2.8	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Chrysene	0.59	6.8		1.4	2.8	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Chrysene	0.49	31.5		1.4	2.8	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Chrysene	0.48	18.4		1.4	2.8	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Chrysene	0.24	3.9	6.1	110	460	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Chrysene	0.21	5.5		1.4	2.8	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Chrysene	0.2	1.3	15.4	110	460	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Chrysene	0.19	3.3	5.8	110	460	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Chrysene	0.19	3.4	5.6	110	460	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Chrysene	0.13	0.8	15.6	110	460	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Chrysene	0.12	1.6	7.4	110	460	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Chrysene	0.11	1.7	6.4	110	460	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Chrysene	0.087	3.1	2.8	110	460	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Chrysene	0.078	1.1	7.2	110	460	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	Chrysene	0.078	2.2	3.6	110	460	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Chrysene	0.063	11.7		1.4	2.8	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Chrysene	0.059	0.9	6.5	110	460	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-07	4/4/2012	Inline	Chrysene	0.04	1.4	2.9	110	460	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Chrysene	0.022	0.8	2.9	110	460	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Chrysene	0.72	5.0		1.4	2.8	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Chrysene	0.5	7.8		1.4	2.8	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Chrysene	0.48	2.6	18.8	110	460	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Chrysene	0.22	8.5		1.4	2.8	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Chrysene	0.155	3.9	4.0	110	460	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Chrysene	0.11	2.6	4.2	110	460	mg/kg OC	<1	<1
RCB269	5/13/2011	RCB	Chrysene	0.044 J	1.5	3.0	110	460	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Chrysene	0.023	0.6	4.1	110	460	mg/kg OC	<1	<1
RCB136	3/25/2008	RCB	Chrysene	0.021	0.8	2.7	110	460	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	Chrysene	0.01 J	0.4		1.4	2.8	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Copper	3610	24.0		390	390	mg/kg DW	9.3	9.3
KCS96C2	11/7/2011	Inline	Copper	1460	14.9		390	390	mg/kg DW	3.7	3.7
MH239	6/3/2009	Inline	Copper	297 J	6.7		390	390	mg/kg DW	<1	<1
CB129	10/10/2008	CB	Copper	199	4.6		390	390	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Copper	173	3.3		390	390	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Copper	149	18.4		390	390	mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Copper	118	1.1		390	390	mg/kg DW	<1	<1
KCS96B1	11/7/2011	Inline	Copper	111	8.9		390	390	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Copper	110	6.8		390	390	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Copper	98.3	3.9		390	390	mg/kg DW	<1	<1
KCS96A1	11/7/2011	Inline	Copper	90	5.5		390	390	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Copper	81.1	9.1		390	390	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Copper	75.9	31.5		390	390	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Copper	72.1	3.1		390	390	mg/kg DW	<1	<1
RCB154	10/10/2008	RCB	Copper	71.3	5.0		390	390	mg/kg DW	<1	<1
KC-02	4/4/2012	Inline	Copper	66.1	1.7		390	390	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Copper	63	2.6		390	390	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Copper	60	16.9		390	390	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Copper	59.8	2.9		390	390	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Copper	56.1	5.9		390	390	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Copper	48.8 J	2.6		390	390	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Copper	48.5	4.6		390	390	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Copper	45.6	8.9		390	390	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	Copper	44.1	8.5		390	390	mg/kg DW	<1	<1
CB114	3/25/2008	CB	Copper	44	0.4		390	390	mg/kg DW	<1	<1
KCS96D1	11/7/2011	Inline	Copper	40.3	1.6		390	390	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB221	6/3/2009	RCB	Copper	39.6 J	0.4		390	390	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Copper	39.2	0.9		390	390	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Copper	38.8	11.7		390	390	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Copper	37.6 J	2.9		390	390	mg/kg DW	<1	<1
KCS96F	11/7/2011	Inline	Copper	33.8	2.2		390	390	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Copper	28.9	1.3		390	390	mg/kg DW	<1	<1
RCB222	6/3/2009	RCB	Copper	26.2 J	0.6		390	390	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Copper	26.1	7.8		390	390	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Copper	25.3	2.8		390	390	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Copper	23.9	3.9		390	390	mg/kg DW	<1	<1
96-ST2	4/24/2009	Inline	Copper	23.2	3.4		390	390	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Copper	21.1	1.4		390	390	mg/kg DW	<1	<1
RCB136	3/25/2008	RCB	Copper	21	0.8		390	390	mg/kg DW	<1	<1
96-ST2	12/11/2008	Inline	Copper	18.8	0.8		390	390	mg/kg DW	<1	<1
96-ST3	5/13/2009	Trap	Copper	15.8 J	1.4		390	390	mg/kg DW	<1	<1
KC-08	4/4/2012	Inline	Copper	15.7	0.5		390	390	mg/kg DW	<1	<1
RCB269	5/13/2011	RCB	Copper	15.1	1.5		390	390	mg/kg DW	<1	<1
96-ST1	12/1/2010	Inline	Copper	14.4	0.8		390	390	mg/kg DW	<1	<1
96-ST3	5/13/2009	Inline	Copper	9.4 J	0.9		390	390	mg/kg DW	<1	<1
96-ST3	12/3/2010	Inline	Copper	8.6 J	0.6		390	390	mg/kg DW	<1	<1
96-ST3	12/3/2008	Inline	Copper	8.1	0.3		390	390	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Carcinogenic PAHs - Mammal - Half DL	1.655	16.9				mg/kg DW		
96-ST1	4/24/2009	Inline	Carcinogenic PAHs - Mammal - Half DL	1.0345	2.8				mg/kg DW		
96-ST2	12/1/2010	Trap	Carcinogenic PAHs - Mammal - Half DL	0.972	9.1				mg/kg DW		
MH239	6/3/2009	Inline	Carcinogenic PAHs - Mammal - Half DL	0.9205	6.7				mg/kg DW		
RCB154	10/10/2008	RCB	Carcinogenic PAHs - Mammal - Half DL	0.7662	5.0				mg/kg DW		
96-ST2	12/1/2010	Inline	Carcinogenic PAHs - Mammal - Half DL	0.6764	4.6				mg/kg DW		
RCB267	5/13/2011	RCB	Carcinogenic PAHs - Mammal - Half DL	0.4195	7.8				mg/kg DW		
RCB154	4/13/2011	RCB	Carcinogenic PAHs - Mammal - Half DL	0.396	2.6				mg/kg DW		
96-ST2	4/24/2009	Trap	Carcinogenic PAHs - Mammal - Half DL	0.2464	8.9				mg/kg DW		
96-ST1	12/1/2010	Trap	Carcinogenic PAHs - Mammal - Half DL	0.23915	5.9				mg/kg DW		
96-ST2	4/24/2009	Inline	Carcinogenic PAHs - Mammal - Half DL	0.2259	3.4				mg/kg DW		
96-ST1	12/11/2008	Inline	Carcinogenic PAHs - Mammal - Half DL	0.2163	1.3				mg/kg DW		
RCB271	5/13/2011	RCB	Carcinogenic PAHs - Mammal - Half DL	0.19175	8.5				mg/kg DW		
96-ST3	12/3/2010	Trap	Carcinogenic PAHs - Mammal - Half DL	0.1661	2.9				mg/kg DW		
RCB268	5/13/2011	RCB	Carcinogenic PAHs - Mammal - Half DL	0.15795	3.9				mg/kg DW		
96-ST2	12/11/2008	Inline	Carcinogenic PAHs - Mammal - Half DL	0.14975	0.8				mg/kg DW		
RCB223	6/3/2009	RCB	Carcinogenic PAHs - Mammal - Half DL	0.11775	2.6				mg/kg DW		

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB269	5/13/2011	RCB	Carcinogenic PAHs - Mammal - Half DL	0.06204	1.5				mg/kg DW		
MH244	4/13/2011	Inline	Carcinogenic PAHs - Mammal - Half DL	0.05224	0.9				mg/kg DW		
RCB222	6/3/2009	RCB	Carcinogenic PAHs - Mammal - Half DL	0.02513	0.6				mg/kg DW		
96-ST1	12/1/2010	Inline	Carcinogenic PAHs - Mammal - Half DL	0.02232	0.8				mg/kg DW		
RCB136	3/25/2008	RCB	Carcinogenic PAHs - Mammal - Half DL	0.01421	0.8				mg/kg DW		
96-ST3	5/13/2009	Trap	Carcinogenic PAHs - Mammal - Half DL	0.01341	1.4				mg/kg DW		
RCB221	6/3/2009	RCB	Carcinogenic PAHs - Mammal - Half DL	0.0134	0.4				mg/kg DW		
KC-09	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.39	2.9	13.5	12	33	mg/kg OC	1.1	<1
KC-05	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.24 J	24.0		0.23	0.54	mg/kg DW	1.0	<1
96-ST1	4/24/2009	Trap	Dibenzo(a,h)anthracene	0.17	16.9		0.23	0.54	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.13	6.8		0.23	0.54	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Dibenzo(a,h)anthracene	0.093	2.8	3.3	12	33	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.059 J	18.4		0.23	0.54	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Dibenzo(a,h)anthracene	0.031 J	3.3	0.9	12	33	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.026	3.1	0.8	12	33	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Dibenzo(a,h)anthracene	0.022	5.5		0.23	0.54	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.011 J	1.4	0.8	12	33	mg/kg OC	<1	<1
RCB267	5/13/2011	RCB	Dibenzo(a,h)anthracene	0.085 J	7.8		0.23	0.54	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Dibenzo(a,h)anthracene	0.052 J	2.6	2.0	12	33	mg/kg OC	<1	<1
96-ST1	4/24/2009	Trap	Dibenzofuran	0.11	16.9		0.54	0.7	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Dibenzofuran	0.076 J	2.9	2.6	15	58	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Dibenzofuran	0.064 J	4.6		0.54	0.7	mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Dibenzofuran	0.02	1.1	1.8	15	58	mg/kg OC	<1	<1
RCB154	4/13/2011	RCB	Dibenzofuran	0.022	2.6	0.9	15	58	mg/kg OC	<1	<1
96-ST3	12/3/2010	Trap	Dibutyl phthalate	0.048	2.9	1.7	220	1700	mg/kg OC	<1	<1
96-ST3	5/13/2009	Trap	Dibutyl phthalate	0.025	1.4	1.8	220	1700	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Dibutyl phthalate	1.5 J	3.3	45.9	220	1700	mg/kg OC	<1	<1
KCS96B1	11/7/2011	Inline	Dibutyl phthalate	0.61	8.9		1.4	5.1	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Dibutyl phthalate	0.58	14.9		1.4	5.1	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Dibutyl phthalate	0.37	24.0		1.4	5.1	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Dibutyl phthalate	0.29	3.9	7.4	220	1700	mg/kg OC	<1	<1
MH239	6/3/2009	Inline	Dibutyl phthalate	0.21 J	6.7		1.4	5.1	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Dibutyl phthalate	0.052 J	6.8		1.4	5.1	mg/kg DW	<1	<1
KCS96D1	11/7/2011	Inline	Dibutyl phthalate	0.046	1.6	2.8	220	1700	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Dibutyl phthalate	0.045	1.1	4.1	220	1700	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Dibutyl phthalate	0.026	3.1	0.8	220	1700	mg/kg OC	<1	<1
96-ST3	5/13/2009	Inline	Dibutyl phthalate	0.025	0.9	2.7	220	1700	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Dibutyl phthalate	0.023	0.9	2.5	220	1700	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96A1	11/7/2011	Inline	Dibutyl phthalate	0.02	5.5		1.4	5.1	mg/kg DW	<1	<1
RCB154	10/10/2008	RCB	Dibutyl phthalate	0.08 J	5.0		1.4	5.1	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Dibutyl phthalate	0.069	2.6	2.7	220	1700	mg/kg OC	<1	<1
KC-05	4/4/2012	Inline	Dimethyl phthalate	3.8	24.0		0.071	0.16	mg/kg DW	54	24
KCS96B1	11/7/2011	Inline	Dimethyl phthalate	0.25 J	8.9		0.071	0.16	mg/kg DW	3.5	1.6
96-ST2	12/1/2010	Trap	Dimethyl phthalate	0.13 J	9.1		0.071	0.16	mg/kg DW	1.8	<1
KC-06	4/4/2012	Inline	Dimethyl phthalate	0.11	6.8		0.071	0.16	mg/kg DW	1.5	<1
KC-01	4/4/2012	Inline	Dimethyl phthalate	0.096 J	3.9	2.4	53	53	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Dimethyl phthalate	0.089	1.7	5.2	53	53	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	Dimethyl phthalate	0.059 J	18.4		0.071	0.16	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Dimethyl phthalate	0.034	3.1	1.1	53	53	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Dimethyl phthalate	0.025 J	3.3	0.8	53	53	mg/kg OC	<1	<1
96-ST1	12/11/2008	Inline	Dimethyl phthalate	0.024	1.3	1.8	53	53	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Dimethyl phthalate	0.013 J	5.5		0.071	0.16	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Dimethyl phthalate	0.037	2.6	1.4	53	53	mg/kg OC	<1	<1
96-ST1	4/24/2009	Trap	Di-n-Octyl phthalate	0.2	16.9		6.2		mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Di-n-Octyl phthalate	0.079	8.9		6.2		mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Di-n-Octyl phthalate	5.7	6.7		6.2		mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Di-n-Octyl phthalate	3.9	24.0		6.2		mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Di-n-Octyl phthalate	1.1	18.4		6.2		mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Di-n-Octyl phthalate	0.33	2.9	11.5	58	4500	mg/kg OC	<1	<1
KC-06	4/4/2012	Inline	Di-n-Octyl phthalate	0.17	6.8		6.2		mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Di-n-Octyl phthalate	0.16	1.1	14.7	58	4500	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Di-n-Octyl phthalate	0.068	3.3	2.1	58	4500	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Di-n-Octyl phthalate	0.052 J	1.7	3.0	58	4500	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Di-n-Octyl phthalate	0.034	3.1	1.1	58	4500	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Di-n-Octyl phthalate	1	5.0		6.2		mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Di-n-Octyl phthalate	0.35	2.6	13.7	58	4500	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Di-n-Octyl phthalate	0.031	0.6	5.5	58	4500	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Di-n-Octyl phthalate	0.029 J	2.6	1.1	58	4500	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Dioxin/Furan TEQ	2.4	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Dioxin/Furan TEQ	8.9	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Dioxin/Furan TEQ	1.8	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Dioxin/Furan TEQ	1.1	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	Dioxin/Furan TEQ	0.4	1.5				ng/kg DW		
96-ST1	4/24/2009	Trap	Fluoranthene	3.3	16.9		1.7	2.5	mg/kg DW	1.9	1.3
96-ST2	12/1/2010	Trap	Fluoranthene	2.1	9.1		1.7	2.5	mg/kg DW	1.2	<1
KC-09	4/4/2012	Inline	Fluoranthene	5.6	2.9	194.4	160	1200	mg/kg OC	1.2	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96C2	11/7/2011	Inline	Fluoranthene	1.9	14.9		1.7	2.5	mg/kg DW	1.1	<1
CB129	10/10/2008	CB	Fluoranthene	1.7	4.6		1.7	2.5	mg/kg DW	1	<1
96-ST2	12/1/2010	Inline	Fluoranthene	1.7	4.6		1.7	2.5	mg/kg DW	1	<1
96-ST1	12/1/2010	Trap	Fluoranthene	0.46	5.9		1.7	2.5	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Fluoranthene	0.44	8.9		1.7	2.5	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Fluoranthene	0.33	2.9	11.4	160	1200	mg/kg OC	<1	<1
96-ST3	5/13/2009	Trap	Fluoranthene	0.018 J	1.4	1.3	160	1200	mg/kg OC	<1	<1
96-ST1	4/24/2009	Inline	Fluoranthene	2	2.8	70.4	160	1200	mg/kg OC	<1	<1
MH239	6/3/2009	Inline	Fluoranthene	1.6	6.7		1.7	2.5	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Fluoranthene	1.6	24.0		1.7	2.5	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Fluoranthene	0.97	31.5		1.7	2.5	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Fluoranthene	0.94	6.8		1.7	2.5	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Fluoranthene	0.41	18.4		1.7	2.5	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Fluoranthene	0.37	1.3	28.5	160	1200	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Fluoranthene	0.35	3.4	10.3	160	1200	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Fluoranthene	0.27	5.5		1.7	2.5	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Fluoranthene	0.27 J	3.3	8.3	160	1200	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Fluoranthene	0.26	0.8	31.1	160	1200	mg/kg OC	<1	<1
KCS96B1	11/7/2011	Inline	Fluoranthene	0.23 J	8.9		1.7	2.5	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Fluoranthene	0.23	3.9	5.9	160	1200	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Fluoranthene	0.18	1.1	16.5	160	1200	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Fluoranthene	0.16	1.6	9.9	160	1200	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Fluoranthene	0.15	1.7	8.8	160	1200	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Fluoranthene	0.14	3.1	4.5	160	1200	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Fluoranthene	0.09	0.9	9.9	160	1200	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Fluoranthene	0.061	11.7		1.7	2.5	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Fluoranthene	0.061	1.4	4.4	160	1200	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	Fluoranthene	0.047	2.2	2.1	160	1200	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Fluoranthene	0.046	0.8	6.0	160	1200	mg/kg OC	<1	<1
96-ST3	12/3/2010	Inline	Fluoranthene	0.014 J	0.6	2.2	160	1200	mg/kg OC	<1	<1
KC-08	4/4/2012	Inline	Fluoranthene	0.013 J	0.5	2.8	160	1200	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Fluoranthene	1.6	5.0		1.7	2.5	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Fluoranthene	0.92	7.8		1.7	2.5	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Fluoranthene	0.79	2.6	30.9	160	1200	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Fluoranthene	0.34	8.5		1.7	2.5	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Fluoranthene	0.285	3.9	7.3	160	1200	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Fluoranthene	0.15	2.6	5.8	160	1200	mg/kg OC	<1	<1
RCB269	5/13/2011	RCB	Fluoranthene	0.066 J	1.5	4.6	160	1200	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB222	6/3/2009	RCB	Fluoranthene	0.042	0.6	7.4	160	1200	mg/kg OC	<1	<1
RCB136	3/25/2008	RCB	Fluoranthene	0.028 J	0.8	3.6	160	1200	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	Fluoranthene	0.018 J	0.4		1.7	2.5	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Fluorene	0.25	16.9		0.54	1	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Fluorene	0.19 J	24.0		0.54	1	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Fluorene	0.19	2.9	6.6	23	79	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Fluorene	0.14	4.6		0.54	1	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Fluorene	0.12	2.8	4.2	23	79	mg/kg OC	<1	<1
KC-06	4/4/2012	Inline	Fluorene	0.066 J	6.8		0.54	1	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Fluorene	0.041	3.3	1.3	23	79	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Fluorene	0.037	1.1	3.4	23	79	mg/kg OC	<1	<1
96-ST1	12/11/2008	Inline	Fluorene	0.025	1.3	1.9	23	79	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Fluorene	0.01 J	3.1	0.3	23	79	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Fluorene	0.091 J	5.0		0.54	1	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Fluorene	0.034	2.6	1.3	23	79	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	1.2	2.9	41.7	34	88	mg/kg OC	1.2	<1
96-ST2	12/1/2010	Trap	Indeno(1,2,3-cd)pyrene	0.49	9.1		0.6	0.69	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Indeno(1,2,3-cd)pyrene	0.44	16.9		0.6	0.69	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Indeno(1,2,3-cd)pyrene	0.12	5.9		0.6	0.69	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Indeno(1,2,3-cd)pyrene	0.096	2.9	3.3	34	88	mg/kg OC	<1	<1
96-ST2	4/24/2009	Trap	Indeno(1,2,3-cd)pyrene	0.061	8.9		0.6	0.69	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Indeno(1,2,3-cd)pyrene	0.58	14.9		0.6	0.69	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.41	24.0		0.6	0.69	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Indeno(1,2,3-cd)pyrene	0.3	6.7		0.6	0.69	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.28	6.8		0.6	0.69	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Indeno(1,2,3-cd)pyrene	0.27	4.6		0.6	0.69	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Indeno(1,2,3-cd)pyrene	0.26	2.8	9.2	34	88	mg/kg OC	<1	<1
KCS96B	11/7/2011	Inline	Indeno(1,2,3-cd)pyrene	0.19 J	31.5		0.6	0.69	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.14	3.9	3.6	34	88	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.13	18.4		0.6	0.69	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Indeno(1,2,3-cd)pyrene	0.068 J	3.3	2.1	34	88	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Indeno(1,2,3-cd)pyrene	0.06	3.4	1.8	34	88	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.057	1.7	3.3	34	88	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Indeno(1,2,3-cd)pyrene	0.055	5.5		0.6	0.69	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Indeno(1,2,3-cd)pyrene	0.053	1.3	4.1	34	88	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.051	3.1	1.6	34	88	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Indeno(1,2,3-cd)pyrene	0.035	0.8	4.2	34	88	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Indeno(1,2,3-cd)pyrene	0.031 J	0.9	3.4	34	88	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96D1	11/7/2011	Inline	Indeno(1,2,3-cd)pyrene	0.029	1.6	1.8	34	88	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	0.02	1.4	1.4	34	88	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Indeno(1,2,3-cd)pyrene	0.015	1.1	1.4	34	88	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Indeno(1,2,3-cd)pyrene	0.011 J	0.8	1.4	34	88	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Indeno(1,2,3-cd)pyrene	0.25	5.0		0.6	0.69	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Indeno(1,2,3-cd)pyrene	0.24	7.8		0.6	0.69	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Indeno(1,2,3-cd)pyrene	0.14 J	2.6	5.5	34	88	mg/kg OC	<1	<1
RCB268	5/13/2011	RCB	Indeno(1,2,3-cd)pyrene	0.1 J	3.9	2.6	34	88	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Indeno(1,2,3-cd)pyrene	0.097	8.5		0.6	0.69	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Indeno(1,2,3-cd)pyrene	0.032 J	2.6	1.2	34	88	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Lead	660	5.5		450	530	mg/kg DW	1.5	1.2
96-ST2	12/1/2010	Trap	Lead	96	9.1		450	530	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Lead	82	16.9		450	530	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Lead	63	5.9		450	530	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Lead	56	8.9		450	530	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Lead	37 J	2.9		450	530	mg/kg DW	<1	<1
96-ST3	5/13/2009	Trap	Lead	10 J	1.4		450	530	mg/kg DW	<1	<1
CB129	10/10/2008	CB	Lead	40	4.6		450	530	mg/kg DW	<1	<1
CB114	3/25/2008	CB	Lead	30	0.4		450	530	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Lead	286	14.9		450	530	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Lead	180	24.0		450	530	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Lead	169	31.5		450	530	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Lead	150 J	6.7		450	530	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Lead	129	6.8		450	530	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Lead	100	3.1		450	530	mg/kg DW	<1	<1
KCS96B1	11/7/2011	Inline	Lead	93	8.9		450	530	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Lead	93	1.4		450	530	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Lead	93	2.9		450	530	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Lead	90	18.4		450	530	mg/kg DW	<1	<1
96-ST2	4/24/2009	Inline	Lead	63	3.4		450	530	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Lead	61	3.9		450	530	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Lead	60	4.6		450	530	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Lead	39	11.7		450	530	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Lead	38	1.3		450	530	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Lead	36	2.8		450	530	mg/kg DW	<1	<1
96-ST2	12/11/2008	Inline	Lead	31	0.8		450	530	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Lead	25	0.9		450	530	mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Lead	22	1.1		450	530	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96D1	11/7/2011	Inline	Lead	21	1.6		450	530	mg/kg DW	<1	<1
KC-02	4/4/2012	Inline	Lead	21	1.7		450	530	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Lead	21	3.3		450	530	mg/kg DW	<1	<1
96-ST1	12/1/2010	Inline	Lead	14	0.8		450	530	mg/kg DW	<1	<1
KC-08	4/4/2012	Inline	Lead	13	0.5		450	530	mg/kg DW	<1	<1
96-ST3	5/13/2009	Inline	Lead	6 J	0.9		450	530	mg/kg DW	<1	<1
KCS96F	11/7/2011	Inline	Lead	6	2.2		450	530	mg/kg DW	<1	<1
96-ST3	12/3/2008	Inline	Lead	5	0.3		450	530	mg/kg DW	<1	<1
96-ST3	12/3/2010	Inline	Lead	5 J	0.6		450	530	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	Lead	125	8.5		450	530	mg/kg DW	<1	<1
RCB136	3/25/2008	RCB	Lead	120	0.8		450	530	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Lead	38	7.8		450	530	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Lead	31	2.6		450	530	mg/kg DW	<1	<1
RCB154	10/10/2008	RCB	Lead	25	5.0		450	530	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Lead	25 J	2.6		450	530	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Lead	20.5	3.9		450	530	mg/kg DW	<1	<1
RCB222	6/3/2009	RCB	Lead	20 J	0.6		450	530	mg/kg DW	<1	<1
RCB221	6/3/2009	RCB	Lead	9 J	0.4		450	530	mg/kg DW	<1	<1
RCB269	5/13/2011	RCB	Lead	3	1.5		450	530	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Mercury	0.1	9.1		0.41	0.59	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Mercury	0.07	16.9		0.41	0.59	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Mercury	0.07	2.9		0.41	0.59	mg/kg DW	<1	<1
96-ST3	5/13/2009	Trap	Mercury	0.06 J	1.4		0.41	0.59	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Mercury	0.05	8.9		0.41	0.59	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Mercury	0.04	5.9		0.41	0.59	mg/kg DW	<1	<1
CB129	10/10/2008	CB	Mercury	0.07	4.6		0.41	0.59	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Mercury	0.22 J	3.1		0.41	0.59	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Mercury	0.2 J	18.4		0.41	0.59	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Mercury	0.2 J	24.0		0.41	0.59	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Mercury	0.16 J	6.8		0.41	0.59	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Mercury	0.12	14.9		0.41	0.59	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Mercury	0.1 J	6.7		0.41	0.59	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Mercury	0.06	11.7		0.41	0.59	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Mercury	0.05	4.6		0.41	0.59	mg/kg DW	<1	<1
KC-02	4/4/2012	Inline	Mercury	0.05 J	1.7		0.41	0.59	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Mercury	0.05 J	2.9		0.41	0.59	mg/kg DW	<1	<1
KCS96B1	11/7/2011	Inline	Mercury	0.04	8.9		0.41	0.59	mg/kg DW	<1	<1
96-ST2	4/24/2009	Inline	Mercury	0.04	3.4		0.41	0.59	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96C1	11/7/2011	Inline	Mercury	0.04	3.3		0.41	0.59	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Mercury	0.04 J	3.9		0.41	0.59	mg/kg DW	<1	<1
KCS96A1	11/7/2011	Inline	Mercury	0.03	5.5		0.41	0.59	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Mercury	0.03	2.8		0.41	0.59	mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Mercury	0.03	1.1		0.41	0.59	mg/kg DW	<1	<1
RCB154	10/10/2008	RCB	Mercury	0.1	5.0		0.41	0.59	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Mercury	0.095	2.6		0.41	0.59	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	Mercury	0.07	8.5		0.41	0.59	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Mercury	0.07 J	2.6		0.41	0.59	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Mercury	0.03	3.9		0.41	0.59	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Naphthalene	0.075	16.9		2.1	2.4	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Naphthalene	0.2 J	3.3	6.1	99	170	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Naphthalene	0.094 J	2.9	3.3	99	170	mg/kg OC	<1	<1
KC-06	4/4/2012	Inline	Naphthalene	0.061 J	6.8		2.1	2.4	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Naphthalene	0.036	3.1	1.1	99	170	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Naphthalene	0.012 J	1.1	1.1	99	170	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Naphthalene	0.012 J	1.6	0.7	99	170	mg/kg OC	<1	<1
RCB154	4/13/2011	RCB	Naphthalene	0.025	2.6	1.0	99	170	mg/kg OC	<1	<1
KC-05	4/4/2012	Inline	N-Nitrosodiphenylamine	0.16 J	24.0		0.028	0.04	mg/kg DW	5.7	4.0
RCB154	4/13/2011	RCB	N-Nitrosodiphenylamine	0.016 J	2.6	0.6	11	11	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	OCDD	391	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	OCDD	1520 J	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	OCDD	334 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	OCDD	167 J	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	OCDD	68.4 J	1.5				ng/kg DW		
96-ST2	12/1/2010	Inline	OCDF	39.2	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	OCDF	110 J	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	OCDF	18.6 J	7.8				ng/kg DW		
KCS96C2	11/7/2011	Inline	PCBs (total calc'd)	1.62 J	14.9		0.13	1	mg/kg DW	12	1.6
KCS96B1	11/7/2011	Inline	PCBs (total calc'd)	0.177 J	8.9		0.13	1	mg/kg DW	1.4	<1
MH239	6/3/2009	Inline	PCBs (total calc'd)	0.173	6.7		0.13	1	mg/kg DW	1.3	<1
KC-06	4/4/2012	Inline	PCBs (total calc'd)	0.153	6.8		0.13	1	mg/kg DW	1.2	<1
96-ST2	12/1/2010	Trap	PCBs (total calc'd)	0.062	9.1		0.13	1	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	PCBs (total calc'd)	0.028	5.9		0.13	1	mg/kg DW	<1	<1
CB129	10/10/2008	CB	PCBs (total calc'd)	0.087	4.6		0.13	1	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	PCBs (total calc'd)	0.354 J	3.1	11.3	12	65	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	PCBs (total calc'd)	0.187	3.3	5.7	12	65	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	PCBs (total calc'd)	0.114	2.9	4.0	12	65	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-05	4/4/2012	Inline	PCBs (total calc'd)	0.096 J	24.0		0.13	1	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	PCBs (total calc'd)	0.089	1.3	6.8	12	65	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	PCBs (total calc'd)	0.079	5.5		0.13	1	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	PCBs (total calc'd)	0.067 J	18.4		0.13	1	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	PCBs (total calc'd)	0.034	31.5		0.13	1	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	PCBs (total calc'd)	0.025 J	3.9	0.6	12	65	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	PCBs (total calc'd)	0.021	1.1	1.9	12	65	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	PCBs (total calc'd)	0.02	0.9	2.2	12	65	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	PCBs (total calc'd)	0.0094 J	1.7	0.5	12	65	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	PCBs (total calc'd)	0.049	5.0		0.13	1	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	PCBs (total calc'd)	0.044	2.6	1.7	12	65	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	PCBs (total calc'd)	0.02	2.6	0.8	12	65	mg/kg OC	<1	<1
KCS96B	11/7/2011	Inline	Pentachlorophenol	0.75 J	31.5		0.36	0.69	mg/kg DW	2.1	1.1
RCB154	4/13/2011	RCB	Pentachlorophenol	0.048 J	2.6	1.9	0.36	0.69	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Phenanthrene	2.4	16.9		1.5	5.4	mg/kg DW	1.6	<1
96-ST2	12/1/2010	Trap	Phenanthrene	1.1	9.1		1.5	5.4	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Phenanthrene	0.21	8.9		1.5	5.4	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Phenanthrene	0.19	5.9		1.5	5.4	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Phenanthrene	0.09	2.9	3.1	100	480	mg/kg OC	<1	<1
CB129	10/10/2008	CB	Phenanthrene	0.83 J	4.6		1.5	5.4	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Phenanthrene	2.7	2.9	93.8	100	480	mg/kg OC	<1	<1
96-ST1	4/24/2009	Inline	Phenanthrene	1.4	2.8	49.3	100	480	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Phenanthrene	1.2	4.6		1.5	5.4	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Phenanthrene	0.9	14.9		1.5	5.4	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Phenanthrene	0.84	24.0		1.5	5.4	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Phenanthrene	0.65	6.7		1.5	5.4	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Phenanthrene	0.58	31.5		1.5	5.4	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Phenanthrene	0.46	6.8		1.5	5.4	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Phenanthrene	0.26	1.3	20.0	100	480	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	Phenanthrene	0.23	18.4		1.5	5.4	mg/kg DW	<1	<1
96-ST2	4/24/2009	Inline	Phenanthrene	0.2	3.4	5.9	100	480	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Phenanthrene	0.16	1.1	14.7	100	480	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Phenanthrene	0.15	0.8	17.9	100	480	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Phenanthrene	0.14	3.3	4.3	100	480	mg/kg OC	<1	<1
KC-01	4/4/2012	Inline	Phenanthrene	0.14	3.9	3.6	100	480	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Phenanthrene	0.12	5.5		1.5	5.4	mg/kg DW	<1	<1
KC-02	4/4/2012	Inline	Phenanthrene	0.092	1.7	5.4	100	480	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Phenanthrene	0.091	1.6	5.6	100	480	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-03	4/4/2012	Inline	Phenanthrene	0.082	3.1	2.6	100	480	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Phenanthrene	0.061	0.9	6.7	100	480	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Phenanthrene	0.028 J	11.7		1.5	5.4	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Phenanthrene	0.027	1.4	1.9	100	480	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Phenanthrene	0.021	0.8	2.7	100	480	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	Phenanthrene	0.02	2.2	0.9	100	480	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Phenanthrene	0.8	5.0		1.5	5.4	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Phenanthrene	0.4	2.6	15.7	100	480	mg/kg OC	<1	<1
RCB267	5/13/2011	RCB	Phenanthrene	0.33	7.8		1.5	5.4	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	Phenanthrene	0.18	8.5		1.5	5.4	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Phenanthrene	0.129 J	3.9	3.3	100	480	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Phenanthrene	0.054	2.6	2.1	100	480	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Phenanthrene	0.018 J	0.6	3.2	100	480	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	Phenanthrene	0.014 J	0.4		1.5	5.4	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Phenol	2.6	18.4		0.42	1.2	mg/kg DW	6.2	2.2
KCS96C2	11/7/2011	Inline	Phenol	0.92 J	14.9		0.42	1.2	mg/kg DW	2.2	<1
RCB271	5/13/2011	RCB	Phenol	0.91	8.5		0.42	1.2	mg/kg DW	2.2	<1
KCS96B	11/7/2011	Inline	Phenol	0.61 J	31.5		0.42	1.2	mg/kg DW	1.5	<1
KCS96B1	11/7/2011	Inline	Phenol	0.57 J	8.9		0.42	1.2	mg/kg DW	1.4	<1
MH239	6/3/2009	Inline	Phenol	0.42	6.7		0.42	1.2	mg/kg DW	1	<1
96-ST1	4/24/2009	Trap	Phenol	0.21 B	16.9		0.42	1.2	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Phenol	0.38	24.0		0.42	1.2	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Phenol	0.21 J	11.7		0.42	1.2	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Phenol	0.19 J	3.3	5.8	420	1200	mg/kg OC	<1	<1
KC-09	4/4/2012	Inline	Phenol	0.16	2.9	5.6	420	1200	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Phenol	0.091 J	5.5		0.42	1.2	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Phenol	0.084 J	6.8		0.42	1.2	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Phenol	0.056 J	3.9	1.4	420	1200	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Phenol	0.034 J	1.6	2.1	420	1200	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Phenol	0.015 J	0.9	1.7	420	1200	mg/kg OC	<1	<1
RCB154	4/13/2011	RCB	Phenol	0.074	2.6	2.9	420	1200	mg/kg OC	<1	<1
96-ST1	4/24/2009	Trap	Pyrene	3.1	16.9		2.6	3.3	mg/kg DW	1.2	<1
96-ST2	12/1/2010	Trap	Pyrene	1.5	9.1		2.6	3.3	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Pyrene	0.44	8.9		2.6	3.3	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Pyrene	0.3	5.9		2.6	3.3	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Pyrene	0.22	2.9	7.6	1000	1400	mg/kg OC	<1	<1
96-ST3	5/13/2009	Trap	Pyrene	0.016 J	1.4	1.2	1000	1400	mg/kg OC	<1	<1
CB129	10/10/2008	CB	Pyrene	0.78 J	4.6		2.6	3.3	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KC-09	4/4/2012	Inline	Pyrene	4.6	2.9	159.7	1000	1400	mg/kg OC	<1	<1
KCS96C2	11/7/2011	Inline	Pyrene	1.8	14.9		2.6	3.3	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Pyrene	1.8	2.8	63.4	1000	1400	mg/kg OC	<1	<1
KC-05	4/4/2012	Inline	Pyrene	1.6	24.0		2.6	3.3	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Pyrene	1.2	6.7		2.6	3.3	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Pyrene	1.1	4.6		2.6	3.3	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Pyrene	0.88	6.8		2.6	3.3	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Pyrene	0.74	31.5		2.6	3.3	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Pyrene	0.55	18.4		2.6	3.3	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Pyrene	0.42	1.3	32.3	1000	1400	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Pyrene	0.35	3.4	10.3	1000	1400	mg/kg OC	<1	<1
KCS96B1	11/7/2011	Inline	Pyrene	0.28 J	8.9		2.6	3.3	mg/kg DW	<1	<1
96-ST2	12/11/2008	Inline	Pyrene	0.26	0.8	31.1	1000	1400	mg/kg OC	<1	<1
KCS96C1	11/7/2011	Inline	Pyrene	0.26	3.3	8.0	1000	1400	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Pyrene	0.23	5.5		2.6	3.3	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Pyrene	0.23	3.9	5.9	1000	1400	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Pyrene	0.16	1.1	14.7	1000	1400	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Pyrene	0.15	1.7	8.8	1000	1400	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Pyrene	0.14	1.6	8.6	1000	1400	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Pyrene	0.12	3.1	3.8	1000	1400	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Pyrene	0.092 J	0.9	10.1	1000	1400	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Pyrene	0.074	11.7		2.6	3.3	mg/kg DW	<1	<1
KCS96F	11/7/2011	Inline	Pyrene	0.061	2.2	2.8	1000	1400	mg/kg OC	<1	<1
KC-07	4/4/2012	Inline	Pyrene	0.056	1.4	4.0	1000	1400	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Pyrene	0.032	0.8	4.2	1000	1400	mg/kg OC	<1	<1
KC-08	4/4/2012	Inline	Pyrene	0.012 J	0.5	2.6	1000	1400	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Pyrene	0.89	5.0		2.6	3.3	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Pyrene	0.77	7.8		2.6	3.3	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Pyrene	0.67 J	2.6	26.2	1000	1400	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Pyrene	0.3	8.5		2.6	3.3	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Pyrene	0.23	3.9	5.9	1000	1400	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Pyrene	0.11	2.6	4.2	1000	1400	mg/kg OC	<1	<1
RCB269	5/13/2011	RCB	Pyrene	0.053 J	1.5	3.7	1000	1400	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Pyrene	0.029	0.6	5.1	1000	1400	mg/kg OC	<1	<1
RCB136	3/25/2008	RCB	Pyrene	0.029	0.8	3.8	1000	1400	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	Pyrene	0.014 J	0.4		2.6	3.3	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Total HPAH (calc'd)	13.90	16.9		12	17	mg/kg DW	1.2	<1
96-ST2	12/1/2010	Trap	Total HPAH (calc'd)	8.67	9.1		12	17	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
96-ST2	4/24/2009	Trap	Total HPAH (calc'd)	2.08	8.9		12	17	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Total HPAH (calc'd)	2.01	5.9		12	17	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Total HPAH (calc'd)	1.45	2.9	50.0	960	5300	mg/kg OC	<1	<1
96-ST3	5/13/2009	Trap	Total HPAH (calc'd)	0.05	1.4	3.3	960	5300	mg/kg OC	<1	<1
CB129	10/10/2008	CB	Total HPAH (calc'd)	2.48	4.6		12	17	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Total HPAH (calc'd)	23.99	2.9	833.0	960	5300	mg/kg OC	<1	<1
KCS96C2	11/7/2011	Inline	Total HPAH (calc'd)	11.38	14.9		12	17	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Total HPAH (calc'd)	8.40	2.8	295.9	960	5300	mg/kg OC	<1	<1
KC-05	4/4/2012	Inline	Total HPAH (calc'd)	8.21	24.0		12	17	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Total HPAH (calc'd)	7.74	6.7		12	17	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Total HPAH (calc'd)	6.18	4.6		12	17	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Total HPAH (calc'd)	4.86	6.8		12	17	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Total HPAH (calc'd)	3.90	31.5		12	17	mg/kg DW	<1	<1
KC-04	4/4/2012	Inline	Total HPAH (calc'd)	2.73	18.4		12	17	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Total HPAH (calc'd)	1.74	1.3	133.6	960	5300	mg/kg OC	<1	<1
96-ST2	4/24/2009	Inline	Total HPAH (calc'd)	1.73	3.4	51.0	960	5300	mg/kg OC	<1	<1
KC-01	4/4/2012	Inline	Total HPAH (calc'd)	1.69	3.9	43.0	960	5300	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Total HPAH (calc'd)	1.44	5.5		12	17	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Total HPAH (calc'd)	1.37	3.3	42.0	960	5300	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Total HPAH (calc'd)	1.17	0.8	140.0	960	5300	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Total HPAH (calc'd)	0.84	1.7	48.9	960	5300	mg/kg OC	<1	<1
KCS96B1	11/7/2011	Inline	Total HPAH (calc'd)	0.83 J	8.9		12	17	mg/kg DW	<1	<1
KCS96D1	11/7/2011	Inline	Total HPAH (calc'd)	0.78	1.6	48.3	960	5300	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Total HPAH (calc'd)	0.74	3.1	23.6	960	5300	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Total HPAH (calc'd)	0.70	1.1	63.9	960	5300	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Total HPAH (calc'd)	0.48	0.9	53.2	960	5300	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Total HPAH (calc'd)	0.46	11.7		12	17	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Total HPAH (calc'd)	0.34	1.4	24.0	960	5300	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	Total HPAH (calc'd)	0.30	2.2	13.8	960	5300	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Total HPAH (calc'd)	0.19	0.8	25.2	960	5300	mg/kg OC	<1	<1
KC-08	4/4/2012	Inline	Total HPAH (calc'd)	0.04 J	0.5	8.9	960	5300	mg/kg OC	<1	<1
96-ST3	12/3/2010	Inline	Total HPAH (calc'd)	0.01	0.6	2.2	960	5300	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Total HPAH (calc'd)	5.54	5.0		12	17	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Total HPAH (calc'd)	4.17	7.8		12	17	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Total HPAH (calc'd)	3.56	2.6	139.5	960	5300	mg/kg OC	<1	<1
RCB271	5/13/2011	RCB	Total HPAH (calc'd)	1.66	8.5		12	17	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Total HPAH (calc'd)	1.38	3.9	35.4	960	5300	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Total HPAH (calc'd)	0.79	2.6	30.6	960	5300	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB269	5/13/2011	RCB	Total HPAH (calc'd)	0.23	1.5	15.8	960	5300	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Total HPAH (calc'd)	0.17	0.6	30.2	960	5300	mg/kg OC	<1	<1
RCB136	3/25/2008	RCB	Total HPAH (calc'd)	0.08	0.8	10.1	960	5300	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	Total HPAH (calc'd)	0.04	0.4		12	17	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Total HpCDD	103	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Total HpCDD	449	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total HpCDD	88	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total HpCDD	44.5	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	Total HpCDD	17.9	1.5				ng/kg DW		
96-ST2	12/1/2010	Inline	Total HpCDF	28.8	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Total HpCDF	126	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total HpCDF	22.5	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total HpCDF	15.8	3.9				ng/kg DW		
96-ST2	12/1/2010	Inline	Total HxCDD	9.65 J	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Total HxCDD	73.2	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total HxCDD	18.1	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total HxCDD	9.12	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	Total HxCDD	2.78	1.5				ng/kg DW		
96-ST2	12/1/2010	Inline	Total HxCDF	16	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Total HxCDF	79.9	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total HxCDF	14.7	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total HxCDF	7.81	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	Total HxCDF	1.52 J	1.5				ng/kg DW		
96-ST1	4/24/2009	Trap	Total LPAH (calc'd)	3.515	16.9		5.2	13	mg/kg DW	<1	<1
96-ST2	12/1/2010	Trap	Total LPAH (calc'd)	1.31	9.1		5.2	13	mg/kg DW	<1	<1
96-ST2	4/24/2009	Trap	Total LPAH (calc'd)	0.21	8.9		5.2	13	mg/kg DW	<1	<1
96-ST1	12/1/2010	Trap	Total LPAH (calc'd)	0.19	5.9		5.2	13	mg/kg DW	<1	<1
96-ST3	12/3/2010	Trap	Total LPAH (calc'd)	0.09	2.9	3.1	370	780	mg/kg OC	<1	<1
CB129	10/10/2008	CB	Total LPAH (calc'd)	0.83	4.6		5.2	13	mg/kg DW	<1	<1
KC-09	4/4/2012	Inline	Total LPAH (calc'd)	3.644	2.9	126.5	370	780	mg/kg OC	<1	<1
96-ST1	4/24/2009	Inline	Total LPAH (calc'd)	1.886	2.8	66.4	370	780	mg/kg OC	<1	<1
96-ST2	12/1/2010	Inline	Total LPAH (calc'd)	1.74	4.6		5.2	13	mg/kg DW	<1	<1
KC-05	4/4/2012	Inline	Total LPAH (calc'd)	1.03	24.0		5.2	13	mg/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	Total LPAH (calc'd)	0.9	14.9		5.2	13	mg/kg DW	<1	<1
KC-06	4/4/2012	Inline	Total LPAH (calc'd)	0.657	6.8		5.2	13	mg/kg DW	<1	<1
MH239	6/3/2009	Inline	Total LPAH (calc'd)	0.65	6.7		5.2	13	mg/kg DW	<1	<1
KCS96B	11/7/2011	Inline	Total LPAH (calc'd)	0.58	31.5		5.2	13	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Total LPAH (calc'd)	0.402	3.3	12.3	370	780	mg/kg OC	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
96-ST1	12/11/2008	Inline	Total LPAH (calc'd)	0.361	1.3	27.8	370	780	mg/kg OC	<1	<1
KCS96E1	11/7/2011	Inline	Total LPAH (calc'd)	0.251	1.1	23.0	370	780	mg/kg OC	<1	<1
KC-04	4/4/2012	Inline	Total LPAH (calc'd)	0.23	18.4		5.2	13	mg/kg DW	<1	<1
96-ST2	4/24/2009	Inline	Total LPAH (calc'd)	0.2	3.4	5.9	370	780	mg/kg OC	<1	<1
96-ST2	12/11/2008	Inline	Total LPAH (calc'd)	0.182	0.8	21.8	370	780	mg/kg OC	<1	<1
KC-03	4/4/2012	Inline	Total LPAH (calc'd)	0.155	3.1	4.9	370	780	mg/kg OC	<1	<1
KCS96A1	11/7/2011	Inline	Total LPAH (calc'd)	0.1474	5.5		5.2	13	mg/kg DW	<1	<1
KC-01	4/4/2012	Inline	Total LPAH (calc'd)	0.14	3.9	3.6	370	780	mg/kg OC	<1	<1
KCS96D1	11/7/2011	Inline	Total LPAH (calc'd)	0.116	1.6	7.2	370	780	mg/kg OC	<1	<1
KC-02	4/4/2012	Inline	Total LPAH (calc'd)	0.092	1.7	5.4	370	780	mg/kg OC	<1	<1
MH244	4/13/2011	Inline	Total LPAH (calc'd)	0.061	0.9	6.7	370	780	mg/kg OC	<1	<1
KCS96H	11/7/2011	Inline	Total LPAH (calc'd)	0.028 J	11.7		5.2	13	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Total LPAH (calc'd)	0.027	1.4	1.9	370	780	mg/kg OC	<1	<1
96-ST1	12/1/2010	Inline	Total LPAH (calc'd)	0.021	0.8	2.7	370	780	mg/kg OC	<1	<1
KCS96F	11/7/2011	Inline	Total LPAH (calc'd)	0.02	2.2	0.9	370	780	mg/kg OC	<1	<1
RCB154	10/10/2008	RCB	Total LPAH (calc'd)	1.031	5.0		5.2	13	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Total LPAH (calc'd)	0.483	2.6	18.9	370	780	mg/kg OC	<1	<1
RCB267	5/13/2011	RCB	Total LPAH (calc'd)	0.33	7.8		5.2	13	mg/kg DW	<1	<1
RCB271	5/13/2011	RCB	Total LPAH (calc'd)	0.18	8.5		5.2	13	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Total LPAH (calc'd)	0.129	3.9	3.3	370	780	mg/kg OC	<1	<1
RCB223	6/3/2009	RCB	Total LPAH (calc'd)	0.054	2.6	2.1	370	780	mg/kg OC	<1	<1
RCB222	6/3/2009	RCB	Total LPAH (calc'd)	0.018	0.6	3.2	370	780	mg/kg OC	<1	<1
RCB221	6/3/2009	RCB	Total LPAH (calc'd)	0.014	0.4		5.2	13	mg/kg DW	<1	<1
96-ST2	12/1/2010	Inline	Total PeCDD	2.07 J	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Total PeCDD	16.9	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total PeCDD	1.4 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total PeCDD	0.867 J	3.9				ng/kg DW		
96-ST2	12/1/2010	Inline	Total PeCDF	9.01	4.6				ng/kg DW		
RCB271	5/13/2011	RCB	Total PeCDF	36.2	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total PeCDF	10.4	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total PeCDF	4.3	3.9				ng/kg DW		
RCB269	5/13/2011	RCB	Total PeCDF	0.907 J	1.5				ng/kg DW		
RCB271	5/13/2011	RCB	Total TCDD	2.91	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total TCDD	0.718 J	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total TCDD	0.141 J	3.9				ng/kg DW		
RCB271	5/13/2011	RCB	Total TCDF	12.7	8.5				ng/kg DW		
RCB267	5/13/2011	RCB	Total TCDF	5.15	7.8				ng/kg DW		
RCB268	5/13/2011	RCB	Total TCDF	2.12	3.9				ng/kg DW		

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
CB129	10/10/2008	CB	TPH-Diesel	4600	4.6		2,000		mg/kg DW	2.3	
KC-05	4/4/2012	Inline	TPH-Diesel	3500	24.0		2,000		mg/kg DW	1.75	
KCS96B1	11/7/2011	Inline	TPH-Diesel	3000	8.9		2,000		mg/kg DW	1.5	
KCS96C2	11/7/2011	Inline	TPH-Diesel	3000	14.9		2,000		mg/kg DW	1.5	
96-ST2	12/1/2010	Trap	TPH-Diesel	410	9.1		2,000		mg/kg DW	<1	
96-ST1	4/24/2009	Trap	TPH-Diesel	390	16.9		2,000		mg/kg DW	<1	
96-ST2	4/24/2009	Trap	TPH-Diesel	160	8.9		2,000		mg/kg DW	<1	
96-ST1	12/1/2010	Trap	TPH-Diesel	76	5.9		2,000		mg/kg DW	<1	
CB114	3/25/2008	CB	TPH-Diesel	13	0.4		2,000		mg/kg DW	<1	
MH239	6/3/2009	Inline	TPH-Diesel	830	6.7		2,000		mg/kg DW	<1	
96-ST1	4/24/2009	Inline	TPH-Diesel	100	2.8		2,000		mg/kg DW	<1	
96-ST1	12/11/2008	Inline	TPH-Diesel	77	1.3		2,000		mg/kg DW	<1	
KC-04	4/4/2012	Inline	TPH-Diesel	1100	18.4		2,000		mg/kg DW	<1	
KC-06	4/4/2012	Inline	TPH-Diesel	640	6.8		2,000		mg/kg DW	<1	
KCS96H	11/7/2011	Inline	TPH-Diesel	220	11.7		2,000		mg/kg DW	<1	
KC-09	4/4/2012	Inline	TPH-Diesel	220	2.9		2,000		mg/kg DW	<1	
KCS96E1	11/7/2011	Inline	TPH-Diesel	200	1.1		2,000		mg/kg DW	<1	
KCS96D1	11/7/2011	Inline	TPH-Diesel	180	1.6		2,000		mg/kg DW	<1	
KCS96F	11/7/2011	Inline	TPH-Diesel	180	2.2		2,000		mg/kg DW	<1	
KCS96B	11/7/2011	Inline	TPH-Diesel	160	31.5		2,000		mg/kg DW	<1	
KCS96C1	11/7/2011	Inline	TPH-Diesel	160	3.3		2,000		mg/kg DW	<1	
KCS96A1	11/7/2011	Inline	TPH-Diesel	110	5.5		2,000		mg/kg DW	<1	
KC-02	4/4/2012	Inline	TPH-Diesel	85	1.7		2,000		mg/kg DW	<1	
KC-01	4/4/2012	Inline	TPH-Diesel	77	3.9		2,000		mg/kg DW	<1	
KC-03	4/4/2012	Inline	TPH-Diesel	52	3.1		2,000		mg/kg DW	<1	
KC-07	4/4/2012	Inline	TPH-Diesel	18	1.4		2,000		mg/kg DW	<1	
KC-08	4/4/2012	Inline	TPH-Diesel	7	0.5		2,000		mg/kg DW	<1	
RCB154	10/10/2008	RCB	TPH-Diesel	760	5.0		2,000		mg/kg DW	<1	
RCB267	5/13/2011	RCB	TPH-Diesel	120	7.8		2,000		mg/kg DW	<1	
RCB154	4/13/2011	RCB	TPH-Diesel	110	2.6		2,000		mg/kg DW	<1	
RCB223	6/3/2009	RCB	TPH-Diesel	100	2.6		2,000		mg/kg DW	<1	
RCB271	5/13/2011	RCB	TPH-Diesel	94	8.5		2,000		mg/kg DW	<1	
RCB268	5/13/2011	RCB	TPH-Diesel	50	3.9		2,000		mg/kg DW	<1	
RCB136	3/25/2008	RCB	TPH-Diesel	35	0.8		2,000		mg/kg DW	<1	
KCS96C2	11/7/2011	Inline	TPH-Oil	14000	14.9		2,000		mg/kg DW	7	
KCS96B1	11/7/2011	Inline	TPH-Oil	9800	8.9		2,000		mg/kg DW	4.9	
KC-05	4/4/2012	Inline	TPH-Oil	6200	24.0		2,000		mg/kg DW	3.1	
CB129	10/10/2008	CB	TPH-Oil	4400	4.6		2,000		mg/kg DW	2.2	

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB154	10/10/2008	RCB	TPH-Oil	3200	5.0		2,000		mg/kg DW	1.6	
KC-06	4/4/2012	Inline	TPH-Oil	2800	6.8		2,000		mg/kg DW	1.4	
MH239	6/3/2009	Inline	TPH-Oil	2400	6.7		2,000		mg/kg DW	1.2	
96-ST2	12/1/2010	Trap	TPH-Oil	2100	9.1		2,000		mg/kg DW	1.1	
KC-04	4/4/2012	Inline	TPH-Oil	2000	18.4		2,000		mg/kg DW	1	
96-ST1	4/24/2009	Trap	TPH-Oil	1400	16.9		2,000		mg/kg DW	<1	
96-ST2	4/24/2009	Trap	TPH-Oil	1000	8.9		2,000		mg/kg DW	<1	
96-ST1	12/1/2010	Trap	TPH-Oil	480	5.9		2,000		mg/kg DW	<1	
CB114	3/25/2008	CB	TPH-Oil	72	0.4		2,000		mg/kg DW	<1	
KCS96B	11/7/2011	Inline	TPH-Oil	1300	31.5		2,000		mg/kg DW	<1	
KC-09	4/4/2012	Inline	TPH-Oil	1100	2.9		2,000		mg/kg OC	<1	
KCS96C1	11/7/2011	Inline	TPH-Oil	900	3.3		2,000		mg/kg OC	<1	
KCS96H	11/7/2011	Inline	TPH-Oil	870	11.7		2,000		mg/kg DW	<1	
KCS96A1	11/7/2011	Inline	TPH-Oil	840	5.5		2,000		mg/kg DW	<1	
KCS96F	11/7/2011	Inline	TPH-Oil	790	2.2		2,000		mg/kg OC	<1	
KCS96D1	11/7/2011	Inline	TPH-Oil	730	1.6		2,000		mg/kg OC	<1	
KCS96E1	11/7/2011	Inline	TPH-Oil	700	1.1		2,000		mg/kg OC	<1	
96-ST1	4/24/2009	Inline	TPH-Oil	570	2.8		2,000		mg/kg DW	<1	
KC-01	4/4/2012	Inline	TPH-Oil	560	3.9		2,000		mg/kg OC	<1	
96-ST1	12/11/2008	Inline	TPH-Oil	470	1.3		2,000		mg/kg DW	<1	
KC-02	4/4/2012	Inline	TPH-Oil	410	1.7		2,000		mg/kg OC	<1	
96-ST2	12/1/2010	Inline	TPH-Oil	410	4.6		2,000		mg/kg DW	<1	
96-ST2	4/24/2009	Inline	TPH-Oil	330	3.4		2,000		mg/kg DW	<1	
KC-03	4/4/2012	Inline	TPH-Oil	230	3.1		2,000		mg/kg OC	<1	
96-ST2	12/11/2008	Inline	TPH-Oil	190	0.8		2,000		mg/kg DW	<1	
MH244	4/13/2011	Inline	TPH-Oil	160	0.9		2,000		mg/kg DW	<1	
KC-07	4/4/2012	Inline	TPH-Oil	120	1.4		2,000		mg/kg OC	<1	
KC-08	4/4/2012	Inline	TPH-Oil	36	0.5		2,000		mg/kg DW	<1	
RCB154	4/13/2011	RCB	TPH-Oil	810	2.6		2,000		mg/kg DW	<1	
RCB267	5/13/2011	RCB	TPH-Oil	720	7.8		2,000		mg/kg DW	<1	
RCB271	5/13/2011	RCB	TPH-Oil	520	8.5		2,000		mg/kg DW	<1	
RCB223	6/3/2009	RCB	TPH-Oil	510	2.6		2,000		mg/kg DW	<1	
RCB268	5/13/2011	RCB	TPH-Oil	260	3.9		2,000		mg/kg DW	<1	
RCB136	3/25/2008	RCB	TPH-Oil	190	0.8		2,000		mg/kg DW	<1	
RCB269	5/13/2011	RCB	TPH-Oil	71	1.5		2,000		mg/kg DW	<1	
KCS96A1	11/7/2011	Inline	Zinc	99200	5.5		410	960	mg/kg DW	242	103
KCS96B	11/7/2011	Inline	Zinc	12100	31.5		410	960	mg/kg DW	30	13
KCS96C2	11/7/2011	Inline	Zinc	3270	14.9		410	960	mg/kg DW	8.0	3.4

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
MH239	6/3/2009	Inline	Zinc	2530 J	6.7		410	960	mg/kg DW	6.2	2.6
CB129	10/10/2008	CB	Zinc	1760	4.6		410	960	mg/kg DW	4.3	1.8
KC-04	4/4/2012	Inline	Zinc	1140 J	18.4		410	960	mg/kg DW	2.8	1.2
96-ST3	12/3/2010	Trap	Zinc	1110 J	2.9		410	960	mg/kg DW	2.7	1.2
KC-05	4/4/2012	Inline	Zinc	942 J	24.0		410	960	mg/kg DW	2.3	<1
96-ST2	12/1/2010	Inline	Zinc	746	4.6		410	960	mg/kg DW	1.8	<1
KCS96B1	11/7/2011	Inline	Zinc	728	8.9		410	960	mg/kg DW	1.8	<1
96-ST2	12/1/2010	Trap	Zinc	669	9.1		410	960	mg/kg DW	1.6	<1
KC-06	4/4/2012	Inline	Zinc	610 J	6.8		410	960	mg/kg DW	1.5	<1
96-ST1	12/1/2010	Trap	Zinc	593	5.9		410	960	mg/kg DW	1.4	<1
KCS96D1	11/7/2011	Inline	Zinc	551	1.6		410	960	mg/kg DW	1.3	<1
CB114	3/25/2008	CB	Zinc	504	0.4		410	960	mg/kg DW	1.2	<1
RCB154	10/10/2008	RCB	Zinc	489	5.0		410	960	mg/kg DW	1.2	<1
KC-09	4/4/2012	Inline	Zinc	469 J	2.9		410	960	mg/kg DW	1.1	<1
96-ST2	4/24/2009	Trap	Zinc	458	8.9		410	960	mg/kg DW	1.1	<1
96-ST2	4/24/2009	Inline	Zinc	410	3.4		410	960	mg/kg DW	1	<1
KC-01	4/4/2012	Inline	Zinc	410 J	3.9		410	960	mg/kg DW	1	<1
96-ST1	4/24/2009	Trap	Zinc	406	16.9		410	960	mg/kg DW	<1	<1
96-ST3	5/13/2009	Trap	Zinc	53 J	1.4		410	960	mg/kg DW	<1	<1
KCS96C1	11/7/2011	Inline	Zinc	406	3.3		410	960	mg/kg DW	<1	<1
KCS96E1	11/7/2011	Inline	Zinc	404	1.1		410	960	mg/kg DW	<1	<1
96-ST2	12/11/2008	Inline	Zinc	396	0.8		410	960	mg/kg DW	<1	<1
KC-07	4/4/2012	Inline	Zinc	394 J	1.4		410	960	mg/kg DW	<1	<1
KC-02	4/4/2012	Inline	Zinc	330 J	1.7		410	960	mg/kg DW	<1	<1
KC-08	4/4/2012	Inline	Zinc	276 J	0.5		410	960	mg/kg DW	<1	<1
KC-03	4/4/2012	Inline	Zinc	275 J	3.1		410	960	mg/kg DW	<1	<1
KCS96H	11/7/2011	Inline	Zinc	268	11.7		410	960	mg/kg DW	<1	<1
96-ST1	12/1/2010	Inline	Zinc	267	0.8		410	960	mg/kg DW	<1	<1
96-ST1	4/24/2009	Inline	Zinc	249	2.8		410	960	mg/kg DW	<1	<1
96-ST1	12/11/2008	Inline	Zinc	228	1.3		410	960	mg/kg DW	<1	<1
MH244	4/13/2011	Inline	Zinc	166 J	0.9		410	960	mg/kg DW	<1	<1
KCS96F	11/7/2011	Inline	Zinc	105	2.2		410	960	mg/kg DW	<1	<1
96-ST3	12/3/2010	Inline	Zinc	38 J	0.6		410	960	mg/kg DW	<1	<1
96-ST3	12/3/2008	Inline	Zinc	34	0.3		410	960	mg/kg DW	<1	<1
RCB267	5/13/2011	RCB	Zinc	388	7.8		410	960	mg/kg DW	<1	<1
RCB154	4/13/2011	RCB	Zinc	385.5	2.6		410	960	mg/kg DW	<1	<1
RCB222	6/3/2009	RCB	Zinc	231 J	0.6		410	960	mg/kg DW	<1	<1
RCB223	6/3/2009	RCB	Zinc	214 J	2.6		410	960	mg/kg DW	<1	<1

Table A-5a
Chemicals Detected in Storm Drain Samples
Sea King Industrial Park Source Control Area

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
RCB271	5/13/2011	RCB	Zinc	151	8.5		410	960	mg/kg DW	<1	<1
RCB268	5/13/2011	RCB	Zinc	95.5	3.9		410	960	mg/kg DW	<1	<1
RCB136	3/25/2008	RCB	Zinc	82	0.8		410	960	mg/kg DW	<1	<1
RCB221	6/3/2009	RCB	Zinc	75 J	0.4		410	960	mg/kg DW	<1	<1
RCB269	5/13/2011	RCB	Zinc	70	1.5		410	960	mg/kg DW	<1	<1

mg/kg - milligrams per kilogram
ng/kg - nanograms per kilogram
DW - dry weight
TOC - total organic carbon
OC - organic carbon
SQS - Sediment Quality Standard
CSL - Cleanup Screening Level
LAET - lowest apparent effects threshold
2LAET - second lowest apparent effects threshold
J - Estimated value between the method detection limit and the laboratory reporting limit
B - Analyte was detected in the associated method blank

BBP - butylbenzylphthalate
BEHP - bis(2-ethylhexyl)phthalate
CB - catch basin
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
RCB - right of way catch basin
TEQ - toxic equivalence quotient
TPH - total petroleum hydrocarbons

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the SQS or CSL; exceedance factors are shown only if they are greater than 1.
Sample results with TOC less than or equal to 0.5 percent or greater than or equal to 4.0 percent were compared to the Lowest Apparent Effects Threshold (LAET) or the second LAET (2LAET) value rather than the SQS and/or CSL. The LAET is functionally equivalent to the SQS and the 2LAET is functionally equivalent to the CSL.
OC-normalization is not considered to be appropriate for when TOC concentrations are less than or equal to 0.5 percent or greater than or equal to 4.0 percent.
Screening level for petroleum hydrocarbons is the MTCA soil cleanup level.

Table A-5b
Comparison of Chemicals Detected in Storm Drain Samples
to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL
96-ST2	12/1/2010	Trap	Arsenic	30	7	57	mg/kg DW	4.3	<1
CB114	3/25/2008	CB	Arsenic	20.5	7	57	mg/kg DW	2.9	<1
96-ST1	4/24/2009	Trap	Arsenic	20	7	57	mg/kg DW	2.9	<1
KC-06	4/4/2012	Inline	Arsenic	20	7	57	mg/kg DW	2.9	<1
KCS96E1	11/7/2011	Inline	Arsenic	20	7	57	mg/kg DW	2.9	<1
RCB154	4/13/2011	RCB	Arsenic	19	7	57	mg/kg DW	2.7	<1
96-ST2	12/1/2010	Inline	Arsenic	16	7	57	mg/kg DW	2.3	<1
RCB154	10/10/2008	RCB	Arsenic	12	7	57	mg/kg DW	1.7	<1
MH244	4/13/2011	Inline	Arsenic	11	7	57	mg/kg DW	1.6	<1
KC-03	4/4/2012	Inline	Arsenic	11	7	57	mg/kg DW	1.6	<1
RCB223	6/3/2009	RCB	Arsenic	11 J	7	57	mg/kg DW	1.6	<1
MH239	6/3/2009	Inline	Arsenic	10 J	7	57	mg/kg DW	1.4	<1
KCS96F	11/7/2011	Inline	Arsenic	10	7	57	mg/kg DW	1.4	<1
RCB221	6/3/2009	RCB	Arsenic	9 J	7	57	mg/kg DW	1.3	<1
CB129	10/10/2008	CB	Arsenic	8	7	57	mg/kg DW	1.1	<1
RCB222	6/3/2009	RCB	Arsenic	8 J	7	57	mg/kg DW	1.1	<1
KCS96C2	11/7/2011	Inline	Arsenic	7.5	7	57	mg/kg DW	1.1	<1
96-ST1	12/1/2010	Inline	Arsenic	7	7	57	mg/kg DW	1.0	<1
96-ST1	12/11/2008	Inline	Arsenic	7	7	57	mg/kg DW	1.0	<1
96-ST1	4/24/2009	Inline	Arsenic	7	7	57	mg/kg DW	1.0	<1
RCB267	5/13/2011	RCB	Arsenic	7	7	57	mg/kg DW	1.0	<1
RCB136	3/25/2008	RCB	Arsenic	5.6	7	57	mg/kg DW	<1	<1
KCS96A1	11/7/2011	Inline	Arsenic	5	7	57	mg/kg DW	<1	<1
96-ST1	4/24/2009	Trap	Carcinogenic PAHs (calc'd)	1655	9	1,000	ug/kg DW	184	1.7
96-ST1	4/24/2009	Inline	Carcinogenic PAHs (calc'd)	1034.5	9	1,000	ug/kg DW	115	1.0
96-ST2	12/1/2010	Trap	Carcinogenic PAHs (calc'd)	972	9	1,000	ug/kg DW	108	<1
MH239	6/3/2009	Inline	Carcinogenic PAHs (calc'd)	920.5	9	1,000	ug/kg DW	102	<1
RCB154	10/10/2008	RCB	Carcinogenic PAHs (calc'd)	766.2	9	1,000	ug/kg DW	85	<1
96-ST2	12/1/2010	Inline	Carcinogenic PAHs (calc'd)	676.4	9	1,000	ug/kg DW	75	<1
RCB267	5/13/2011	RCB	Carcinogenic PAHs (calc'd)	419.5	9	1,000	ug/kg DW	47	<1
RCB154	4/13/2011	RCB	Carcinogenic PAHs (calc'd)	396	9	1,000	ug/kg DW	44	<1
96-ST2	4/24/2009	Trap	Carcinogenic PAHs (calc'd)	246.4	9	1,000	ug/kg DW	27	<1
96-ST1	12/1/2010	Trap	Carcinogenic PAHs (calc'd)	239.15	9	1,000	ug/kg DW	27	<1
96-ST2	4/24/2009	Inline	Carcinogenic PAHs (calc'd)	225.9	9	1,000	ug/kg DW	25	<1
96-ST1	12/11/2008	Inline	Carcinogenic PAHs (calc'd)	216.3	9	1,000	ug/kg DW	24	<1
RCB271	5/13/2011	RCB	Carcinogenic PAHs (calc'd)	191.75	9	1,000	ug/kg DW	21	<1
96-ST3	12/3/2010	Trap	Carcinogenic PAHs (calc'd)	166.1	9	1,000	ug/kg DW	18	<1
RCB268	5/13/2011	RCB	Carcinogenic PAHs (calc'd)	157.95	9	1,000	ug/kg DW	18	<1

Table A-5b
Comparison of Chemicals Detected in Storm Drain Samples
to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL
96-ST2	12/11/2008	Inline	Carcinogenic PAHs (calc'd)	149.75	9	1,000	ug/kg DW	17	<1
RCB223	6/3/2009	RCB	Carcinogenic PAHs (calc'd)	117.75	9	1,000	ug/kg DW	13	<1
RCB269	5/13/2011	RCB	Carcinogenic PAHs (calc'd)	62.04	9	1,000	ug/kg DW	6.9	<1
MH244	4/13/2011	Inline	Carcinogenic PAHs (calc'd)	52.24	9	1,000	ug/kg DW	5.8	<1
RCB222	6/3/2009	RCB	Carcinogenic PAHs (calc'd)	25.13	9	1,000	ug/kg DW	2.8	<1
96-ST1	12/1/2010	Inline	Carcinogenic PAHs (calc'd)	22.32	9	1,000	ug/kg DW	2.5	<1
RCB136	3/25/2008	RCB	Carcinogenic PAHs (calc'd)	14.21	9	1,000	ug/kg DW	1.6	<1
96-ST3	5/13/2009	Trap	Carcinogenic PAHs (calc'd)	13.41	9	1,000	ug/kg DW	1.5	<1
RCB221	6/3/2009	RCB	Carcinogenic PAHs (calc'd)	13.4	9	1,000	ug/kg DW	1.5	<1
RCB271	5/13/2011	RCB	Dioxin/Furan TEQ	8.9	2	25	ng/kg DW	4.4	<1
96-ST2	12/1/2010	Inline	Dioxin/Furan TEQ	2.4	2	25	ng/kg DW	1.2	<1
RCB267	5/13/2011	RCB	Dioxin/Furan TEQ	1.8	2	25	ng/kg DW	<1	<1
RCB268	5/13/2011	RCB	Dioxin/Furan TEQ	1.1	2	25	ng/kg DW	<1	<1
RCB269	5/13/2011	RCB	Dioxin/Furan TEQ	0.4	2	25	ng/kg DW	<1	<1
KCS96C2	11/7/2011	Inline	PCBs (total calc'd)	1620 J	2	240	ug/kg DW	810	6.8
KC-03	4/4/2012	Inline	PCBs (total calc'd)	354 J	2	240	ug/kg DW	177	1.5
KCS96C1	11/7/2011	Inline	PCBs (total calc'd)	187	2	240	ug/kg DW	94	<1
KCS96B1	11/7/2011	Inline	PCBs (total calc'd)	177 J	2	240	ug/kg DW	89	<1
MH239	6/3/2009	Inline	PCBs (total calc'd)	173	2	240	ug/kg DW	87	<1
KC-06	4/4/2012	Inline	PCBs (total calc'd)	153	2	240	ug/kg DW	77	<1
KC-09	4/4/2012	Inline	PCBs (total calc'd)	114	2	240	ug/kg DW	57	<1
KC-05	4/4/2012	Inline	PCBs (total calc'd)	96 J	2	240	ug/kg DW	48	<1
96-ST1	12/11/2008	Inline	PCBs (total calc'd)	89	2	240	ug/kg DW	45	<1
CB129	10/10/2008	CB	PCBs (total calc'd)	87	2	240	ug/kg DW	44	<1
KCS96A1	11/7/2011	Inline	PCBs (total calc'd)	79	2	240	ug/kg DW	40	<1
KC-04	4/4/2012	Inline	PCBs (total calc'd)	67 J	2	240	ug/kg DW	34	<1
96-ST2	12/1/2010	Trap	PCBs (total calc'd)	62	2	240	ug/kg DW	31	<1
RCB154	10/10/2008	RCB	PCBs (total calc'd)	49	2	240	ug/kg DW	25	<1
RCB154	4/13/2011	RCB	PCBs (total calc'd)	44	2	240	ug/kg DW	22	<1
KCS96B	11/7/2011	Inline	PCBs (total calc'd)	34	2	240	ug/kg DW	17	<1
96-ST1	12/1/2010	Trap	PCBs (total calc'd)	28	2	240	ug/kg DW	14	<1
KC-01	4/4/2012	Inline	PCBs (total calc'd)	25 J	2	240	ug/kg DW	13	<1
KCS96E1	11/7/2011	Inline	PCBs (total calc'd)	21	2	240	ug/kg DW	11	<1
MH244	4/13/2011	Inline	PCBs (total calc'd)	20	2	240	ug/kg DW	10	<1
RCB223	6/3/2009	RCB	PCBs (total calc'd)	20	2	240	ug/kg DW	10	<1
KC-02	4/4/2012	Inline	PCBs (total calc'd)	9.4 J	2	240	ug/kg DW	4.7	<1

Table A-5b
Comparison of Chemicals Detected in Storm Drain Samples to Lower Duwamish Waterway Natural Background Concentrations and Remedial Action Levels

Sample Location	Date Collected	Grab Type	Chemical	Conc'n	LDW Background	LDW RAL	Units	Exceedance Factors	
								LDW Background	LDW RAL

mg/kg - milligrams per kilogram	LDW - Lower Duwamish Waterway
ng/kg - nanograms per kilogram	PAH - polycyclic aromatic hydrocarbon
ug/kg - micrograms per kilogram	TEQ - toxic equivalence quotient
DW - dry weight	RCB - right of way catch basin
RAL - Remedial Action Level	CB - catch basin
J - Estimated value between the method detection limit and the laboratory reporting limit	

Table presents detected chemicals only.
Exceedance factors are the ration of the detected concentrations to the LDW Natural Background concentration (AECOM 2012) or the LDW RAL (USEPA 2013);
exceedance factors are shown only if they are greater than 1.
Sampling events are listed in Table 2.

Appendix B
Aerial Photographs

Appendix B

Lower Duwamish Waterway
RM 3.8-4.2 West (Sea King Industrial Park)
Historical Aerial Photograph Review

In an effort to more thoroughly understand and evaluate historical facility operations and development adjacent to the Lower Duwamish Waterway (LDW) within the RM 3.8-4.2 West (Sea King Industrial Park) source control area, SAIC reviewed historical aerial photographs from 1936 to 2004. These photographs represent conditions from roughly each decade. Additional photographs from supplementary years are available; however, if during a cursory assessment there were no apparent changes, photographs less than a decade apart were not included in this summary. Aerial photographs for years 1936, 1946, 1956, 1960, 1969, 1980, 1985, 1990, and 2004 are described below.

For the purpose of discussion, current-day street names are used as reference points. In general, the year of facility specific building construction is presented in the text for each upland facility and is not discussed during this photograph review.

1936 (Figure B-1)

The land area in the Sea King Industrial Park source control area appears to be primarily farmland with some residential housing. Development along the shoreline appears to be limited. Present day arterial roads and residential streets are fairly well developed

1946 (Figure B-2)

Increased development has occurred along the waterway. The land areas for present day Delta Marine and Sea King Industrial Park facilities were developed between 1936 and 1946. A 1996 King County report indicates the facilities are meat packing and storage businesses, gas stations, and related automotive repair stations that are present in the area (King County 1996a). Farmland at the present day Boeing South Park facility appears to have been cleared and graded. Barracks or apartment buildings appear to be present on the Sea King Industrial Park property.

1956 (Figure B-3)

The area adjacent to the LDW remains relatively similar to activities from the 1946 photograph. Increased development occurred along 14th Avenue S. Areas west of 14th Avenue S were still used for farmland.

1960 (B-4)

Land use in the Sea King Industrial Park source control area appears to be consistent with land use in previous photographs.

1969 (Figure B-5)

A significant amount of industrial development has occurred adjacent to the LDW and central section of the source control area. The area occupied by the current day South 93rd Business Park and Delta Marine appear to be used for automobile storage and or wrecking operations. The land area for the Boeing South Park is paved and several building structures are present. State Route 99 and Des Moines Memorial Drive S are fully constructed, including the cloverleaf. The land area directly east of West Marginal Way S appears to be under construction. Buildings and possible industrial operations are present between 8th Avenue S and 10th Avenue S, north of S 96th Street.

1980 (Figure B-6)

The Duwamish Yacht Club, Delta Marine, and South 93rd Business Park, ICON Materials Asphalt Plant, former Morgan Trucking Inc., and Mason Dixon Intermodal are fully developed in the 1980 aerial photograph. The buildings that had been present on the Sea King Industrial Park property from previous photographs have been demolished and the land has been graded for development. The Markey Property (currently Simplex Grinnell/Sherwin Williams/NRC Environmental Services) appears to have been graded and/or filled.

1990 (Figure B-7)

The Sea King Industrial Park facility is fully developed. Global Intermodal Systems/ITEL Terminals occupies the area north of Delta Marine. Upland facilities in the eastern section of the source control area remain largely unchanged from previous years.

2004 (Figure B-8)

Operations and facilities remain largely unchanged from previous years.

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Figure B–1. Sea King Industrial Park Source Control Area, 1936

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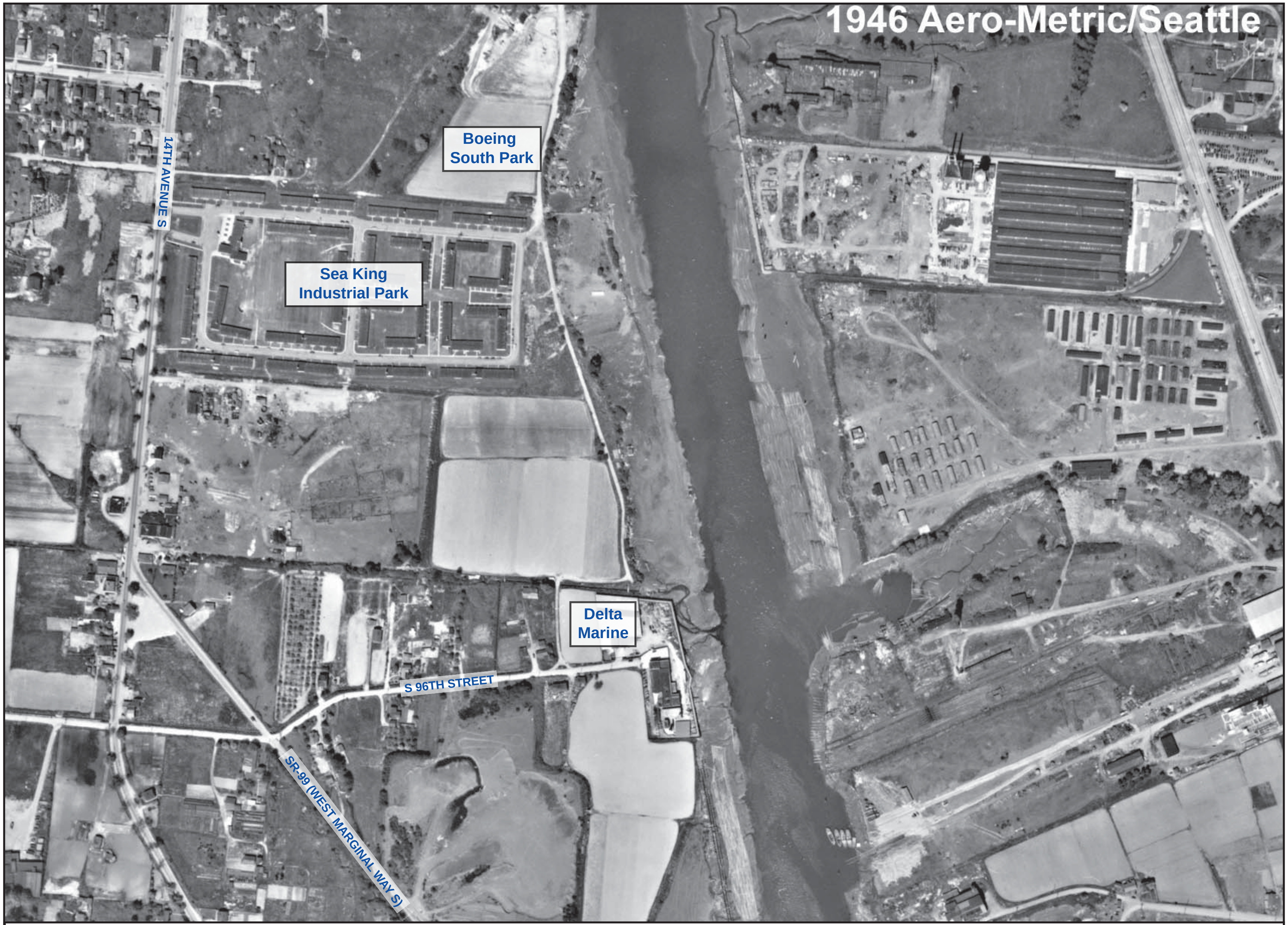

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Figure B–2. Sea King Industrial Park Source Control Area, 1946

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Figure B–3. Sea King Industrial Park Source Control Area, 1956

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Figure B–4. Sea King Industrial Park Source Control Area, 1960

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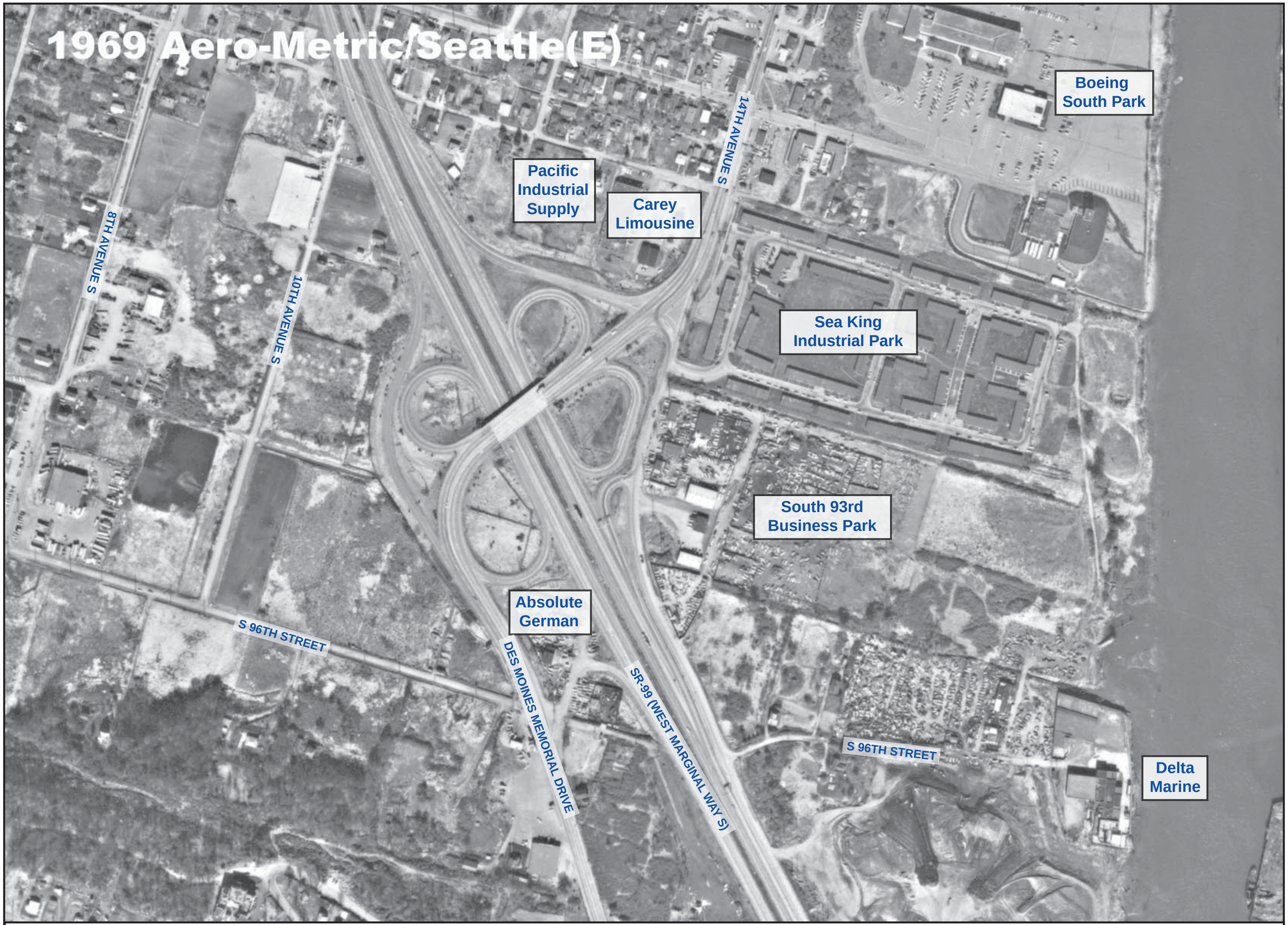

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Figure B–5. Sea King Industrial Park Source Control Area, 1969

SAIC® From Science to Solutions

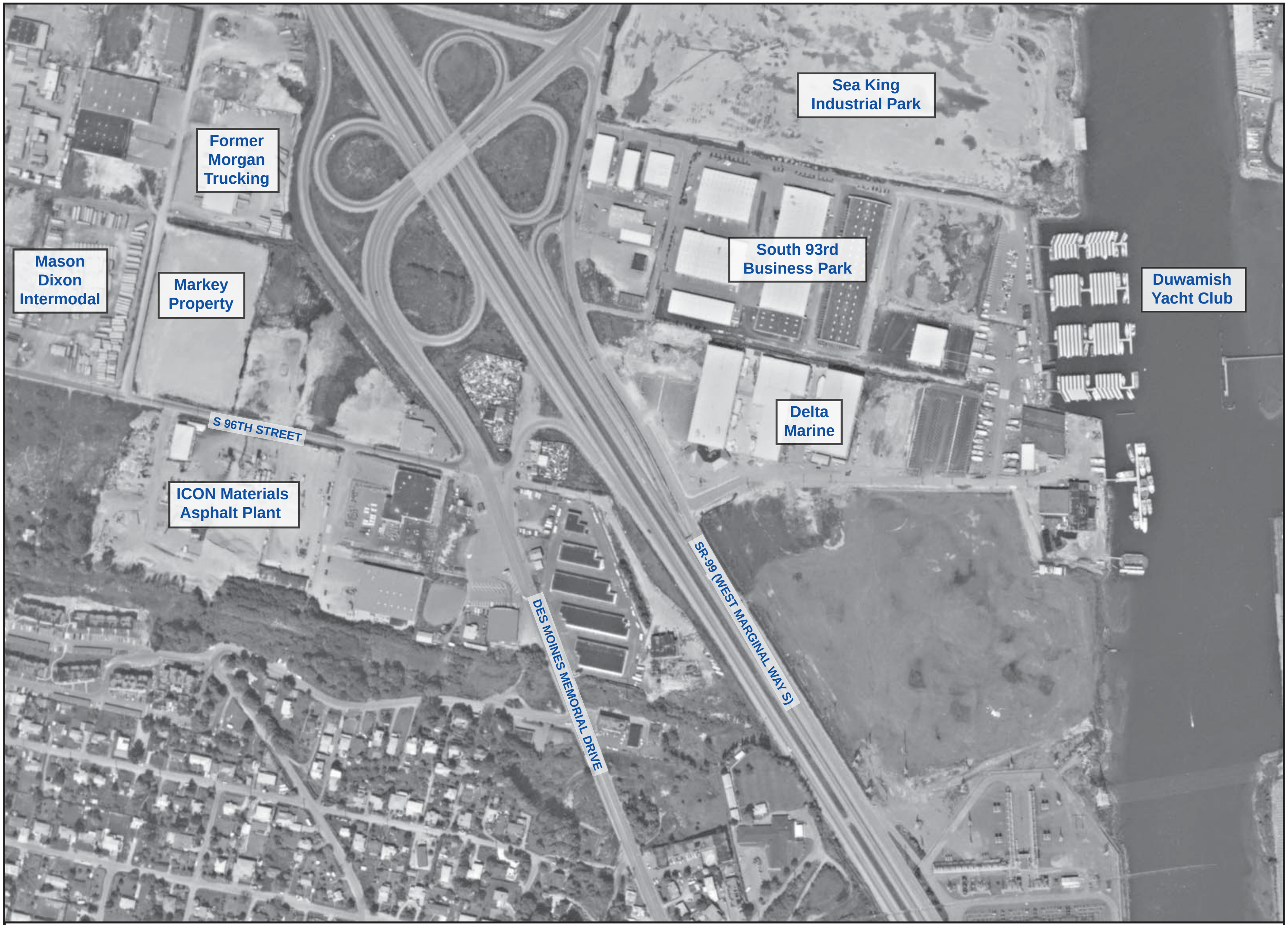

Figure B–6. Sea King Industrial Park
Source Control Area, 1980

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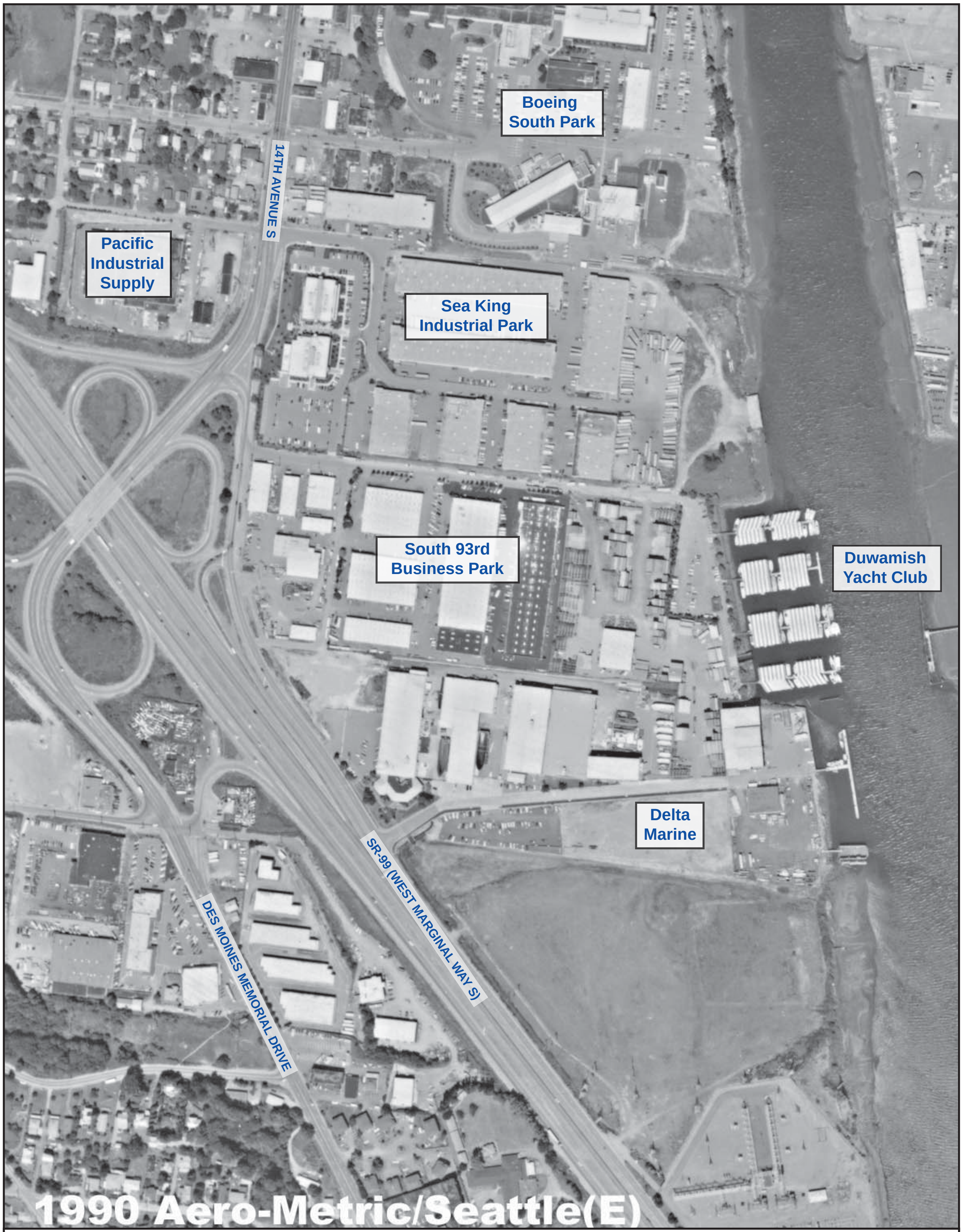

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Figure B–7. Sea King Industrial Park Source Control Area, 1990

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Figure B–8. Sea King Industrial Park Source Control Area, 2004

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Appendix C
Environmental Investigation
Soil and Groundwater Chemical Data

Appendix C–1
Soil and Groundwater Chemical Data Tables

Table C-1
Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
S 96th Street Drain									
Hong West 1995	Nov-91	BH-16	11.5	1,1,1-Trichloro-1,2,2-trifluoroethane	0.0033 J	2,400,000		<1	
Hong West 1995	Nov-91	BH-17	11.5	1,1,1-Trichloro-1,2,2-trifluoroethane	0.0008 M	2,400,000		<1	
Hong West 1995	Nov-91	BH-12	2.5	1,1,1-Trichloro-1,2,2-trifluoroethane	0.0007 M	2,400,000		<1	
Hong West 1995	Nov-91	BH-14	4.5	1,1,1-Trichloro-1,2,2-trifluoroethane	0.0006 M	2,400,000		<1	
Hong West 1995	Nov-91	BH-18	11.5	1,1,1-Trichloro-1,2,2-trifluoroethane	0.0005 M	2,400,000		<1	
Hong West 1995	Nov-91	BH-16	11.5	2-Butanone	0.062	48,000		<1	
Hong West 1995	Nov-91	BH-8	4	2-Butanone	0.057	48,000		<1	
Hong West 1995	Nov-91	BH-20	4	2-Butanone	0.033	48,000		<1	
Hong West 1995	Nov-91	BH-11	9	2-Butanone	0.03	48,000		<1	
Hong West 1995	Nov-91	BH-9	4	2-Butanone	0.02	48,000		<1	
Hong West 1995	Nov-91	MW-5	4	2-Butanone	0.014	48,000		<1	
Hong West 1995	Nov-91	BH-4	4	2-Butanone	0.012	48,000		<1	
Hong West 1995	Nov-91	MW-1	4	2-Butanone	0.011	48,000		<1	
Hong West 1995	Nov-91	BH-2	6.5	2-Butanone	0.0082	48,000		<1	
Hong West 1995	Nov-91	BH-19	4	2-Butanone	0.0061 M	48,000		<1	
Hong West 1995	Nov-91	MW-3	6.5	2-Butanone	0.0039	48,000		<1	
Hong West 1995	Nov-91	BH-15	8.5	2-Butanone	0.0034	48,000		<1	
Hong West 1995	Nov-91	BH-14	4.5	2-Butanone	0.0026 M	48,000		<1	
Hong West 1995	Nov-91	BH-16	11.5	2-Hexanone	0.0021 MB				
Herrera 1994	4/6/1993	96-19	0	Acenaphthene	0.3	4,800	0.06	<1	5.0
Hong West 1995	Nov-91	BH-16	11.5	Acetone	0.300	72,000		<1	
Hong West 1995	Nov-91	BH-8	4	Acetone	0.28	72,000		<1	
Hong West 1995	Nov-91	MW-3	6.5	Acetone	0.22	72,000		<1	
Hong West 1995	Nov-91	BH-9	4	Acetone	0.21	72,000		<1	
Hong West 1995	Nov-91	BH-20	4	Acetone	0.16	72,000		<1	
Hong West 1995	Nov-91	BH-4	4	Acetone	0.140	72,000		<1	
Hong West 1995	Nov-91	MW-5	4	Acetone	0.12 M	72,000		<1	
Hong West 1995	Nov-91	BH-11	9	Acetone	0.1	72,000		<1	
Hong West 1995	Nov-91	BH-5	3	Acetone	0.079	72,000		<1	
Hong West 1995	Nov-91	MW-1	4	Acetone	0.072 B	72,000		<1	
Hong West 1995	Nov-91	BH-1	2	Acetone	0.035 M	72,000		<1	
Hong West 1995	Nov-91	BH-10	11.5	Acetone	0.021	72,000		<1	
Hong West 1995	Nov-91	BH-14	4.5	Acetone	0.018	72,000		<1	
Hong West 1995	Nov-91	BH-19	4	Acetone	0.016 B	72,000		<1	
Hong West 1995	Nov-91	BH-15	8.5	Acetone	0.013	72,000		<1	
Hong West 1995	Nov-91	BH-18	11.5	Acetone	0.0089	72,000		<1	
Hong West 1995	Nov-91	BH-17	11.5	Acetone	0.0079	72,000		<1	

Table C-1
Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-91	BH-3	2.5	Acetone	0.0058	72,000		<1	
Hong West 1995	Nov-91	BH-12	2.5	Acetone	0.002	72,000		<1	
Hong West 1995	Nov-93	DS-10		Antimony	20	32		<1	
Hong West 1995	Nov-93	DS-24		Antimony	19	32		<1	
Hong West 1995	Nov-93	DS-26		Antimony	15	32		<1	
Hong West 1995	Dec-93	DSG-9		Antimony	13	32		<1	
Hong West 1995	Nov-93	DS-3		Antimony	11	32		<1	
Hong West 1995	Nov-93	DS-25		Antimony	10	32		<1	
Hong West 1995	Nov-93	DS-28		Antimony	9.8	32		<1	
Hong West 1995	Nov-93	DS-4		Antimony	9.4	32		<1	
Hong West 1995	Nov-93	DS-30		Antimony	9.1	32		<1	
Hong West 1995	Nov-93	DS-29		Antimony	8.0	32		<1	
Hong West 1995	Nov-93	DS-20		Antimony	7.2	32		<1	
Hong West 1995	Nov-93	DS-27		Antimony	7.1	32		<1	
Hong West 1995	Nov-93	DS-5		Antimony	6.7	32		<1	
Hong West 1995	Dec-93	DSG-22		Antimony	6.6	32		<1	
Hong West 1995	Nov-93	DS-34		Antimony	6.2	32		<1	
Hong West 1995	Nov-93	DS-11		Antimony	6.1	32		<1	
Hong West 1995	Nov-93	DS-9		Antimony	5.6	32		<1	
Hong West 1995	Dec-93	DSG-12		Antimony	5.6	32		<1	
Hong West 1995	Nov-93	DS-19		Antimony	5.4	32		<1	
Hong West 1995	Nov-93	DS-2		Antimony	4.8	32		<1	
Hong West 1995	Nov-93	DS-13		Antimony	4.7	32		<1	
Herrera 1994	4/6/1993	96-16	0	Antimony	2.8	32		<1	
E&E 1987a	11/13/86	PF5		Aroclor 1254	0.26	0.5	0.065	<1	4.0
E&E 1987b	6/12/87	K-1		Aroclor 1254	0.22	0.5	0.065	<1	3.4
Hong West 1995	Dec-93	DSG-9		Arsenic	70	0.67	590	104	<1
Hong West 1995	Nov-93	DS-24		Arsenic	50	0.67	590	75	<1
Hong West 1995	Nov-93	DS-10		Arsenic	38	0.67	590	57	<1
Hong West 1995	Dec-93	DSG-12		Arsenic	32	0.67	590	48	<1
Hong West 1995	Nov-93	DS-25		Arsenic	30	0.67	590	45	<1
Herrera 1994	4/6/1993	96-16	0	Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-6		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-12		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-32		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-26		Arsenic	17	0.67	590	25	<1
Hong West 1995	Nov-93	DS-30		Arsenic	16	0.67	590	24	<1
Hong West 1995	Nov-93	DS-33		Arsenic	16	0.67	590	24	<1

Table C-1
Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-1		Arsenic	15	0.67	590	22	<1
Hong West 1995	Nov-93	DS-2		Arsenic	15	0.67	590	22	<1
Hong West 1995	Nov-93	DS-3		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-8		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-11		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-29		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-31		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-5		Arsenic	13	0.67	590	19	<1
Hong West 1995	Nov-93	DS-20		Arsenic	12	0.67	590	18	<1
Hong West 1995	Nov-93	DS-21		Arsenic	12	0.67	590	18	<1
Hong West 1995	Dec-93	DSG-18		Arsenic	12	0.67	590	18	<1
Hong West 1995	Nov-93	DS-4		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-28		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-34		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-27		Arsenic	10	0.67	590	15	<1
Hong West 1995	Nov-93	DS-22		Arsenic	9.3	0.67	590	14	<1
Hong West 1995	Dec-93	DSG-22		Arsenic	9.3	0.67	590	14	<1
Hong West 1995	Nov-93	DS-14		Arsenic	9.2	0.67	590	14	<1
Hong West 1995	Nov-93	DS-19		Arsenic	9	0.67	590	13	<1
E&E 1987a	11/13/86	PF1		Arsenic	8.47	0.67	590	13	<1
Hong West 1995	Nov-93	DS-13		Arsenic	8.3	0.67	590	12	<1
Hong West 1995	Nov-93	DS-16		Arsenic	8	0.67	590	12	<1
Hong West 1995	Nov-93	DS-9		Arsenic	7.8	0.67	590	12	<1
E&E 1987a	11/13/86	PF5		Arsenic	7.74	0.67	590	12	<1
E&E 1987a	11/13/86	PF4		Arsenic	6.98	0.67	590	10	<1
Hong West 1995	Nov-93	DS-17		Arsenic	6.5	0.67	590	9.7	<1
E&E 1987a	11/13/86	PF6		Arsenic	6	0.67	590	9.1	<1
E&E 1987a	11/13/86	PF2		Arsenic	5.85	0.67	590	8.7	<1
Herrera 1994	4/6/1993	96-19	0	Arsenic	5.1	0.67	590	7.6	<1
Hong West 1995	Dec-93	DSG-9		Benzene	0.12	0.03		4.0	
E&E 1987b	6/12/87	K-1		Benzo(a)anthracene	21	1.37	0.27	15	78
Herrera 1994	4/6/1993	96-19	0	Benzo(a)anthracene	0.005	1.37	0.27	<1	<1
E&E 1987b	6/12/87	K-1		Benzo(a)pyrene	880	0.137	0.21	6,423	4,190
Herrera 1994	4/6/1993	96-19	0	Benzo(a)pyrene	0.023	0.1	0.21	<1	<1
Herrera 1994	4/6/1993	96-19	0	Benzo(b)fluoranthene	0.019	1.37	0.45	<1	<1
Herrera 1994	4/6/1993	96-19	0	Benzo(g,h,i)perylene	0.01	0.0	0.078		<1
Herrera 1994	4/6/1993	96-19	0	Benzo(k)fluoranthene	0.009	13.7	0.45	<1	<1
Herrera 1994	4/6/1993	96-19	0	Beryllium	0.2	160		<1	

Table C-1
Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
E&E 1987a	11/13/86	PF1		Bis(2-ethylhexyl)phthalate	3.9	71	0.078	<1	50
E&E 1987a	11/13/86	PF3		Bis(2-ethylhexyl)phthalate	1.6	71	0.078	<1	21
E&E 1987a	11/13/86	PF4		Bis(2-ethylhexyl)phthalate	0.63	71	0.078	<1	8.1
Herrera 1994	4/6/1993	96-16	0	Cadmium	8.5	2	1.7	4.3	5.0
Hong West 1995	Dec-93	DSG-9		Cadmium	5.6	2	1.7	2.8	3.3
Hong West 1995	Nov-93	DS-21		Cadmium	5.4	2	1.7	2.7	3.2
Hong West 1995	Nov-93	DS-20		Cadmium	4.9	2	1.7	2.5	2.9
Hong West 1995	Nov-93	DS-6		Cadmium	4.5	2	1.7	2.3	2.6
Hong West 1995	Nov-93	DS-23		Cadmium	4.5	2	1.7	2.3	2.6
Hong West 1995	Nov-93	DS-5		Cadmium	4.2	2	1.7	2.1	2.5
Hong West 1995	Nov-93	DS-22		Cadmium	4	2	1.7	2.0	2.4
Hong West 1995	Nov-93	DS-24		Cadmium	3.9	2	1.7	2.0	2.3
Hong West 1995	Nov-93	DS-8		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-12		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-19		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-10		Cadmium	3.5	2	1.7	1.8	2.1
Hong West 1995	Nov-93	DS-27		Cadmium	3.3	2	1.7	1.7	1.9
Hong West 1995	Nov-93	DS-14		Cadmium	3.1	2	1.7	1.6	1.8
Hong West 1995	Nov-93	DS-34		Cadmium	2.8	2	1.7	1.4	1.6
Hong West 1995	Nov-93	DS-33		Cadmium	2.7	2	1.7	1.4	1.6
Hong West 1995	Nov-93	DS-4		Cadmium	2.6	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-1		Cadmium	2.5	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-11		Cadmium	2.5	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-3		Cadmium	2.4	2	1.7	1.2	1.4
Hong West 1995	Nov-93	DS-18		Cadmium	2.3	2	1.7	1.2	1.4
Hong West 1995	Dec-93	DSG-18		Cadmium	2.3	2	1.7	1.2	1.4
Hong West 1995	Nov-93	DS-7		Cadmium	2.2	2	1.7	1.1	1.3
Hong West 1995	Nov-93	DS-13		Cadmium	2.2	2	1.7	1.1	1.3
Hong West 1995	Nov-93	DS-15		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Dec-93	DSG-12		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Dec-93	DSG-22		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Nov-93	DS-26		Cadmium	2.0	2	1.7	1.0	1.2
Hong West 1995	Nov-93	DS-32		Cadmium	2.0	2	1.7	1.0	1.2
Hong West 1995	Nov-93	DS-17		Cadmium	1.9	2	1.7	<1	1.1
Hong West 1995	Nov-93	DS-25		Cadmium	1.9	2	1.7	<1	1.1
Hong West 1995	Nov-93	DS-2		Cadmium	1.8	2	1.7	<1	1.1
E&E 1987a	11/13/86	PF1		Cadmium	1.76	2	1.7	<1	1.0
Hong West 1995	Nov-93	DS-31		Cadmium	1.7	2	1.7	<1	1.0

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S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-16		Cadmium	1.6	2	1.7	<1	<1
Hong West 1995	Nov-93	DS-28		Cadmium	1.6	2	1.7	<1	<1
Hong West 1995	Nov-93	DS-9		Cadmium	1.2	2	1.7	<1	<1
Hong West 1995	Nov-93	DS-30		Cadmium	1.2	2	1.7	<1	<1
Hong West 1995	Nov-93	DS-29		Cadmium	1.1	2	1.7	<1	<1
E&E 1987a	11/13/86	PF3		Cadmium	1.03	2	1.7	<1	<1
Hong West 1995	Nov-91	BH-19	4	Carbon disulfide	0.0049	8,000		<1	
Hong West 1995	Nov-91	MW-5	4	Carbon disulfide	0.0016 J	8,000		<1	
Hong West 1995	Nov-91	BH-20	4	Carbon disulfide	0.0014 J	8,000		<1	
Hong West 1995	Nov-91	MW-3	6.5	Carbon disulfide	0.001 J	8,000		<1	
Hong West 1995	Nov-91	BH-14	4.5	Carbon disulfide	0.0009 M	8,000		<1	
E&E 1987a	11/13/86	PF2		Chlordane	0.14	2.9		<1	
Herrera 1994	4/6/1993	96-16	0	Chromium	100		270		<1
Hong West 1995	Nov-93	DS-6		Chromium	49		270		<1
Hong West 1995	Nov-93	DS-3		Chromium	48		270		<1
Hong West 1995	Dec-93	DSG-9		Chromium	46		270		<1
Hong West 1995	Nov-93	DS-1		Chromium	44		270		<1
Hong West 1995	Nov-93	DS-8		Chromium	41		270		<1
Hong West 1995	Nov-93	DS-5		Chromium	40		270		<1
Hong West 1995	Nov-93	DS-2		Chromium	37		270		<1
Hong West 1995	Nov-93	DS-12		Chromium	36		270		<1
Hong West 1995	Nov-93	DS-21		Chromium	36		270		<1
Hong West 1995	Nov-93	DS-14		Chromium	35		270		<1
Hong West 1995	Nov-93	DS-23		Chromium	35		270		<1
Hong West 1995	Nov-93	DS-24		Chromium	35		270		<1
Hong West 1995	Nov-93	DS-28		Chromium	35		270		<1
Hong West 1995	Nov-93	DS-19		Chromium	34		270		<1
Hong West 1995	Nov-93	DS-20		Chromium	34		270		<1
Hong West 1995	Nov-93	DS-27		Chromium	34		270		<1
Hong West 1995	Nov-93	DS-10		Chromium	31		270		<1
Hong West 1995	Nov-93	DS-16		Chromium	30		270		<1
Hong West 1995	Nov-93	DS-30		Chromium	30		270		<1
Herrera 1994	4/6/1993	96-19	0	Chromium	29.1		270		<1
Hong West 1995	Nov-93	DS-4		Chromium	26		270		<1
Hong West 1995	Nov-93	DS-11		Chromium	26		270		<1
Hong West 1995	Nov-93	DS-15		Chromium	26		270		<1
Hong West 1995	Dec-93	DSG-18		Chromium	26		270		<1
E&E 1987a	11/13/86	PF1		Chromium	25.1		270		<1

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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-13		Chromium	25		270		<1
Hong West 1995	Nov-93	DS-26		Chromium	25		270		<1
Hong West 1995	Nov-93	DS-25		Chromium	23		270		<1
Hong West 1995	Nov-93	DS-34		Chromium	23		270		<1
Hong West 1995	Dec-93	DSG-12		Chromium	23		270		<1
Hong West 1995	Nov-93	DS-18		Chromium	22		270		<1
Hong West 1995	Nov-93	DS-22		Chromium	21		270		<1
Hong West 1995	Nov-93	DS-17		Chromium	20		270		<1
E&E 1987a	11/13/86	PF2		Chromium	19.1		270		<1
Hong West 1995	Nov-93	DS-7		Chromium	19		270		<1
Hong West 1995	Nov-93	DS-33		Chromium	19		270		<1
Hong West 1995	Dec-93	DSG-22		Chromium	19		270		<1
Hong West 1995	Nov-93	DS-9		Chromium	18		270		<1
Hong West 1995	Nov-93	DS-32		Chromium	18		270		<1
E&E 1987a	11/13/86	PF4		Chromium	17.8		270		<1
E&E 1987a	11/13/86	PF6		Chromium	17		270		<1
E&E 1987a	11/13/86	PF3		Chromium	17.2		270		<1
E&E 1987a	11/13/86	PF5		Chromium	17.2		270		<1
Hong West 1995	Nov-93	DS-31		Chromium	16		270		<1
Hong West 1995	Nov-93	DS-29		Chromium	14		270		<1
E&E 1987b	6/12/87	K-1		Chrysene	52	137	0.46	<1	113
Herrera 1994	4/6/1993	96-19	0	Chrysene	0.018	137	0.46	<1	<1
Hong West 1995	Nov-91	MW-4	4	cis-1,2-Dichloropropene	0.0013				
Hong West 1995	Nov-91	MW-5	4	cis-1,2-Dichloropropene	0.0012				
Herrera 1994	4/6/1993	96-16	0	Copper	168	3,200	39	<1	4.3
Hong West 1995	Nov-93	DS-6		Copper	150	3,200	39	<1	3.8
Hong West 1995	Nov-93	DS-5		Copper	140	3,200	39	<1	3.6
Hong West 1995	Nov-93	DS-3		Copper	130	3,200	39	<1	3.3
Hong West 1995	Nov-93	DS-8		Copper	130	3,200	39	<1	3.3
Hong West 1995	Nov-93	DS-10		Copper	100	3,200	39	<1	2.6
Hong West 1995	Nov-93	DS-20		Copper	100	3,200	39	<1	2.6
Hong West 1995	Dec-93	DSG-9		Copper	100	3,200	39	<1	2.6
Hong West 1995	Nov-93	DS-21		Copper	97	3,200	39	<1	2.5
Hong West 1995	Nov-93	DS-11		Copper	93	3,200	39	<1	2.4
Hong West 1995	Nov-93	DS-1		Copper	90	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-19		Copper	90	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-7		Copper	89	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-23		Copper	86	3,200	39	<1	2.2

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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-24		Copper	86	3,200	39	<1	2.2
Hong West 1995	Nov-93	DS-2		Copper	80	3,200	39	<1	2.1
Hong West 1995	Nov-93	DS-4		Copper	72	3,200	39	<1	1.8
Hong West 1995	Nov-93	DS-12		Copper	72	3,200	39	<1	1.8
Hong West 1995	Nov-93	DS-22		Copper	66	3,200	39	<1	1.7
Hong West 1995	Nov-93	DS-28		Copper	65	3,200	39	<1	1.7
Hong West 1995	Dec-93	DSG-22		Copper	63	3,200	39	<1	1.6
Hong West 1995	Dec-93	DSG-18		Copper	60	3,200	39	<1	1.5
Hong West 1995	Nov-93	DS-30		Copper	59	3,200	39	<1	1.5
Hong West 1995	Nov-93	DS-15		Copper	55	3,200	39	<1	1.4
E&E 1987a	11/13/86	PF3		Copper	54.2	3,200	39	<1	1.4
Hong West 1995	Nov-93	DS-25		Copper	53	3,200	39	<1	1.4
Hong West 1995	Nov-93	DS-14		Copper	52	3,200	39	<1	1.3
Hong West 1995	Nov-93	DS-26		Copper	51	3,200	39	<1	1.3
Hong West 1995	Nov-93	DS-13		Copper	48	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-17		Copper	48	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-34		Copper	46	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-16		Copper	42	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-18		Copper	42	3,200	39	<1	1.1
E&E 1987a	11/13/86	PF1		Copper	41.3	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-33		Copper	41	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-27		Copper	40	3,200	39	<1	1.0
Hong West 1995	Nov-93	DS-29		Copper	36	3,200	39	<1	<1
Hong West 1995	Dec-93	DSG-12		Copper	33	3,200	39	<1	<1
Hong West 1995	Nov-93	DS-9		Copper	30	3,200	39	<1	<1
E&E 1987a	11/13/86	PF5		Copper	28.3	3,200	39	<1	<1
E&E 1987a	11/13/86	PF2		Copper	24.6	3,200	39	<1	<1
Hong West 1995	Nov-93	DS-32		Copper	21	3,200	39	<1	<1
E&E 1987a	11/13/86	PF4		Copper	20.6	3,200	39	<1	<1
Herrera 1994	4/6/1993	96-19	0	Copper	19.9	3,200	39	<1	<1
Hong West 1995	Nov-93	DS-31		Copper	18	3,200	39	<1	<1
E&E 1987a	11/13/86	PF6		Copper	15	3,200	39	<1	<1
Herrera 1994	4/6/1993	96-19	0	cPAHs, total	0.091	0.137		<1	
Herrera 1994	4/6/1993	96-16	0	cPAHs, total	0.024	0.137		<1	
Herrera 1994	4/6/1993	96-19	0	Dibenzo(a,h)anthracene	0.008	0.137	0.033	<1	<1
Hong West 1995	Dec-93	DSG-12		Diesel-range hydrocarbons	8,000	2,000		4.0	
Hong West 1995	Dec-93	DSG-9		Diesel-range hydrocarbons	3,000	2,000		1.5	
Hong West 1995	Dec-93	DSG-18		Diesel-range hydrocarbons	870	2,000		<1	

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S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Dec-93	DSG-22		Diesel-range hydrocarbons	770	2,000		<1	
E&E 1987a	11/13/86	PF5		Di-n-butyl phthalate	2.0	8,000	2	<1	1.0
E&E 1987a	11/13/86	PF4		Di-n-butyl phthalate	1.9	8,000	2	<1	<1
E&E 1987a	11/13/86	PF6		Di-n-butyl phthalate	1.9	8,000	2	<1	<1
E&E 1987a	11/13/86	PF1		Di-n-butyl phthalate	1.7	8,000	2	<1	<1
E&E 1987a	11/13/86	PF2		Di-n-butyl phthalate	1.7	8,000	2	<1	<1
E&E 1987a	11/13/86	PF3		Di-n-butyl phthalate	1.7	8,000	2	<1	<1
Hong West 1995	Dec-93	DSG-9		Ethylbenzene	0.11				
Hong West 1995	Nov-91	BH-8	4	Ethylbenzene	0.0016 M				
E&E 1987a	11/13/86	PF1		Fluoranthene	0.62	3,200	1.2	<1	<1
Hong West 1995	Dec-93	DSG-18		Fluoranthene	0.38 J	3,200	1.2	<1	<1
Herrera 1994	4/6/1993	96-19	0	Fluoranthene	0.062	3,200	1	<1	<1
Herrera 1994	4/6/1993	96-16	0	Fluoranthene	0.006 J	3,200	1.2	<1	<1
Hong West 1995	Dec-93	DSG-12		Gasoline-range hydrocarbons	760	30		25	
Hong West 1995	Dec-93	DSG-9		Gasoline-range hydrocarbons	68	30		2.3	
Hong West 1995	Dec-93	DSG-18		Gasoline-range hydrocarbons	16	30		<1	
Hong West 1995	Dec-93	DSG-22		Gasoline-range hydrocarbons	3.7	30		<1	
Hong West 1995	Dec-93	DSG-9		Heavy-oil range hydrocarbons	46,000	2,000		23	
Hong West 1995	Dec-93	DSG-12		Heavy-oil range hydrocarbons	27,000	2,000		14	
Hong West 1995	Dec-93	DSG-18		Heavy-oil range hydrocarbons	6,200	2,000		3.1	
Hong West 1995	Dec-93	DSG-22		Heavy-oil range hydrocarbons	4,500	2,000		2.3	
Herrera 1994	4/6/1993	96-19	0	HPAHs, total	0.19				
Herrera 1994	4/6/1993	96-16	0	HPAHs, total	0.052 L				
E&E 1987b	6/12/87	K-1		Indeno(1,2,3-cd)pyrene	5	1.37	0.088	3.6	57
Herrera 1994	4/6/1993	96-19	0	Indeno(1,2,3-cd)pyrene	0.009	1.37	0.088	<1	<1
Hong West 1995	Nov-93	DS-24		Lead	320	250	67	1.3	4.8
Hong West 1995	Nov-93	DS-34		Lead	320	250	67	1.3	4.8
Hong West 1995	Dec-93	DSG-9		Lead	260	250	67	1.0	3.9
Hong West 1995	Nov-93	DS-33		Lead	240	250	67	<1	3.6
Hong West 1995	Nov-93	DS-23		Lead	190	250	67	<1	2.8
Hong West 1995	Nov-93	DS-20		Lead	140	250	67	<1	2.1
Hong West 1995	Nov-93	DS-26		Lead	140	250	67	<1	2.1
Hong West 1995	Nov-93	DS-28		Lead	140	250	67	<1	2.1
E&E 1987a	11/13/86	PF1		Lead	131	250	67	<1	2.0
Hong West 1995	Nov-93	DS-8		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-10		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-19		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-3		Lead	120	250	67	<1	1.8

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Hong West 1995	Nov-93	DS-21		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-27		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-1		Lead	100	250	67	<1	1.5
Hong West 1995	Nov-93	DS-22		Lead	100	250	67	<1	1.5
Hong West 1995	Nov-93	DS-30		Lead	96	250	67	<1	1.4
Hong West 1995	Nov-93	DS-29		Lead	95	250	67	<1	1.4
Hong West 1995	Dec-93	DSG-22		Lead	87	250	67	<1	1.3
Hong West 1995	Nov-93	DS-11		Lead	81	250	67	<1	1.2
Hong West 1995	Nov-93	DS-12		Lead	81	250	67	<1	1.2
Hong West 1995	Nov-93	DS-5		Lead	77	250	67	<1	1.1
Hong West 1995	Nov-93	DS-25		Lead	74	250	67	<1	1.1
Hong West 1995	Nov-93	DS-6		Lead	71	250	67	<1	1.1
Hong West 1995	Nov-93	DS-17		Lead	69	250	67	<1	1.0
Hong West 1995	Nov-93	DS-2		Lead	68	250	67	<1	1.0
Hong West 1995	Dec-93	DSG-18		Lead	67	250	67	<1	1.0
E&E 1987a	11/13/86	PF3		Lead	59.5	250	67	<1	<1
E&E 1987a	11/13/86	PF5		Lead	58.8	250	67	<1	<1
Hong West 1995	Nov-93	DS-15		Lead	51	250	67	<1	<1
Hong West 1995	Nov-93	DS-16		Lead	47	250	67	<1	<1
Hong West 1995	Nov-93	DS-13		Lead	46	250	67	<1	<1
Hong West 1995	Nov-93	DS-18		Lead	45	250	67	<1	<1
E&E 1987a	11/13/86	PF4		Lead	43.1	250	67	<1	<1
Hong West 1995	Nov-93	DS-4		Lead	43	250	67	<1	<1
E&E 1987a	11/13/86	PF2		Lead	38.0	250	67	<1	<1
Hong West 1995	Nov-93	DS-14		Lead	36	250	67	<1	<1
Hong West 1995	Nov-93	DS-7		Lead	34	250	67	<1	<1
Hong West 1995	Dec-93	DSG-12		Lead	34	250	67	<1	<1
Hong West 1995	Nov-93	DS-9		Lead	31	250	67	<1	<1
E&E 1987a	11/13/86	PF6		Lead	30	250	67	<1	<1
Hong West 1995	Nov-93	DS-32		Lead	13	250	67	<1	<1
Hong West 1995	Nov-93	DS-31		Lead	10	250	67	<1	<1
Herrera 1994	4/6/1993	96-19	0	Lead	7.9	250	67	<1	<1
Herrera 1994	4/6/1993	96-16	0	Lead	4.2	250	67	<1	<1
Herrera 1994	4/6/1993	96-19	0	LPAHs, total	0.508 L				
Herrera 1994	4/6/1993	96-16	0	LPAHs, total	0.488 L				
Hong West 1995	Nov-93	DS-19		Mercury	9.9	2	0.03	5.0	330
Hong West 1995	Nov-93	DS-33		Mercury	0.54	2	0.03	<1	18
Hong West 1995	Nov-93	DS-23		Mercury	0.22	2	0.03	<1	7.3

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Herrera 1994	4/6/1993	96-16	0	Mercury	0.2	2	0.03	<1	6.7
Hong West 1995	Dec-93	DSG-9		Mercury	0.18	2	0.03	<1	6.0
Hong West 1995	Nov-93	DS-3		Mercury	0.15	2	0.03	<1	5.0
Hong West 1995	Nov-93	DS-10		Mercury	0.15	2	0.03	<1	5.0
Hong West 1995	Nov-93	DS-34		Mercury	0.14	2	0.03	<1	4.7
Hong West 1995	Nov-91	BH-5	3	Methylene chloride	0.013 B	0.02		<1	
Hong West 1995	Nov-91	BH-8	4	Methylene chloride	0.010 B	0.02		<1	
Hong West 1995	Nov-91	BH-16	11.5	Methylene chloride	0.0081 B	0.02		<1	
Hong West 1995	Nov-91	BH-4	4	Methylene chloride	0.0054	0.02		<1	
Hong West 1995	Nov-91	BH-11	9	Methylene chloride	0.0046 B	0.02		<1	
Hong West 1995	Nov-91	MW-5	4	Methylene chloride	0.0044	0.02		<1	
Hong West 1995	Nov-91	BH-1	2	Methylene chloride	0.004 B	0.02		<1	
Hong West 1995	Nov-91	BH-12	2.5	Methylene chloride	0.004 B	0.02		<1	
Hong West 1995	Nov-91	BH-20	4	Methylene chloride	0.004 B	0.02		<1	
Hong West 1995	Nov-91	BH-3	2.5	Methylene chloride	0.0036 B	0.02		<1	
Hong West 1995	Nov-91	BH-9	4	Methylene chloride	0.0035 B	0.02		<1	
Hong West 1995	Nov-91	BH-15	8.5	Methylene chloride	0.0034 B	0.02		<1	
Hong West 1995	Nov-91	BH-10	11.5	Methylene chloride	0.0032 B	0.02		<1	
Hong West 1995	Nov-91	BH-2	6.5	Methylene chloride	0.0031 B	0.02		<1	
Hong West 1995	Nov-91	BH-18	11.5	Methylene chloride	0.0030 B	0.02		<1	
Hong West 1995	Nov-91	BH-14	4.5	Methylene chloride	0.0026 B	0.02		<1	
Hong West 1995	Nov-91	BH-19	4	Methylene chloride	0.0026	0.02		<1	
Hong West 1995	Nov-91	BH-17	11.5	Methylene chloride	0.0024 B	0.02		<1	
Hong West 1995	Nov-91	MW-3	6.5	Methylene chloride	0.0016	0.02		<1	
Hong West 1995	Nov-91	MW-4	4	Methylene chloride	0.0013 J	0.02		<1	
Hong West 1995	Nov-93	DS-2		Nickel	270				
Herrera 1994	4/6/1993	96-16	0	Nickel	66				
Hong West 1995	Nov-93	DS-3		Nickel	55				
Hong West 1995	Nov-93	DS-1		Nickel	54				
Hong West 1995	Nov-93	DS-8		Nickel	54				
Hong West 1995	Nov-93	DS-6		Nickel	52				
Hong West 1995	Dec-93	DSG-9		Nickel	50				
Hong West 1995	Nov-93	DS-5		Nickel	45				
Hong West 1995	Dec-93	DSG-22		Nickel	42				
Hong West 1995	Nov-93	DS-27		Nickel	39				
Hong West 1995	Nov-93	DS-12		Nickel	38				
Herrera 1994	4/6/1993	96-19	0	Nickel	37				
Hong West 1995	Nov-93	DS-20		Nickel	36				

Table C-1
Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-24		Nickel	36				
Hong West 1995	Nov-93	DS-19		Nickel	35				
Hong West 1995	Nov-93	DS-10		Nickel	34				
Hong West 1995	Nov-93	DS-11		Nickel	34				
Hong West 1995	Nov-93	DS-14		Nickel	34				
Hong West 1995	Nov-93	DS-21		Nickel	32				
Hong West 1995	Dec-93	DSG-18		Nickel	32				
Hong West 1995	Nov-93	DS-4		Nickel	30				
Hong West 1995	Nov-93	DS-15		Nickel	30				
E&E 1987a	11/13/86	PF1		Nickel	29.3				
Hong West 1995	Nov-93	DS-7		Nickel	28				
Hong West 1995	Nov-93	DS-17		Nickel	28				
Hong West 1995	Nov-93	DS-22		Nickel	28				
Hong West 1995	Nov-93	DS-30		Nickel	28				
Hong West 1995	Nov-93	DS-23		Nickel	27				
Hong West 1995	Nov-93	DS-25		Nickel	27				
Hong West 1995	Nov-93	DS-13		Nickel	26				
Hong West 1995	Dec-93	DSG-12		Nickel	26				
E&E 1987a	11/13/86	PF5		Nickel	25.4				
E&E 1987a	11/13/86	PF6		Nickel	25				
Hong West 1995	Nov-93	DS-32		Nickel	25				
Hong West 1995	Nov-93	DS-28		Nickel	22				
Hong West 1995	Nov-93	DS-31		Nickel	22				
E&E 1987a	11/13/86	PF2		Nickel	21.8				
Hong West 1995	Nov-93	DS-16		Nickel	21				
Hong West 1995	Nov-93	DS-18		Nickel	21				
E&E 1987a	11/13/86	PF4		Nickel	20.3				
Hong West 1995	Nov-93	DS-26		Nickel	20				
Hong West 1995	Nov-93	DS-34		Nickel	20				
E&E 1987a	11/13/86	PF3		Nickel	19.3				
Hong West 1995	Nov-93	DS-9		Nickel	19				
Hong West 1995	Nov-93	DS-33		Nickel	19				
Hong West 1995	Nov-93	DS-29		Nickel	11				
Hong West 1995	Nov-93	DS-8		PAHs, total	500				
Hong West 1995	Nov-93	DS-9		PAHs, total	500				
Hong West 1995	Nov-93	DS-10		PAHs, total	500				
Hong West 1995	Nov-93	DS-13		PAHs, total	500				
Hong West 1995	Nov-93	DS-14		PAHs, total	500				

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Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-17		PAHs, total	500				
Hong West 1995	Nov-93	DS-33		PAHs, total	500				
Hong West 1995	Nov-93	DS-24		PAHs, total	350				
Hong West 1995	Nov-93	DS-4		PAHs, total	200				
Hong West 1995	Nov-93	DS-7		PAHs, total	200				
Hong West 1995	Nov-93	DS-22		PAHs, total	200				
Hong West 1995	Nov-93	DS-27		PAHs, total	200				
Hong West 1995	Nov-93	DS-20		PAHs, total	175				
Hong West 1995	Nov-93	DS-11		PAHs, total	150				
Hong West 1995	Nov-93	DS-19		PAHs, total	150				
Hong West 1995	Nov-93	DS-26		PAHs, total	150				
Hong West 1995	Nov-93	DS-15		PAHs, total	100				
Hong West 1995	Nov-93	DS-1		PAHs, total	75				
Hong West 1995	Nov-93	DS-2		PAHs, total	75				
Hong West 1995	Nov-93	DS-3		PAHs, total	75				
Hong West 1995	Nov-93	DS-21		PAHs, total	75				
Hong West 1995	Nov-93	DS-6		PAHs, total	50				
Hong West 1995	Nov-93	DS-16		PAHs, total	25				
Hong West 1995	Nov-93	DS-28		PAHs, total	25				
Hong West 1995	Nov-93	DS-29		PAHs, total	25				
Hong West 1995	Nov-93	DS-30		PAHs, total	25				
Hong West 1995	Nov-93	DS-5		PAHs, total	8				
Hong West 1995	Dec-93	PCB-2A		PCBs, total	0.5	0.5	0.065	1.0	7.7
Hong West 1995	Dec-93	PCB-1B		PCBs, total	0.3	0.5	0.065	<1	4.6
Hong West 1995	Dec-93	DSG-9		Phenanthrene	1.2 J		0.49		2.4
E&E 1987b	6/12/87	K-1		Pyrene	27	2,400	1.4	<1	19
Hong West 1995	Dec-93	DSG-9		Pyrene	1.0 J	2,400	1.4	<1	<1
Hong West 1995	Dec-93	DSG-18		Pyrene	0.71 J	2,400	1.4	<1	<1
Herrera 1994	4/6/1993	96-19	0	Pyrene	0.027	2,400	1.4	<1	<1
Hong West 1995	Nov-93	DS-28		Silver	2.5	400	0.61	<1	4.1
Hong West 1995	Nov-93	DS-29		Silver	2.5	400	0.61	<1	4.1
Herrera 1994	4/6/1993	96-16	0	Silver	1	400	0.61	<1	1.6
Hong West 1995	Nov-93	DS-30		Silver	1	400	0.61	<1	1.6
Hong West 1995	Nov-93	DS-27		Silver	0.67	400	0.61	<1	1.1
Herrera 1994	4/6/1993	96-19	0	Silver	0.4	400	0.61	<1	<1
Herrera 1994	4/6/1993	96-19	0	Thallium	0.2				
Hong West 1995	Dec-93	DSG-12		Toluene	0.41 J	7		<1	
Hong West 1995	Dec-93	DSG-9		Toluene	0.13	7		<1	

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S 96th Street Storm Drain Basin

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Hong West 1995	Dec-93	DSG-18		Toluene	0.097	7		<1	
Hong West 1995	Dec-93	DSG-22		Toluene	0.056 J	7		<1	
Hong West 1995	Nov-91	BH-8	4	Toluene	0.0063	7		<1	
Hong West 1995	Nov-91	BH-4	4	Toluene	0.0051	7		<1	
Hong West 1995	Nov-91	BH-11	9	Toluene	0.0041	7		<1	
Hong West 1995	Nov-91	BH-16	11.5	Toluene	0.0032	7		<1	
Hong West 1995	Nov-91	BH-14	4.5	Toluene	0.0021	7		<1	
Hong West 1995	Nov-91	BH-20	4	Toluene	0.0018	7		<1	
Hong West 1995	Nov-91	MW-4	4	Toluene	0.0015	7		<1	
Hong West 1995	Nov-91	BH-2	6.5	Toluene	0.0014	7		<1	
Hong West 1995	Nov-91	BH-9	4	Toluene	0.0013	7		<1	
Hong West 1995	Nov-91	MW-3	6.5	Toluene	0.0013	7		<1	
Hong West 1995	Nov-91	BH-1	2	Toluene	0.0011 J	7		<1	
Hong West 1995	Nov-91	BH-19	4	Toluene	0.0008 J	7		<1	
Hong West 1995	Nov-91	MW-5	4	Toluene	0.0007 J	7		<1	
Herrera 1994	4/6/1993	96-16	0	Total petroleum hydrocarbons	24,000	2,000		12	
Hong West 1995	Nov-93	DS-12		Total petroleum hydrocarbons	13,000	2,000		6.5	
Hong West 1995	Nov-93	DS-23		Total petroleum hydrocarbons	9,400	2,000		4.7	
Hong West 1995	Nov-93	DS-14		Total petroleum hydrocarbons	5,900	2,000		3.0	
Hong West 1995	Nov-93	DS-18		Total petroleum hydrocarbons	4,400	2,000		2.2	
Hong West 1995	Nov-93	DS-22		Total petroleum hydrocarbons	3,500	2,000		1.8	
Hong West 1995	Nov-93	DS-21		Total petroleum hydrocarbons	2,900	2,000		1.5	
Hong West 1995	Nov-93	DS-32		Total petroleum hydrocarbons	1,700	2,000		<1	
Hong West 1995	Nov-93	DS-13		Total petroleum hydrocarbons	1,600	2,000		<1	
Hong West 1995	Nov-93	DS-19		Total petroleum hydrocarbons	1,500	2,000		<1	
Hong West 1995	Nov-93	DS-4		Total petroleum hydrocarbons	1,400	2,000		<1	
Hong West 1995	Nov-93	DS-10		Total petroleum hydrocarbons	1,400	2,000		<1	
Hong West 1995	Nov-93	DS-25		Total petroleum hydrocarbons	1,400	2,000		<1	
Hong West 1995	Nov-93	DS-15		Total petroleum hydrocarbons	1,300	2,000		<1	
Hong West 1995	Nov-93	DS-31		Total petroleum hydrocarbons	1,300	2,000		<1	
Hong West 1995	Nov-93	DS-6		Total petroleum hydrocarbons	1,200	2,000		<1	
Hong West 1995	Nov-93	DS-20		Total petroleum hydrocarbons	1,200	2,000		<1	
Hong West 1995	Nov-93	DS-8		Total petroleum hydrocarbons	1,100	2,000		<1	
Hong West 1995	Nov-93	DS-17		Total petroleum hydrocarbons	830	2,000		<1	
Hong West 1995	Nov-93	DS-16		Total petroleum hydrocarbons	740	2,000		<1	
Hong West 1995	Nov-93	DS-11		Total petroleum hydrocarbons	700	2,000		<1	
Hong West 1995	Nov-93	DS-3		Total petroleum hydrocarbons	640	2,000		<1	
Hong West 1995	Nov-93	DS-5		Total petroleum hydrocarbons	590	2,000		<1	

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Chemicals Detected in Soil
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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-9		Total petroleum hydrocarbons	570	2,000		<1	
Hong West 1995	Nov-91	MW-3	4	Total petroleum hydrocarbons	450	2,000		<1	
Hong West 1995	Nov-93	DS-34		Total petroleum hydrocarbons	430	2,000		<1	
Hong West 1995	Nov-93	DS-27		Total petroleum hydrocarbons	400	2,000		<1	
Hong West 1995	Nov-93	DS-26		Total petroleum hydrocarbons	390	2,000		<1	
Hong West 1995	Nov-93	DS-7		Total petroleum hydrocarbons	340	2,000		<1	
Hong West 1995	Nov-93	DS-24		Total petroleum hydrocarbons	320	2,000		<1	
Hong West 1995	Nov-93	DS-33		Total petroleum hydrocarbons	210	2,000		<1	
Hong West 1995	Nov-91	BH-14	4.5	Total petroleum hydrocarbons	190	2,000		<1	
Hong West 1995	Nov-93	DS-2		Total petroleum hydrocarbons	160	2,000		<1	
Hong West 1995	Nov-93	DS-28		Total petroleum hydrocarbons	130	2,000		<1	
Hong West 1995	Nov-93	DS-29		Total petroleum hydrocarbons	130	2,000		<1	
Hong West 1995	Nov-93	DS-30		Total petroleum hydrocarbons	130	2,000		<1	
Herrera 1994	4/6/1993	96-19	0	Total petroleum hydrocarbons	110	2,000		<1	
Hong West 1995	Nov-91	MW-3	6.5	Total petroleum hydrocarbons	110	2,000		<1	
Hong West 1995	Nov-91	MW-5	4	Total petroleum hydrocarbons	52	2,000		<1	
Hong West 1995	Nov-91	BH-8	4	Total petroleum hydrocarbons	19	2,000		<1	
Hong West 1995	Nov-93	DS-1		Total petroleum hydrocarbons	11	2,000		<1	
Hong West 1995	Dec-93	DSG-12		Xylenes, total	1.6	9		<1	
Hong West 1995	Dec-93	DSG-9		Xylenes, total	0.72	9		<1	
Hong West 1995	Dec-93	DSG-18		Xylenes, total	0.17	9		<1	
Hong West 1995	Nov-91	BH-8	4	Xylenes, total	0.0086 M	9		<1	
Hong West 1995	Nov-91	MW-3	6.5	Xylenes, total	0.0062	9		<1	
Hong West 1995	Nov-91	BH-14	4.5	Xylenes, total	0.0033 B	9		<1	
Hong West 1995	Nov-91	MW-1	4	Xylenes, total	0.0023	9		<1	
Hong West 1995	Nov-91	BH-17	11.5	Xylenes, total	0.0009 MB	9		<1	
Hong West 1995	Nov-93	DS-3		Zinc	1,100	24,000	38	<1	29
Hong West 1995	Nov-93	DS-11		Zinc	950	24,000	38	<1	25
Hong West 1995	Nov-93	DS-8		Zinc	880	24,000	38	<1	23
Hong West 1995	Nov-93	DS-1		Zinc	700	24,000	38	<1	18
Herrera 1994	4/6/1993	96-16	0	Zinc	676	24,000	38	<1	18
Hong West 1995	Nov-93	DS-2		Zinc	610	24,000	38	<1	16
Hong West 1995	Nov-93	DS-20		Zinc	590	24,000	38	<1	16
Hong West 1995	Nov-93	DS-10		Zinc	570	24,000	38	<1	15
Hong West 1995	Nov-93	DS-5		Zinc	560	24,000	38	<1	15
Hong West 1995	Nov-93	DS-19		Zinc	560	24,000	38	<1	15
Hong West 1995	Nov-93	DS-12		Zinc	550	24,000	38	<1	14
Hong West 1995	Nov-93	DS-27		Zinc	550	24,000	38	<1	14

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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-6		Zinc	500	24,000	38	<1	13
Hong West 1995	Nov-93	DS-17		Zinc	470	24,000	38	<1	12
Hong West 1995	Nov-93	DS-21		Zinc	460	24,000	38	<1	12
Hong West 1995	Dec-93	DSG-9		Zinc	440	24,000	38	<1	12
Hong West 1995	Nov-93	DS-24		Zinc	430	24,000	38	<1	11
Hong West 1995	Nov-93	DS-22		Zinc	400	24,000	38	<1	11
Hong West 1995	Nov-93	DS-25		Zinc	400	24,000	38	<1	11
Hong West 1995	Nov-93	DS-4		Zinc	360	24,000	38	<1	9.5
Hong West 1995	Nov-93	DS-13		Zinc	350	24,000	38	<1	9.2
Hong West 1995	Nov-93	DS-30		Zinc	330	24,000	38	<1	8.7
Hong West 1995	Nov-93	DS-26		Zinc	320	24,000	38	<1	8.4
Hong West 1995	Nov-93	DS-23		Zinc	310	24,000	38	<1	8.2
Hong West 1995	Nov-93	DS-9		Zinc	300	24,000	38	<1	7.9
Hong West 1995	Nov-93	DS-15		Zinc	300	24,000	38	<1	7.9
Hong West 1995	Nov-93	DS-34		Zinc	290	24,000	38	<1	7.6
Hong West 1995	Nov-93	DS-16		Zinc	280	24,000	38	<1	7.4
Hong West 1995	Nov-93	DS-28		Zinc	280	24,000	38	<1	7.4
Hong West 1995	Nov-93	DS-14		Zinc	270	24,000	38	<1	7.1
Hong West 1995	Nov-93	DS-7		Zinc	260	24,000	38	<1	6.8
Hong West 1995	Nov-93	DS-18		Zinc	260	24,000	38	<1	6.8
Hong West 1995	Nov-93	DS-33		Zinc	220	24,000	38	<1	5.8
Hong West 1995	Dec-93	DSG-22		Zinc	210	24,000	38	<1	5.5
Hong West 1995	Dec-93	DSG-18		Zinc	190	24,000	38	<1	5.0
Hong West 1995	Dec-93	DSG-12		Zinc	170	24,000	38	<1	4.5
E&E 1987a	11/13/86	PF1		Zinc	159	24,000	38	<1	4.2
E&E 1987a	11/13/86	PF3		Zinc	123	24,000	38	<1	3.2
Hong West 1995	Nov-93	DS-29		Zinc	110	24,000	38	<1	2.9
E&E 1987a	11/13/86	PF5		Zinc	86.6	24,000	38	<1	2.3
E&E 1987a	11/13/86	PF2		Zinc	64.5	24,000	38	<1	1.7
Herrera 1994	4/6/1993	96-19	0	Zinc	63.6	24,000	38	<1	1.7
Hong West 1995	Nov-93	DS-32		Zinc	63	24,000	38	<1	1.7
E&E 1987a	11/13/86	PF4		Zinc	52.5	24,000	38	<1	1.4
Hong West 1995	Nov-93	DS-31		Zinc	51	24,000	38	<1	1.3
E&E 1987a	11/13/86	PF6		Zinc	38	24,000	38	<1	<1
Hamm Creek North Fork									
Herrera 1994	4/6/1993	96-3	0	Acenaphthene	0.26	4,800	0.06	<1	4.3
Herrera 1994	4/6/1993	96-3	0	Arsenic	11.7	0.67	590	17	<1
Herrera 1994	4/6/1993	96-3	0	Benzo(a)anthracene	0.007	1.37	0.27	<1	<1

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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Herrera 1994	4/6/1993	96-3	0	Benzo(a)pyrene	0.011	0.137	0.21	<1	<1
Herrera 1994	4/6/1993	96-3	0	Benzo(b)fluoranthene	0.007	1.37	0.45	<1	<1
Herrera 1994	34065.00	96-3	0.00	Benzo(g,h,i)perylene	0.009	0.00	0.08		<1
Herrera 1994	4/6/1993	96-3	0	Benzo(k)fluoranthene	0.004	13.7	0.45	<1	<1
Herrera 1994	4/6/1993	96-3	0.0	Beryllium	0.2	160		<1	
Herrera 1994	4/6/1993	96-3	0	Chromium	24.5		270		<1
Herrera 1994	4/6/1993	96-3	0	Chrysene	0.008	137	0.46	<1	<1
Herrera 1994	4/6/1993	96-3	0	Copper	8.7	3,200	39	<1	<1
Herrera 1994	4/6/1993	96-3	0	cPAHs, total	0.052	0.137		<1	
Herrera 1994	4/6/1993	96-3	0	Dibenzo(a,h)anthracene	0.008	0.137	0.033	<1	<1
Herrera 1994	4/6/1993	96-3	0	Fluoranthene	0.014	3,200	1.2	<1	<1
Herrera 1994	4/6/1993	96-3	0	HPAHs, total	0.084				
Herrera 1994	4/6/1993	96-3	0	Indeno(1,2,3-cd)pyrene	0.007	1.37	0.088	<1	<1
Herrera 1994	4/6/1993	96-3	0	Lead	12.8	250	67	<1	<1
Herrera 1994	4/6/1993	96-3	0	LPAHs, total	0.468 L				
Herrera 1994	4/6/1993	96-3	0.0	Nickel	32				
Herrera 1994	4/6/1993	96-3	0	Pyrene	0.009 J	2,400	1.4	<1	<1
Herrera 1994	4/6/1993	96-3	0.0	Thallium	0.1				
Herrera 1994	4/6/1993	96-3	0	Total petroleum hydrocarbons	20	2,000	0	<1	
Herrera 1994	4/6/1993	96-3	0	Zinc	39.5	24,000	38	<1	1.0
Hamm Creek Middle Fork									
Herrera 1994	4/6/1993	96-14	0	Acenaphthene	2	4,800	0.06	<1	33
Herrera 1994	4/6/1993	96-14	0	Acenaphthylene	0.85		0.069		12
Herrera 1994	4/6/1993	96-14	0	Anthracene	0.01	24,000	1.2	<1	<1
Herrera 1994	4/6/1993	96-14	0	Antimony	1.4	32		<1	
Herrera 1994	4/6/1993	96-14	0	Arsenic	6	0.67	590	9.0	<1
Herrera 1994	4/6/1993	96-14	0	Benzo(a)anthracene	0.099	1.37	0.27	<1	<1
Herrera 1994	4/6/1993	96-14	0	Benzo(a)pyrene	0.073	0.137	0.21	<1	<1
Herrera 1994	4/6/1993	96-14	0	Benzo(b)fluoranthene	0.083	1.37	0.45	<1	<1
Herrera 1994	4/6/1993	96-14	0	Benzo(g,h,i)perylene	0.077		0.078		<1
Herrera 1994	4/6/1993	96-14	0	Benzo(k)fluoranthene	0.047	13.7	0.45	<1	<1
Herrera 1994	4/6/1993	96-14	0	Cadmium	0.6	2	1.7	<1	<1
Herrera 1994	4/6/1993	96-14	0	Chromium	37		270		<1
Herrera 1994	4/6/1993	96-14	0	Chrysene	0.13	137	0.46	<1	<1
Herrera 1994	4/6/1993	96-14	0	Copper	44.7	3,200	39	<1	1.1
Herrera 1994	4/6/1993	96-14	0	cPAHs, total	0.564	0.137		4.1	
Herrera 1994	4/6/1993	96-14	0	Dibenzo(a,h)anthracene	0.06	0.137	0.033	<1	1.8
Herrera 1994	4/6/1993	96-14	0	Fluoranthene	0.52	3,200	1.2	<1	<1

Table C-1
Chemicals Detected in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Herrera 1994	4/6/1993	96-14	0	Fluorene	0.01	3,200	0.081	<1	<1
Herrera 1994	4/6/1993	96-14	0	HPAHs, total	1.331				
Herrera 1994	4/6/1993	96-14	0	Indeno(1,2,3-cd)pyrene	0.072	1.37	0.088	<1	<1
Herrera 1994	4/6/1993	96-14	0	Lead	190	250	67	<1	2.8
Herrera 1994	4/6/1993	96-14	0	LPAHs, total	3.659				
Herrera 1994	4/6/1993	96-14	0	Naphthalene	0.67	5	0.2	<1	3.4
Herrera 1994	4/6/1993	96-14	0	Nickel	36				
Herrera 1994	4/6/1993	96-14	0	Phenanthrene	0.12		0.49		<1
Herrera 1994	4/6/1993	96-14	0	Pyrene	0.17	2,400	1.4	<1	<1
Herrera 1994	4/6/1993	96-14	0	Selenium	0.4	400		<1	
Herrera 1994	4/6/1993	96-14	0	Thallium	0.5				
Herrera 1994	4/6/1993	96-14	0	Total petroleum hydrocarbons	670	2,000		<1	
Herrera 1994	4/6/1993	96-14	0	Zinc	240	24,000	38	<1	6.3

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards
B - Possible blank contamination

J - Estimated value
L - Undetected values (added as analytical detection limits) included in sum.
M - Estimated value due to low spectral match
🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level, whichever is lower.

Table C-2
Chemicals Detected in Groundwater
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Jan-94	MW-1	1,1,1-Trichloroethane	180 D	200		<1	
Herrera 1994	11/26/1991	MW-1	1,1,1-Trichloroethane	94	200		<1	
Hong West 1995	Jan-94	MW-1	1,1-Dichloroethene	41	400		<1	
Herrera 1994	11/26/1991	MW-1	1,1-Dichloroethene	16 J	400		<1	
Hong West 1995	Jan-94	MW-1	1,2-Dichloroethene	8.5	72		<1	
Hong West 1995	Jan-94	MW-104	Acetone	27 B	7,200		<1	
Hong West 1995	Jan-94	MW-1	Acetone	26 B	7,200		<1	
Hong West 1995	Jan-94	MW-101	Acetone	25 B	7,200		<1	
Hong West 1995	Jan-94	MW-102	Acetone	25 B	7,200		<1	
Hong West 1995	Jan-94	MW-4	Acetone	24 JB	7,200		<1	
Hong West 1995	Jan-94	MW-5	Acetone	23 JB	7,200		<1	
Hong West 1995	Jan-94	MW-103	Acetone	22 B	7,200		<1	
Hong West 1995	Jan-94	MW-107	Acetone	22 B	7,200		<1	
Hong West 1995	Jan-94	MW-105	Acetone	20 JB	7,200		<1	
Hong West 1995	Jan-94	MW-3	Acetone	14 JB	7,200		<1	
Hong West 1995	Nov-91	MW-3	Antimony	2				
Hong West 1995	Nov-91	MW-4	Antimony	1.0				
Herrera 1994	11/26/1991	MW-1	Arsenic	39	0.0583	370	669	<1
Herrera 1994	11/26/1991	MW-4	Arsenic	28	0.0583	370	480	<1
Herrera 1994	11/26/1991	MW-5	Arsenic	16	0.0583	370	274	<1
Herrera 1994	11/26/1991	MW-3	Arsenic	15	0.0583	370	257	<1
Hong West 1995	Nov-91	MW-1	Beryllium	9	32		<1	
Hong West 1995	Nov-91	MW-4	Beryllium	4	32		<1	
Herrera 1994	11/26/1991	MW-4	Cadmium	5	5.0	3.4	1.0	1.5
Herrera 1994	11/26/1991	MW-1	Cadmium	3	5.0	3.4	<1	<1
Herrera 1994	11/26/1991	Spring	Cadmium	2	5.0	3.4	<1	<1
Hong West 1995	Jan-94	MW-1	Chloroform	6.0 B	80		<1	
Hong West 1995	Jan-94	MW-101	Chloroform	5.7 B	80		<1	
Hong West 1995	Jan-94	MW-102	Chloroform	5.6	80		<1	
Hong West 1995	Jan-94	MW-107	Chloroform	5.5 B	80		<1	
Hong West 1995	Jan-94	MW-103	Chloroform	5.4 B	80		<1	
Hong West 1995	Jan-94	MW-4	Chloroform	5.3 B	80		<1	
Hong West 1995	Jan-94	MW-104	Chloroform	5.2 B	80		<1	
Hong West 1995	Jan-94	MW-5	Chloroform	5.1 B	80		<1	
Hong West 1995	Jan-94	MW-105	Chloroform	5.1 B	80		<1	
Hong West 1995	Jan-94	MW-3	Chloroform	4.2 JB	80		<1	

Table C-2
Chemicals Detected in Groundwater
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Jan-94	MW-1	Chromium	1400	50	320	28	4.4
Herrera 1994	11/26/1991	MW-1	Chromium	803	50	320	16	2.5
Herrera 1994	11/26/1991	MW-4	Chromium	72	50	320	1.4	<1
Herrera 1994	11/26/1991	MW-5	Chromium	40	50	320	<1	<1
Herrera 1994	11/26/1991	MW-3	Chromium	36	50	320	<1	<1
Herrera 1994	11/26/1991	Spring	Chromium	5	50	320	<1	<1
Hong West 1995	Nov-91	MW-1	Copper	526	640	120	<1	4.4
Hong West 1995	Nov-91	MW-4	Copper	215	640	120	<1	1.8
Hong West 1995	Jan-94	MW-106	Copper	120	640	120	<1	1.0
Hong West 1995	Nov-91	MW-5	Copper	109	640	120	<1	<1
Hong West 1995	Nov-91	MW-3	Copper	59	640	120	<1	<1
Herrera 1994	11/26/1991	Spring	Copper	9	640	120	<1	<1
Herrera 1994	11/26/1991	MW-1	Lead	145	15	13	9.7	11
Herrera 1994	11/26/1991	MW-4	Lead	58	15	13	3.9	4.5
Herrera 1994	11/26/1991	MW-3	Lead	31	15	13	2.1	2.4
Herrera 1994	11/26/1991	MW-5	Lead	25	15	13	1.7	1.9
Herrera 1994	11/26/1991	Spring	Lead	1.8	15	13	<1	<1
Herrera 1994	11/26/1991	MW-1	Mercury	2	2	0.0074	1.0	270
Hong West 1995	Jan-94	MW-4	Mercury	0.6	2	0.0074	<1	81
Herrera 1994	11/26/1991	MW-4	Mercury	0.5	2	0.0074	<1	68
Herrera 1994	11/26/1991	MW-5	Mercury	0.3	2	0.0074	<1	41
Herrera 1994	11/26/1991	MW-3	Mercury	0.1	2	0.0074	<1	14
Hong West 1995	Jan-94	MW-1	Methylene chloride	5.1	5		1.0	
Hong West 1995	Jan-94	MW-102	Methylene chloride	4.8 J	5		<1	
Hong West 1995	Jan-94	MW-104	Methylene chloride	4.4 J	5		<1	
Hong West 1995	Nov-91	MW-1	Nickel	910				
Hong West 1995	Nov-91	MW-4	Nickel	90				
Hong West 1995	Nov-91	MW-5	Nickel	50				
Hong West 1995	Nov-91	MW-3	Nickel	40				
Hong West 1995	Jan-94	MW-1	Tetrachloroethene	140	5		28	
Herrera 1994	11/26/1991	MW-1	Tetrachloroethene	36	5		7.2	
Herrera 1994	11/26/1991	Spring	Total petroleum hydrocarbons	250	500		<1	
Hong West 1995	Jan-94	MW-1	Trichloroethene	3,900 D	5		780	
Hong West 1995	Nov-91	MW-1	Trichloroethene	2,800	5		560	
Hong West 1995	Jan-94	MW-106	Zinc	1,200	4,800	76	<1	16
Hong West 1995	Nov-91	MW-1	Zinc	930	4,800	76	<1	12

Table C-2
Chemicals Detected in Groundwater
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-91	MW-4	Zinc	359	4,800	76	<1	4.7
Hong West 1995	Nov-91	MW-3	Zinc	119	4,800	76	<1	1.6
Hong West 1995	Nov-91	MW-5	Zinc	96	4,800	76	<1	1.3

GW - Groundwater

ug/L - Micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

B - Possible blank contamination

D - Result from diluted sample

J - Estimated value

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-3
Chemicals Detected in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
S 95th Street Drain									
Herrera 1994	4/5/1993	96-11	Acenaphthene	3.7 J	410 J	16	57	26	7.2
Herrera 1994	4/5/1993	96-12	Acenaphthene	1.5	207	16	57	13	3.6
Herrera 1994	4/5/1993	96-10	Acenaphthene	0.6	22.1	16	57	1.4	<1
Herrera 1994	4/5/1993	96-11	Anthracene	1.55	172	220	1,200	<1	<1
Herrera 1994	4/5/1993	96-12	Anthracene	0.25	34	220	1,200	<1	<1
Herrera 1994	4/5/1993	96-10	Anthracene	0.125	4.6	220	1,200	<1	<1
Herrera 1994	4/5/1993	96-18	Anthracene	0.085 J		0.96	4.4	<1	<1
Herrera 1994	4/5/1993	96-11	Antimony	12					
Herrera 1994	4/5/1993	96-12	Antimony	1.9					
Herrera 1994	4/5/1993	96-9	Antimony	1.8					
Herrera 1994	4/5/1993	96-18	Antimony	0.8					
Herrera 1994	4/5/1993	96-10	Antimony	0.3					
Herrera 1994	4/5/1993	96-18	Arsenic	38		57	93	<1	<1
Herrera 1994	4/5/1993	96-12	Arsenic	13		57	93	<1	<1
Herrera 1994	4/5/1993	96-9	Arsenic	12.3		57	93	<1	<1
Herrera 1994	4/5/1993	96-10	Arsenic	9.2		57	93	<1	<1
Herrera 1994	4/5/1993	96-11	Arsenic	9		57	93	<1	<1
Herrera 1994	4/5/1993	96-11	Benzo(a)anthracene	0.46	51	110	270	<1	<1
Herrera 1994	4/5/1993	96-10	Benzo(a)anthracene	0.32	12	110	270	<1	<1
Herrera 1994	4/5/1993	96-18	Benzo(a)anthracene	0.3		1.3	1.6	<1	<1
Herrera 1994	4/5/1993	96-12	Benzo(a)anthracene	0.11	15	110	270	<1	<1
Herrera 1994	4/5/1993	96-9	Benzo(a)anthracene	0.036		1.3	1.6	<1	<1
Herrera 1994	4/5/1993	96-11	Benzo(a)pyrene	1.45	161	99	210	1.6	<1
Herrera 1994	4/5/1993	96-18	Benzo(a)pyrene	0.36		1.6	3	<1	<1
Herrera 1994	4/5/1993	96-10	Benzo(a)pyrene	0.35	13	99	210	<1	<1
Herrera 1994	4/5/1993	96-11	Benzo(b)fluoranthene	1.08 J	120 J	230	450	<1	<1
Herrera 1994	4/5/1993	96-12	Benzo(b)fluoranthene	0.73	101	230	450	<1	<1
Herrera 1994	4/5/1993	96-18	Benzo(b)fluoranthene	0.58		3.2	3.6	<1	<1
Herrera 1994	4/5/1993	96-10	Benzo(b)fluoranthene	0.375	14	230	450	<1	<1
Herrera 1994	4/5/1993	96-9	Benzo(b)fluoranthene	0.041		3.2	3.6	<1	<1
Herrera 1994	4/5/1993	96-11	Benzo(g,h,i)perylene	0.795	88	31	78	2.8	1.1
Herrera 1994	4/5/1993	96-18	Benzo(g,h,i)perylene	0.61		0.67	0.72	<1	<1
Herrera 1994	4/5/1993	96-12	Benzo(g,h,i)perylene	0.42	58	31	78	1.9	<1
Herrera 1994	4/5/1993	96-10	Benzo(g,h,i)perylene	0.28	10	31	78	<1	<1
Herrera 1994	4/5/1993	96-9	Benzo(g,h,i)perylene	0.004		0.67	0.72	<1	<1
Herrera 1994	4/5/1993	96-11	Benzo(k)fluoranthene	1.065 J	118 J	230	450	<1	<1
Herrera 1994	4/5/1993	96-12	Benzo(k)fluoranthene	0.38	52	230	450	<1	<1
Herrera 1994	4/5/1993	96-18	Benzo(k)fluoranthene	0.28		3.2	3.6	<1	<1

Table C-3
Chemicals Detected in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Herrera 1994	4/5/1993	96-10	Benzo(k)fluoranthene	0.22	8	230	450	<1	<1
Herrera 1994	4/5/1993	96-9	Benzo(k)fluoranthene	0.024		3.2	3.6	<1	<1
Herrera 1994	4/5/1993	96-10	Beryllium	0.2					
Herrera 1994	4/5/1993	96-11	Beryllium	0.2					
Herrera 1994	4/5/1993	96-12	Beryllium	0.2					
Herrera 1994	4/5/1993	96-9	Beryllium	0.1					
Herrera 1994	4/5/1993	96-9	Cadmium	14.3		5.1	6.7	2.8	2.1
Herrera 1994	4/5/1993	96-18	Cadmium	2		5.1	6.7	<1	<1
Herrera 1994	4/5/1993	96-10	Cadmium	1.5		5.1	6.7	<1	<1
Herrera 1994	4/5/1993	96-11	Cadmium	1.4		5.1	6.7	<1	<1
Herrera 1994	4/5/1993	96-11	Chromium	138		260	270	<1	<1
Herrera 1994	4/5/1993	96-10	Chromium	115		260	270	<1	<1
Herrera 1994	4/5/1993	96-9	Chromium	111		260	270	<1	<1
Herrera 1994	4/5/1993	96-18	Chromium	93		260	270	<1	<1
Herrera 1994	4/5/1993	96-12	Chromium	40.7		260	270	<1	<1
Herrera 1994	4/5/1993	96-11	Chrysene	1.35	150	110	460	1.4	<1
Herrera 1994	4/5/1993	96-12	Chrysene	0.55	76	110	460	<1	<1
Herrera 1994	4/5/1993	96-18	Chrysene	0.51		1.4	2.8	<1	<1
Herrera 1994	4/5/1993	96-10	Chrysene	0.395	15	110	460	<1	<1
Herrera 1994	4/5/1993	96-9	Chrysene	0.041		1.4	2.8	<1	<1
Herrera 1994	4/5/1993	96-9	Copper	1,370		390	390	3.5	3.5
Herrera 1994	4/5/1993	96-11	Copper	295		390	390	<1	<1
Herrera 1994	4/5/1993	96-18	Copper	166		390	390	<1	<1
Herrera 1994	4/5/1993	96-10	Copper	68		390	390	<1	<1
Herrera 1994	4/5/1993	96-12	Copper	35.9		390	390	<1	<1
Herrera 1994	4/5/1993	96-11	cPAHs	6.77					
Herrera 1994	4/5/1993	96-18	cPAHs	3.27					
Herrera 1994	4/5/1993	96-12	cPAHs	2.66					
Herrera 1994	4/5/1993	96-10	cPAHs	2.27					
Herrera 1994	4/5/1993	96-9	cPAHs	0.212					
Herrera 1994	4/5/1993	96-18	Dibenzo(a,h)anthracene	0.7		0.23	0.54	3.0	1.3
Herrera 1994	4/5/1993	96-11	Dibenzo(a,h)anthracene	0.475 J	53 J	12	33	4.4	1.6
Herrera 1994	4/5/1993	96-12	Dibenzo(a,h)anthracene	0.34	47	12	33	3.9	1.4
Herrera 1994	4/5/1993	96-10	Dibenzo(a,h)anthracene	0.295	11	12	33	<1	<1
Herrera 1994	4/5/1993	96-9	Dibenzo(a,h)anthracene	0.025		0.23	0.54	<1	<1
Herrera 1994	4/5/1993	96-11	Fluoranthene	6.85	759	160	1,200	4.7	<1
Herrera 1994	4/5/1993	96-12	Fluoranthene	2.3	317	160	1,200	2.0	<1
Herrera 1994	4/5/1993	96-18	Fluoranthene	1.4		1.7	2.5	<1	<1
Herrera 1994	4/5/1993	96-10	Fluoranthene	1.2	44	160	1,200	<1	<1

Table C-3
Chemicals Detected in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Herrera 1994	4/5/1993	96-9	Fluoranthene	0.15		1.7	2.5	<1	<1
Herrera 1994	4/5/1993	96-11	Fluorene	1.2 J	133 J	23	79	5.8	1.7
Herrera 1994	4/5/1993	96-12	Fluorene	0.098	14	23	79	<1	<1
Herrera 1994	4/5/1993	96-10	Fluorene	0.091	3.3	23	79	<1	<1
Herrera 1994	4/5/1993	96-11	HPAHs, total	17.315	1,920	960	5,300	2.0	<1
Herrera 1994	4/5/1993	96-12	HPAHs, total	6.68 L	921 L	960	5,300	<1	<1
Herrera 1994	4/5/1993	96-18	HPAHs, total	5.97		12	17	<1	<1
Herrera 1994	4/5/1993	96-10	HPAHs, total	4.36	161	960	5,300	<1	<1
Herrera 1994	4/5/1993	96-9	HPAHs, total	0.444 L		12	17	<1	<1
Herrera 1994	4/5/1993	96-11	Indeno(1,2,3-cd)pyrene	0.89	99	34	88	2.9	1.1
Herrera 1994	4/5/1993	96-12	Indeno(1,2,3-cd)pyrene	0.54	74	34	88	2.2	<1
Herrera 1994	4/5/1993	96-18	Indeno(1,2,3-cd)pyrene	0.54		0.6	0.69	<1	<1
Herrera 1994	4/5/1993	96-10	Indeno(1,2,3-cd)pyrene	0.315	12	34	88	<1	<1
Herrera 1994	4/5/1993	96-9	Indeno(1,2,3-cd)pyrene	0.043		0.6	0.69	<1	<1
Herrera 1994	4/5/1993	96-18	Lead	500		450	530	1.1	<1
Herrera 1994	4/5/1993	96-9	Lead	284		450	530	<1	<1
Herrera 1994	4/5/1993	96-11	Lead	169		450	530	<1	<1
Herrera 1994	4/5/1993	96-10	Lead	108		450	530	<1	<1
Herrera 1994	4/5/1993	96-12	Lead	63		450	530	<1	<1
Herrera 1994	4/5/1993	96-11	LPAHs, total	19.875 L	2,203 L	370	780	6.0	2.8
Herrera 1994	4/5/1993	96-18	LPAHs, total	8.505 L		5.2	13	1.6	<1
Herrera 1994	4/5/1993	96-12	LPAHs, total	4.568 L	630 L	370	780	1.7	<1
Herrera 1994	4/5/1993	96-10	LPAHs, total	2.866 L	106 L	370	780	<1	<1
Herrera 1994	4/5/1993	96-9	LPAHs, total	0.491 L		5.2	13	<1	<1
Herrera 1994	4/5/1993	96-18	Mercury	0.4		0.41	0.59	<1	<1
Herrera 1994	4/5/1993	96-11	Mercury	0.1		0.41	0.59	<1	<1
Herrera 1994	4/5/1993	96-9	Mercury	0.1		0.41	0.59	<1	<1
Herrera 1994	4/5/1993	96-9	Nickel	176					
Herrera 1994	4/5/1993	96-10	Nickel	78					
Herrera 1994	4/5/1993	96-11	Nickel	65					
Herrera 1994	4/5/1993	96-18	Nickel	61					
Herrera 1994	4/5/1993	96-12	Nickel	56					
Herrera 1994	4/5/1993	96-11	Phenanthrene	4.85	538	100	480	5.4	1.1
Herrera 1994	4/5/1993	96-12	Phenanthrene	1.2	166	100	480	1.7	<1
Herrera 1994	4/5/1993	96-10	Phenanthrene	0.53	19.6	100	480	<1	<1
Herrera 1994	4/5/1993	96-18	Phenanthrene	0.34		1.5	5.4	<1	<1
Herrera 1994	4/5/1993	96-9	Phenanthrene	0.044		1.5	5.4	<1	<1
Herrera 1994	4/5/1993	96-11	Pyrene	2.9	322	1,000	1,400	<1	<1
Herrera 1994	4/5/1993	96-12	Pyrene	1.3	179	1,000	1,400	<1	<1

Table C-3
Chemicals Detected in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Herrera 1994	4/5/1993	96-18	Pyrene	0.69		2.6	3.3	<1	<1
Herrera 1994	4/5/1993	96-10	Pyrene	0.61	23	1,000	1,400	<1	<1
Herrera 1994	4/5/1993	96-9	Pyrene	0.078		2.6	3.3	<1	<1
Herrera 1994	4/5/1993	96-9	Selenium	4.9					
Herrera 1994	4/5/1993	96-9	Silver	1		6.1	6.1	<1	<1
Herrera 1994	4/5/1993	96-11	Silver	0.6		6.1	6.1	<1	<1
Herrera 1994	4/5/1993	96-10	Silver	0.5		6.1	6.1	<1	<1
Herrera 1994	4/5/1993	96-9	Total petroleum hydrocarbons	19,000		2,000		9.5	
Herrera 1994	4/5/1993	96-18	Total petroleum hydrocarbons	1,400		2,000		<1	
Herrera 1994	4/5/1993	96-11	Total petroleum hydrocarbons	1,300		2,000		<1	
Herrera 1994	4/5/1993	96-12	Total petroleum hydrocarbons	600		2,000		<1	
Herrera 1994	4/5/1993	96-10	Total petroleum hydrocarbons	490		2,000		<1	
Herrera 1994	4/5/1993	96-11	Zinc	1,660		410	960	4.0	1.7
Herrera 1994	4/5/1993	96-9	Zinc	1,060		410	960	2.6	1.1
Herrera 1994	4/5/1993	96-10	Zinc	840		410	960	2.0	<1
Herrera 1994	4/5/1993	96-18	Zinc	493		410	960	1.2	<1
Herrera 1994	4/5/1993	96-12	Zinc	454		410	960	1.1	<1
S 96th Street Drain									
Herrera 1994	4/5/1993	96-15	Anthracene	0.11		0.96	4.4	<1	<1
Herrera 1994	4/5/1993	96-15	Antimony	0.4					
Herrera 1994	4/5/1993	96-15	Arsenic	12.2		57	93	<1	<1
Herrera 1994	4/5/1993	96-15	Benzo(a)anthracene	1.7		1.3	1.6	1.3	1.1
Herrera 1994	4/5/1993	96-15	Benzo(a)pyrene	0.21		1.6	3.0	<1	<1
Herrera 1994	4/5/1993	96-15	Benzo(b)fluoranthene	0.21		3.2	3.6	<1	<1
Herrera 1994	4/5/1993	96-15	Benzo(g,h,i)perylene	0.2		0.67	0.72	<1	<1
Herrera 1994	4/5/1993	96-15	Benzo(k)fluoranthene	0.18		3.2	3.6	<1	<1
Herrera 1994	4/5/1993	96-15	Beryllium	0.3					
Herrera 1994	4/5/1993	96-15	Cadmium	1.3		5.1	6.7	<1	<1
Herrera 1994	4/5/1993	96-15	Chromium	43.3		260	270	<1	<1
Herrera 1994	4/5/1993	96-15	Chrysene	0.34		1.4	2.8	<1	<1
Herrera 1994	4/5/1993	96-15	Copper	60		390	390	<1	<1
Herrera 1994	4/5/1993	96-15	cPAHs	2.99					
Herrera 1994	4/5/1993	96-15	Dibenzo(a,h)anthracene	0.24		0.23	0.54	1.0	<1
Herrera 1994	4/5/1993	96-15	Fluoranthene	4.2		1.7	2.5	2.5	1.7
Herrera 1994	4/5/1993	96-15	Fluorene	0.11		0.54	1	<1	<1
Herrera 1994	4/5/1993	96-15	HPAHs, total	7.89		12	17	<1	<1
Herrera 1994	4/5/1993	96-15	Indeno(1,2,3-cd)pyrene	0.11		0.6	0.69	<1	<1
Herrera 1994	4/5/1993	96-15	Lead	55		450	530	<1	<1
Herrera 1994	4/5/1993	96-15	LPAHs, total	3.15 L		5.2	13	<1	<1

Table C-3
Chemicals Detected in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Herrera 1994	4/5/1993	96-15	Nickel	41					
Herrera 1994	4/5/1993	96-15	Phenanthrene	0.74		1.5	5.4	<1	<1
Herrera 1994	4/5/1993	96-15	Pyrene	0.5		2.6	3.3	<1	<1
Herrera 1994	4/5/1993	96-15	Silver	0.7		6.1	6.1	<1	<1
Herrera 1994	4/5/1993	96-15	Total petroleum hydrocarbons	9,600		2,000		4.8	
Herrera 1994	4/5/1993	96-15	Zinc	301		410	960	<1	<1
Hamm Creek Middle Fork									
Herrera 1994	4/6/1993	96-17	Arsenic	8.1		57	93	<1	<1
Herrera 1994	4/6/1993	96-17	Benzo(a)anthracene	0.0056		1.3	1.6	<1	<1
Herrera 1994	4/6/1993	96-17	Benzo(a)pyrene	0.0035		1.6	3.0	<1	<1
Herrera 1994	4/6/1993	96-17	Chromium	34.5		260	270	<1	<1
Herrera 1994	4/6/1993	96-17	Chrysene	0.012		1.4	2.8	<1	<1
Herrera 1994	4/6/1993	96-17	Copper	9.5		390	390	<1	<1
Herrera 1994	4/6/1993	96-17	cPAHs	0.033					
Herrera 1994	4/6/1993	96-17	Fluoranthene	0.03		1.7	2.5	<1	<1
Herrera 1994	4/6/1993	96-17	HPAHs, total	0.0845 L		12	17	<1	<1
Herrera 1994	4/6/1993	96-17	Indeno(1,2,3-cd)pyrene	0.0059		0.6	0.69	<1	<1
Herrera 1994	4/6/1993	96-17	Lead	3.6		450	530	<1	<1
Herrera 1994	4/6/1993	96-17	LPAHs, total	0.261 L		5.2	13	<1	<1
Herrera 1994	4/6/1993	96-17	Nickel	51					
Herrera 1994	4/6/1993	96-17	Phenanthrene	0.01		1.5	5.4	<1	<1
Herrera 1994	4/6/1993	96-17	Pyrene	0.019		2.6	3.3	<1	<1
Herrera 1994	4/6/1993	96-17	Thallium	0.2					
Herrera 1994	4/6/1993	96-17	Total petroleum hydrocarbons	40		2,000		<1	
Herrera 1994	4/6/1993	96-17	Zinc	53.4		410	960	<1	<1

mg/kg - Milligrams per kilogram
DW - Dry weight
SQS - SMS Sediment Quality Standard
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

J - Estimated value
L - Undetected values (added as analytical detection limits) included in sum.
🟨 Chemical exceedance

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the SQS or CSL. Petroleum hydrocarbons are compared to the MTCA Method A cleanup level.
Results were compared to the Lowest Apparent Effects Threshold (LAET) or the second LAET (2LAET) value rather than the SQS and/or CSL due to the TOC content in the following samples: 96-9, 96-15, 96-16, 96-17, and 96-18. The LAET is functionally equivalent to the SQS and the 2LAET is functionally equivalent to the CSL. OC-normalization is not considered to be appropriate for when TOC concentrations are less than or equal to 0.5 percent or greater than or equal to 4.0 percent.

Table C-4
Chemicals Detected in Surface Water
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor	Notes
S 95th Street Drain									
Herrera 1994	4/8/1993	96-2	Chromium	55					Storm flow sample
Herrera 1994	4/8/1993	96-12	Chromium	34					Storm flow sample
Herrera 1994	4/8/1993	96-1	Chromium	9					Storm flow sample
Herrera 1994	4/20/1993	96-12	Chromium	8					Base flow sample
Herrera 1994	4/20/1993	96-2	Chromium	8					Base flow sample
Herrera 1994	4/8/1993	96-12	Copper	38.3	2,900	3.5	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-1	Copper	28.9	2,900	3.5	<1	8.3	Storm flow sample
Herrera 1994	4/8/1993	96-2	Copper	25.5	2,900	3.5	<1	7.3	Storm flow sample
Herrera 1994	4/20/1993	96-12	Copper	15	2,900	3.5	<1	4.3	Base flow sample
Herrera 1994	4/20/1993	96-2	Copper	11	2,900	3.5	<1	3	Base flow sample
Herrera 1994	4/20/1993	96-1	Copper	5	2,900	3.5	<1	1.4	Base flow sample
Herrera 1994	4/8/1993	96-2	Lead	47.8		0.54		89	Storm flow sample
Herrera 1994	4/8/1993	96-12	Lead	46.9		0.54		87	Storm flow sample
Herrera 1994	4/8/1993	96-1	Lead	27.9		0.54		52	Storm flow sample
Herrera 1994	4/20/1993	96-12	Lead	3.2		0.54		5.9	Base flow sample
Herrera 1994	4/20/1993	96-1	Lead	2.6		0.54		4.8	Base flow sample
Herrera 1994	4/20/1993	96-2	Lead	1.7		0.54		3.1	Base flow sample
Herrera 1994	4/8/1993	96-2	Total petroleum hydrocarbons	420					Storm flow sample
Herrera 1994	4/8/1993	96-1	Total petroleum hydrocarbons	310					Storm flow sample
Herrera 1994	4/8/1993	96-2	Zinc	365	17,000	32	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-12	Zinc	246	17,000	32	<1	7.7	Storm flow sample
Herrera 1994	4/8/1993	96-1	Zinc	172	17,000	32	<1	5.4	Storm flow sample
Herrera 1994	4/20/1993	96-12	Zinc	85	17,000	32	<1	2.7	Base flow sample
Herrera 1994	4/20/1993	96-2	Zinc	45	17,000	32	<1	1.4	Base flow sample
Herrera 1994	4/20/1993	96-1	Zinc	42	17,000	32	<1	1.3	Base flow sample
S 96th Street Drain									
Herrera 1994	4/8/1993	96-5	Cadmium	4	41	0.37	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-5	Chromium	19					Storm flow sample
Herrera 1994	4/8/1993	96-5	Copper	12.8	2,900	3.5	<1	4	Storm flow sample
Herrera 1994	4/20/1993	96-5	Copper	9	2,900	3.5	<1	2.6	Base flow sample
Herrera 1994	4/8/1993	96-5	Lead	11.4		0.54		21	Storm flow sample
Herrera 1994	4/20/1993	96-5	Lead	3.3		0.54		6.1	Base flow sample
Herrera 1994	4/8/1993	96-5	Total petroleum hydrocarbons	420					Storm flow sample
Herrera 1994	4/8/1993	96-5	Zinc	45	17,000	32	<1	1.4	Storm flow sample
Herrera 1994	4/20/1993	96-5	Zinc	23	17,000	32	<1	<1	Base flow sample

Table C-4
Chemicals Detected in Surface Water
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor	Notes
Hamm Creek North Fork									
Herrera 1994	4/20/1993	96-3	Cadmium	8	41	0.37	<1	22	Base flow sample
Herrera 1994	4/8/1993	96-3	Chromium	11					Storm flow sample
Herrera 1994	4/20/1993	96-3	Chromium	5					Base flow sample
Herrera 1994	4/20/1993	96-3	Copper	11	2,900	3.5	<1	3.1	Base flow sample
Herrera 1994	4/8/1993	96-3	Copper	4.3	2,900	3.5	<1	1.2	Storm flow sample
Herrera 1994	4/8/1993	96-3	Lead	8.5		0.54		16	Storm flow sample
Herrera 1994	4/20/1993	96-3	Lead	0.9		0.54		1.7	Base flow sample
Herrera 1994	4/8/1993	96-3	Total petroleum hydrocarbons	300					Storm flow sample
Herrera 1994	4/20/1993	96-3	Zinc	30	17,000	32	<1	<1	Base flow sample
Herrera 1994	4/8/1993	96-3	Zinc	17	17,000	32	<1	<1	Storm flow sample
Hamm Creek Middle Fork									
Herrera 1994	4/8/1993	96-4	Chromium	9					Storm flow sample
Herrera 1994	4/8/1993	96-4	Copper	18.9	2,900	3.5	<1	5.4	Storm flow sample
Herrera 1994	4/20/1993	96-4	Copper	5	2,900	3.5	<1	1.4	Base flow sample
Herrera 1994	4/8/1993	96-4	Lead	41.2		0.54		76	Storm flow sample
Herrera 1994	4/20/1993	96-4	Lead	1.9		0.54		3.5	Base flow sample
Herrera 1994	4/8/1993	96-4	Total petroleum hydrocarbons	340					Storm flow sample
Herrera 1994	4/8/1993	96-4	Zinc	82	17,000	32	<1	2.6	Storm flow sample
Herrera 1994	4/20/1993	96-4	Zinc	19	17,000	32	<1	<1	Base flow sample

GW - Groundwater

ug/L - Micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Chronic Surface Fresh Water Quality Standard.

Table C-5
Chemicals Detected in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
EMCON 1996	6/6/1996	GB-1	1.5	2-Butanone	1	48,000		<1	
EMCON 1996	6/6/1996	GB-1	3	2-Butanone	0.28	48,000		<1	
EMCON 1996	6/6/1996	GB-1	1.5	Acetone	2.9	72,000		<1	
EMCON 1996	6/6/1996	GB-1	3	Acetone	0.74	72,000		<1	
EMCON 1996	6/6/1996	GB-3	1.5	Acetone	0.38	72,000		<1	
EMCON 1996	6/6/1996	GB-3	3	Acetone	0.26	72,000		<1	
EMCON 1996	6/6/1996	GB-2	1.5	Acetone	0.25	72,000		<1	
EMCON 1996	6/6/1996	GB-4	1.5	Arsenic	3	0.67	12,000	4.5	<1
EMCON 1996	6/6/1996	GB-4	3	Arsenic	2	0.67	590	3.0	<1
EMCON 1997	1/2/1997	LD-SW2-1	1	Benzene	0.32	0.03		11	
EMCON 1996	6/6/1996	GB-8	4	Benzene	0.12	0.03		4.0	
GeoEngineers 1989b	9/19/1989	2		Benzene	0.079	0.03		2.6	
EMCON 1996	6/6/1996	GB-1	1.5	Benzene	0.074	0.03		2.5	
GeoEngineers 1989b	9/19/1989	3		Benzene	0.058	0.03		1.9	
Applied Consultants 1990b	8/27/1990	T3		Benzene	0.036	0.03		1.2	
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Chromium	37.2		270		<1
Pacific Testing Labs 1995	12/6/1994	B10-2	4	Chromium	20.6		270		<1
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Chromium	15.6		270		<1
EMCON 1996	6/6/1996	GB-4	1.5	Chromium	10		5,400		<1
EMCON 1996	6/6/1996	GB-4	3	Chromium	7		270		<1
EMCON 1996	6/6/1996	GB-1	1.5	cis-1,2-Dichloroethene	0.074	160		<1	
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Copper	28.5	3,200	39	<1	<1
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Copper	24.4	3,200	39	<1	<1
Pacific Testing Labs 1995	12/6/1994	B10-2	4	Copper	14.4	3,200	39	<1	<1
EMCON 1996	6/6/1996	GB-4	1.5	Copper	10	3,200	780	<1	<1
EMCON 1996	6/6/1996	GB-4	3	Copper	8	3,200	39	<1	<1
EMCON 1996	8/22/1996	LD-EW-1	1	Diesel-range hydrocarbons	262	2,000		<1	
EMCON 1996	8/22/1996	LD-SW-1	1	Diesel-range hydrocarbons	230	2,000		<1	
GeoEngineers 1989b	9/19/1989	4		Diesel-range hydrocarbons	214	2,000		<1	
EMCON 1996	8/26/1996	LD-SW-2	1	Diesel-range hydrocarbons	172	2,000		<1	
EMCON 1996	8/26/1996	LD-EW-2	1	Diesel-range hydrocarbons	152	2,000		<1	
EMCON 1996	8/22/1996	LD-WW-1	1	Diesel-range hydrocarbons	148	2,000		<1	
EMCON 1996	6/6/1996	GB-1	1.5	Diesel-range hydrocarbons	130	2,000		<1	
EMCON 1997	1/2/1997	LD-EW2-1	1	Diesel-range hydrocarbons	107	2,000		<1	
EMCON 1996	8/22/1996	LD-NW-1	1	Diesel-range hydrocarbons	103	2,000		<1	
EMCON 1996	6/6/1996	GB-8	4	Diesel-range hydrocarbons	100	2,000		<1	
EMCON 1997	1/2/1997	LD-SW2-1	1	Diesel-range hydrocarbons	97	2,000		<1	
EMCON 1996	6/6/1996	GB-5	3	Diesel-range hydrocarbons	60	2,000		<1	

Table C-5
Chemicals Detected in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
EMCON 1996	6/6/1996	GB-6	4	Diesel-range hydrocarbons	60	2,000		<1	
GeoEngineers 1989b	9/19/1989	1		Diesel-range hydrocarbons	57	2,000		<1	
EMCON 1996	8/26/1996	LD-NW-2	1	Diesel-range hydrocarbons	54	2,000		<1	
EMCON 1996	6/6/1996	GB-2	1.5	Diesel-range hydrocarbons	50	2,000		<1	
EMCON 1996	6/6/1996	GB-3	1.5	Diesel-range hydrocarbons	50	2,000		<1	
EMCON 1996	6/6/1996	GB-9	4	Diesel-range hydrocarbons	50	2,000		<1	
EMCON 1996	8/26/1996	LD-WW-2	1	Diesel-range hydrocarbons	40	2,000		<1	
EMCON 1996	8/22/1996	LD-FS-2	2	Diesel-range hydrocarbons	31	2,000		<1	
EMCON 1996	6/6/1996	GB-1	3	Diesel-range hydrocarbons	30	2,000		<1	
EMCON 1996	6/6/1996	GB-2	3	Diesel-range hydrocarbons	26	2,000		<1	
GeoEngineers 1989b	9/19/1990	3		Diesel-range hydrocarbons	26	2,000		<1	
Applied Consultants 1991	4/17/1991	SP1		Diesel-range hydrocarbons	9	2,000		<1	
Applied Consultants 1991	4/17/1991	SP2		Diesel-range hydrocarbons	5	2,000		<1	
EMCON 1997	1/2/1997	LD-SW2-1	1	Ethylbenzene	3.2	6		<1	
EMCON 1996	6/6/1996	GB-1	1.5	Ethylbenzene	1.4	6		<1	
Applied Consultants 1990b	8/27/1990	T3		Ethylbenzene	1.1	6		<1	
EMCON 1996	6/6/1996	GB-8	4	Ethylbenzene	0.2	6		<1	
GeoEngineers 1989b	9/19/1989	3		Ethylbenzene	0.094	6		<1	
GeoEngineers 1989b	9/19/1989	2		Ethylbenzene	0.072	6		<1	
Applied Consultants 1990b	8/27/1990	T1		Ethylbenzene	0.068	6		<1	
Applied Consultants 1991	4/17/1991	SP1		Ethylbenzene	0.046	6		<1	
Applied Consultants 1991	4/17/1991	SP2		Ethylbenzene	0.046	6		<1	
EMCON 1996	6/6/1996	GB-1	3	Ethylbenzene	0.031	6		<1	
EMCON 1996	6/6/1996	GB-8	4	Gasoline-range hydrocarbons	237	30		7.9	
EMCON 1997	1/2/1997	LD-SW2-1	1	Gasoline-range hydrocarbons	86	30		2.9	
GeoEngineers 1989b	9/19/1989	1		Gasoline-range hydrocarbons	20	30		<1	
Applied Consultants 1990a	1/26/1990	MW-3	8.5	Gasoline-range hydrocarbons	12	30		<1	
Applied Consultants 1991	4/17/1991	SP1		Gasoline-range hydrocarbons	12	2,000		<1	
Applied Consultants 1990b	8/27/1990	T1		Gasoline-range hydrocarbons	10	30		<1	
Applied Consultants 1991	4/17/1991	SP2		Gasoline-range hydrocarbons	8	2,000		<1	
EMCON 1996	8/22/1996	LD-EW-1	1	Heavy-oil range hydrocarbons	1,162	2,000		<1	
EMCON 1996	8/22/1996	LD-SW-1	1	Heavy-oil range hydrocarbons	1,046	2,000		<1	
EMCON 1996	8/26/1996	LD-EW-2	1	Heavy-oil range hydrocarbons	850	2,000		<1	
EMCON 1996	8/22/1996	LD-NW-1	1	Heavy-oil range hydrocarbons	631	2,000		<1	
EMCON 1996	8/26/1996	LD-SW-2	1	Heavy-oil range hydrocarbons	558	2,000		<1	
EMCON 1996	8/22/1996	LD-WW-1	1	Heavy-oil range hydrocarbons	505	2,000		<1	
EMCON 1996	6/6/1996	GB-1	1.5	Heavy-oil range hydrocarbons	420	2,000		<1	
EMCON 1997	1/2/1997	LD-EW2-1	1	Heavy-oil range hydrocarbons	319	2,000		<1	

Table C-5
Chemicals Detected in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
EMCON 1997	1/2/1997	LD-SW2-1	1	Heavy-oil range hydrocarbons	219	2,000		<1	
EMCON 1996	6/6/1996	GB-2	1.5	Heavy-oil range hydrocarbons	200	2,000		<1	
EMCON 1996	8/26/1996	LD-NW-2	1	Heavy-oil range hydrocarbons	190	2,000		<1	
EMCON 1996	6/6/1996	GB-9	4	Heavy-oil range hydrocarbons	180	2,000		<1	
EMCON 1997	1/4/1997	LD-EW3-1	1	Heavy-oil range hydrocarbons	179	2,000		<1	
EMCON 1996	8/26/1996	LD-WW-2	1	Heavy-oil range hydrocarbons	178	2,000		<1	
EMCON 1996	6/6/1996	GB-3	1.5	Heavy-oil range hydrocarbons	160	2,000		<1	
EMCON 1996	6/6/1996	GB-5	3	Heavy-oil range hydrocarbons	140	2,000		<1	
EMCON 1996	8/22/1996	LD-FS-2	2	Heavy-oil range hydrocarbons	131	2,000		<1	
EMCON 1996	6/6/1996	GB-6	4	Heavy-oil range hydrocarbons	120	2,000		<1	
EMCON 1996	6/6/1996	GB-8	4	Heavy-oil range hydrocarbons	100	2,000		<1	
EMCON 1996	6/6/1996	GB-6	4	Lead	26	250	67	<1	<1
EMCON 1996	6/6/1996	GB-5	4	Lead	25	250	67	<1	<1
EMCON 1996	6/6/1996	GB-7	4	Lead	17	250	67	<1	<1
EMCON 1996	6/6/1996	GB-8	4	Lead	16	250	67	<1	<1
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Lead	9.77	250	67	<1	<1
Pacific Testing Labs 1995	12/6/1994	B10-2	4	Lead	7.66	250	67	<1	<1
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Lead	7.35	250	67	<1	<1
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Nickel	47.5				
Pacific Testing Labs 1995	12/6/1994	B10-2	4	Nickel	25.4				
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Nickel	14.7				
EMCON 1996	6/6/1996	GB-1	1.5	Tetrachloroethene	1.9	0.1		38	
EMCON 1996	6/6/1996	GB-1	3	Tetrachloroethene	0.017	0.1		<1	
EMCON 1997	1/2/1997	LD-SW2-1	1	Toluene	6,000	7		857	
Applied Consultants 1990b	8/28/1990	B7	0.5	Toluene	4,700	7		671	
EMCON 1996	6/6/1996	GB-1	1.5	Toluene	980	7		140	
Applied Consultants 1990b	8/28/1990	B7	1.5	Toluene	820	7		117	
EMCON 1996	6/6/1996	GB-1	3	Toluene	9.2	7		1.3	
EMCON 1997	1/2/1997	LD-EW2-1	1	Toluene	1.0	7		<1	
Applied Consultants 1990b	8/27/1990	T3		Toluene	0.35	7		<1	
EMCON 1996	6/6/1996	GB-8	4	Toluene	0.3	7		<1	
Applied Consultants 1991	4/18/1991	B-9	Comp	Toluene	0.260	7		<1	
Applied Consultants 1990b	8/27/1990	T2		Toluene	0.13	7		<1	
GeoEngineers 1989b	9/19/1989	3		Toluene	0.12	7		<1	
EMCON 1996	6/6/1996	GB-2	1.5	Toluene	0.08	7		<1	
Applied Consultants 1991	4/18/1991	B-8	Comp	Toluene	0.053	7		<1	
EMCON 1996	6/6/1996	GB-2	3	Toluene	0.03	7		<1	
Applied Consultants 1990b	8/27/1990	T1		Toluene	0.027	7		<1	

Table C-5
Chemicals Detected in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
EMCON 1996	6/6/1996	GB-3	3	Toluene	0.014	7		<1	
EMCON 1996	6/6/1996	GB-3	1.5	Toluene	0.008	7		<1	
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Total recoverable petroleum hydrocarbons	120	2,000		<1	
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Total recoverable petroleum hydrocarbons	77	2,000		<1	
Pacific Testing Labs 1995	12/7/1994	B12-4	7	Total recoverable petroleum hydrocarbons	65	2,000		<1	
Pacific Testing Labs 1995	12/6/1994	B10-4	6	Total recoverable petroleum hydrocarbons	60	2,000		<1	
Pacific Testing Labs 1995	12/7/1994	B12-7	12	Total recoverable petroleum hydrocarbons	48	2,000		<1	
Pacific Testing Labs 1995	12/6/1994	B10-2	4	Total recoverable petroleum hydrocarbons	27.2	2,000		<1	
Pacific Testing Labs 1995	12/6/1994	B10-8	11	Total recoverable petroleum hydrocarbons	19	2,000		<1	
Pacific Testing Labs 1995	12/6/1994	B11-5	12	Total recoverable petroleum hydrocarbons	19	2,000		<1	
Pacific Testing Labs 1995	12/6/1994	B11-2	5	Total recoverable petroleum hydrocarbons	17	2,000		<1	
Applied Consultants 1990b	8/28/1990	B-7	0.5	Xylenes, total	30	9		3.3	
EMCON 1996	6/6/1996	GB-1	1.5	Xylenes, total	10	9		1.1	
EMCON 1997	1/2/1997	LD-SW2-1		Xylenes, total	9.7	9		<1	
Applied Consultants 1990b	8/27/1990	T3		Xylenes, total	3.3	9		<1	
GeoEngineers 1989b	9/19/1989	2		Xylenes, total	1.6	9		<1	
Applied Consultants 1990b	8/27/1990	T1		Xylenes, total	1.5	9		<1	
EMCON 1996	6/6/1996	GB-8	4	Xylenes, total	1.4	9		<1	
GeoEngineers 1989b	9/19/1989	3		Xylenes, total	0.57	9		<1	
Applied Consultants 1991	4/18/1991	B-9	Comp	Xylenes, total	0.49	9		<1	
Applied Consultants 1991	4/17/1991	SP1		Xylenes, total	0.41	9		<1	
Applied Consultants 1990b	8/27/1990	T2		Xylenes, total	0.14	9		<1	
Applied Consultants 1991	4/17/1991	SP2		Xylenes, total	0.12	9		<1	
EMCON 1996	6/6/1996	GB-1	3	Xylenes, total	0.11	9		<1	
EMCON 1997	1/2/1997	LD-EW2-1	1	Xylenes, total	0.1	9		<1	
GeoEngineers 1989b	9/19/1989	1		Xylenes, total	0.1	9		<1	
EMCON 1996	6/6/1996	GB-2	3	Xylenes, total	0.017	9		<1	
EMCON 1996	6/6/1996	GB-3	1.5	Xylenes, total	0.014	9		<1	
EMCON 1996	6/6/1996	GB-3	3	Xylenes, total	0.006	9		<1	
EMCON 1996	6/6/1996	GB-4	1.5	Zinc	72	24,000	38	<1	1.9
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Zinc	45.9	24,000	38	<1	1.2
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Zinc	43.2	24,000	38	<1	1.1
EMCON 1996	6/6/1996	GB-4	3	Zinc	32	24,000	38	<1	<1
Pacific Testing Labs 1995	12/6/1994	B10-2	4	Zinc	29.7	24,000	38	<1	<1

Table C-5
Chemicals Detected in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟩	Soil removed during remedial excavation
🟨	Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater was observed between 1.65 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-6
Chemicals Detected in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Applied Consultants 1991	4/19/1991	MW-6	1,2-Dichloropropane	1,200				
Pacific Testing Labs 1995	12/2/1994	MW-7	Arsenic	273	0.0583	370	4,683	<1
EMCON 1995a	5/9/1995	MW-7	Arsenic	104	0.0583	370	1,784	<1
EMCON 1995a	5/9/1995	MW-11	Arsenic	52	0.0583	370	892	<1
EMCON 1995b	7/31/1995	MW-11	Arsenic	50	0.0583	370	858	<1
Pacific Testing Labs 1995	12/2/1994	MW-8	Arsenic	50	0.0583	370	858	<1
EMCON 1995b	7/31/1995	MW-8	Arsenic	45	0.0583	370	772	<1
EMCON 1995b	7/31/1995	MW-7	Arsenic	43	0.0583	370	738	<1
EMCON 1995a	5/9/1995	MW-12	Arsenic	42	0.0583	370	720	<1
Pacific Testing Labs 1995	12/2/1994	MW-6	Arsenic	41	0.0583	370	703	<1
EMCON 1995a	5/9/1995	MW-8	Arsenic	38	0.0583	370	652	<1
EMCON 1995b	7/31/1995	MW-12	Arsenic	29	0.0583	370	497	<1
Pacific Testing Labs 1995	12/2/1994	MW-9	Arsenic	27	0.0583	370	463	<1
EMCON 1995a	5/9/1995	MW-6	Arsenic	23	0.0583	370	395	<1
EMCON 1995b	7/31/1995	MW-6	Arsenic	23	0.0583	370	395	<1
EMCON 1995a	5/9/1995	MW-10	Arsenic	22	0.0583	370	377	<1
EMCON 1995b	8/16/1995	MW-4	Arsenic	22	0.0583	370	377	<1
EMCON 1995a	5/9/1995	MW-11	Arsenic	12	0.0583	370	206	<1
EMCON 1995a	5/9/1995	MW-9	Arsenic	9	0.0583	370	154	<1
EMCON 1995a	5/9/1995	MW-7	Arsenic	6	0.0583	370	103	<1
EMCON 1995a	5/9/1995	MW-8	Arsenic	6	0.0583	370	103	<1
EMCON 1995b	7/31/1995	MW-10	Arsenic	6	0.0583	370	103	<1
EMCON 1995b	8/16/1995	MW-4	Arsenic	6	0.0583	370	103	<1
EMCON 1995a	5/9/1995	MW-12	Arsenic	5	0.0583	370	86	<1
EMCON 1995a	5/9/1995	MW-6	Arsenic	5	0.0583	370	86	<1
Chiyoda 1992b	3/29/1990	MW-3	Benzene	75	0.8		94	
Applied Consultants 1990a	2/1/1990	MW-3	Benzene	46	0.8		58	
EMCON 1995b	7/31/1995	MW-6	Benzene	20	0.8		25	
Applied Consultants 1991	4/19/1991	OB1	Benzene	14	0.8		18	
EMCON 1995a	5/9/1995	MW-6	Benzene	13	0.8		16	
EMCON 1997	1/2/1997	MW-8	Benzene	9.9	0.8		12	
Pacific Testing Labs 1995	12/2/1994	MW-6	Benzene	9	0.8		11	
EMCON 1998	9/30/1997	MW-9	Benzene	8.9	0.8		11	
Pacific Testing Labs 1995	12/15/1994	MW-6	Benzene	8.1	0.8		10	
Applied Consultants 1990b	8/28/1990	MW-6	Benzene	7	0.8		8.8	
EMCON 1998	4/14/1997	MW-11	Benzene	6.0	0.8		7.5	
Pacific Testing Labs 1995	12/15/1994	MW-11	Benzene	5.1	0.8		6.4	
Applied Consultants 1991	4/19/1991	RW-1	Benzene	4.8	0.8		6.0	

Table C-6
Chemicals Detected in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1998	6/23/1997	MW-11	Benzene	4.3	0.8		5.4	
Applied Consultants 1990b	8/28/1990	RW-1	Benzene	1.9	0.8		2.4	
EMCON 1997	1/2/1997	MW-9	Benzene	1.8	0.8		2.3	
EMCON 1998	4/8/1997	MW-9	Benzene	1.8	0.8		2.3	
EMCON 1998	6/23/1997	MW-9	Benzene	1.0	0.8		1.3	
Applied Consultants 1990b	8/28/1990	MW-4	Benzene	0.7	0.8		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Beryllium	9.5	32		<1	
Pacific Testing Labs 1995	12/2/1994	MW-8	Beryllium	5.7	32		<1	
Pacific Testing Labs 1995	12/2/1994	MW-6	Beryllium	4.5	32		<1	
Pacific Testing Labs 1995	12/2/1994	MW-9	Beryllium	2.3	32		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Cadmium	9.4	5	3.4	1.9	2.8
Pacific Testing Labs 1995	12/2/1994	MW-8	Cadmium	5.6	5	3.4	1.1	1.6
Pacific Testing Labs 1995	12/2/1994	MW-6	Cadmium	5.0	5	3.4	1.0	1.5
Pacific Testing Labs 1995	12/2/1994	MW-9	Cadmium	2.9	5	3.4	<1	<1
Pacific Testing Labs 1995	12/2/1994	MW-7	Chromium	345	50	320	6.9	1.1
Pacific Testing Labs 1995	12/2/1994	MW-8	Chromium	257	50	320	5.1	<1
Pacific Testing Labs 1995	12/2/1994	MW-6	Chromium	118	50	320	2.4	<1
Pacific Testing Labs 1995	12/2/1994	MW-9	Chromium	96	50	320	1.9	<1
EMCON 1995a	5/9/1995	MW-7	Chromium	94	50	320	1.9	<1
EMCON 1995a	5/9/1995	MW-10	Chromium	77	50	320	1.5	<1
EMCON 1995a	5/9/1995	MW-11	Chromium	70	50	320	1.4	<1
EMCON 1995a	5/9/1995	MW-8	Chromium	62	50	320	1.2	<1
EMCON 1995a	5/9/1995	MW-12	Chromium	27	50	320	<1	<1
EMCON 1995a	5/9/1995	MW-6	Chromium	24	50	320	<1	<1
Pacific Testing Labs 1993	6/30/1993	MW-9	Chromium	17	50	320	<1	<1
EMCON 1995a	5/9/1995	MW-9	Chromium	16	50	320	<1	<1
EMCON 1996	6/6/1996	GB-4-WS	Chromium	11	50	320	<1	<1
Applied Consultants 1991	4/19/1991	MW-9	cis-1,2-Dichloroethene	1.2	16		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Copper	936	640	120	1.5	7.8
Pacific Testing Labs 1995	12/2/1994	MW-7	Copper	936	640	120	1.5	7.8
Pacific Testing Labs 1995	12/2/1994	MW-8	Copper	574	640	120	<1	4.8
Pacific Testing Labs 1995	12/2/1994	MW-6	Copper	280	640	120	<1	2.3
Pacific Testing Labs 1995	12/2/1994	MW-9	Copper	276	640	120	<1	2.3
EMCON 1995a	5/9/1995	MW-7	Copper	168	640	120	<1	1.4
EMCON 1995a	5/9/1995	MW-10	Copper	142	640	120	<1	1.2
EMCON 1995a	5/9/1995	MW-8	Copper	86	640	120	<1	<1
EMCON 1995a	5/9/1995	MW-11	Copper	85	640	120	<1	<1
EMCON 1995a	5/9/1995	MW-12	Copper	47	640	120	<1	<1

Table C-6
Chemicals Detected in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1995a	5/9/1995	MW-6	Copper	40	640	120	<1	<1
EMCON 1995a	5/9/1995	MW-9	Copper	39	640	120	<1	<1
EMCON 1996	6/6/1996	GB-4-WS	Copper	12	640	120	<1	<1
EMCON 1995a	5/9/1995	MW-6	Diesel-range hydrocarbons	2,080	500		4.2	
EMCON 1995a	5/9/1995	MW-9	Diesel-range hydrocarbons	1,470	500		2.9	
EMCON 1996	6/6/1996	GB-5-WS	Diesel-range hydrocarbons	990	500		2.0	
EMCON 1997	1/2/1997	MW-9	Diesel-range hydrocarbons	920	500		1.8	
EMCON 1995b	7/31/1995	MW-6	Diesel-range hydrocarbons	890	500		1.8	
EMCON 1995a	5/9/1995	MW-10	Diesel-range hydrocarbons	850	500		1.7	
EMCON 1995b	7/31/1995	MW-9	Diesel-range hydrocarbons	730	500		1.5	
EMCON 1995a	5/9/1995	MW-11	Diesel-range hydrocarbons	700	500		1.4	
EMCON 1996	6/6/1996	GB-4-WS	Diesel-range hydrocarbons	690	500		1.4	
EMCON 1995a	5/9/1995	MW-8	Diesel-range hydrocarbons	650	500		1.3	
EMCON 1995b	7/31/1995	MW-11	Diesel-range hydrocarbons	430	500		<1	
EMCON 1995a	5/9/1995	MW-7	Diesel-range hydrocarbons	400	500		<1	
EMCON 1997	1/2/1997	MW-7	Diesel-range hydrocarbons	360	500		<1	
EMCON 1995b	7/31/1995	MW-7	Diesel-range hydrocarbons	340	500		<1	
EMCON 1997	1/2/1997	MW-8	Diesel-range hydrocarbons	340	500		<1	
EMCON 1997	1/2/1997	MW-10	Diesel-range hydrocarbons	340	500		<1	
EMCON 1995b	7/31/1995	MW-12	Diesel-range hydrocarbons	310	500		<1	
EMCON 1995b	8/16/1995	MW-4	Diesel-range hydrocarbons	280	500		<1	
EMCON 1997	1/2/1997	MW-9	Ethylbenzene	240	700		<1	
EMCON 1995a	5/9/1995	MW-6-Dup	Ethylbenzene	76	700		<1	
EMCON 1998	4/8/1997	MW-9	Ethylbenzene	75	700		<1	
EMCON 1995a	5/9/1995	MW-6	Ethylbenzene	63	700		<1	
Pacific Testing Labs 1995	12/15/1994	MW-6	Ethylbenzene	57	700		<1	
Applied Consultants 1991	4/19/1991	OB1	Ethylbenzene	45	700		<1	
Applied Consultants 1990b	8/28/1990	MW-6	Ethylbenzene	29	700		<1	
EMCON 1998	6/23/1997	MW-9	Ethylbenzene	25	700		<1	
EMCON 1995b	7/31/1995	MW-6	Ethylbenzene	22	700		<1	
Applied Consultants 1991	4/19/1991	RW-1	Ethylbenzene	14	700		<1	
Applied Consultants 1990a	2/1/1990	MW-3	Ethylbenzene	11	700		<1	
Chiyoda 1992b	3/29/1990	MW-3	Ethylbenzene	11	700		<1	
EMCON 1997	1/2/1997	MW-8	Ethylbenzene	4	700		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Ethylbenzene	3	700		<1	
Applied Consultants 1991	4/19/1991	MW-9	Ethylbenzene	1.9	700		<1	
Pacific Testing Labs 1995	12/15/1994	MW-11	Ethylbenzene	1.6	700		<1	
EMCON 1998	4/14/1997	MW-11	Ethylbenzene	1.0	700		<1	

Table C-6
Chemicals Detected in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level^a (ug/L)	GW-to-Sediment Screening Level^b (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1998	9/30/1997	MW-11	Ethylbenzene	1.0	700		<1	
Applied Consultants 1990b	8/28/1990	MW-6	Gasoline-range hydrocarbons	26,000	800		33	
EMCON 1997	1/2/1997	MW-9	Gasoline-range hydrocarbons	3,930	800		4.9	
Applied Consultants 1990b	8/28/1990	RW-1	Gasoline-range hydrocarbons	3,000	800		3.8	
EMCON 1995b	7/31/1995	MW-6	Gasoline-range hydrocarbons	640	800		<1	
EMCON 1997	1/2/1997	MW-8	Gasoline-range hydrocarbons	330	800		<1	
EMCON 1996	6/6/1996	GB-5-WS	Gasoline-range hydrocarbons	70	800		<1	
EMCON 1995a	5/9/1995	MW-6	Heavy-oil range hydrocarbons	1,300	500		2.6	
EMCON 1995a	5/9/1995	MW-9	Heavy-oil range hydrocarbons	980	500		2.0	
EMCON 1995a	5/9/1995	MW-10	Heavy-oil range hydrocarbons	940	500		1.9	
EMCON 1995a	5/9/1995	MW-8	Heavy-oil range hydrocarbons	840	500		1.7	
Pacific Testing Labs 1995	12/2/1994	MW-7	Lead	289	15	13	19	22
Pacific Testing Labs 1995	12/2/1994	MW-8	Lead	128	15	13	8.5	9.8
Pacific Testing Labs 1995	12/2/1994	MW-6	Lead	126	15	13	8.4	9.7
Pacific Testing Labs 1995	12/2/1994	MW-9	Lead	87	15	13	5.8	6.7
EMCON 1995a	5/9/1995	MW-7	Lead	76	15	13	5.1	5.8
EMCON 1995a	5/9/1995	MW-10	Lead	40	15	13	2.7	3.1
EMCON 1995a	5/9/1995	MW-11	Lead	32	15	13	2.1	2.5
EMCON 1995a	5/9/1995	MW-6	Lead	20	15	13	1.3	1.5
EMCON 1995a	5/9/1995	MW-8	Lead	14	15	13	<1	1.1
EMCON 1995a	5/9/1995	MW-9	Lead	9	15	13	<1	<1
EMCON 1995a	5/9/1995	MW-12	Lead	8	15	13	<1	<1
Pacific Testing Labs 1993	6/30/1993	MW-9	Lead	4.5				
Pacific Testing Labs 1995	12/2/1994	MW-8	Nickel	242				
Pacific Testing Labs 1995	12/2/1994	MW-7	Nickel	165				
Pacific Testing Labs 1995	12/2/1994	MW-6	Nickel	113				
Pacific Testing Labs 1995	12/2/1994	MW-9	Nickel	100				
Pacific Testing Labs 1995	12/2/1994	MW-8	Silver	51	80	1.5	<1	34
Pacific Testing Labs 1995	12/2/1994	MW-6	Silver	9.5	80	1.5	<1	6.3
Pacific Testing Labs 1995	12/2/1994	MW-9	Silver	4.7	80	1.5	<1	3.1
Applied Consultants 1990b	8/28/1990	MW-6	Tetrachloroethene	10	5		2.0	
Applied Consultants 1991	4/19/1991	MW-9	Tetrachloroethene	1.6	5		<1	
Applied Consultants 1991	4/19/1991	MW-6	Toluene	430,000	640		672	
EMCON 1998	4/8/1997	MW-9	Toluene	27,000	640		42	
Pacific Testing Labs 1995	12/2/1994	MW-6	Toluene	15,036	640		23	
Applied Consultants 1990b	8/28/1990	MW-6	Toulene	15,000	640		23	
EMCON 1997	1/2/1997	MW-9	Toluene	14,000	640		22	
Pacific Testing Labs 1995	12/15/1994	MW-6	Toluene	10,000	640		16	

Table C-6
Chemicals Detected in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1995a	5/9/1995	MW-6	Toluene	4,400	640		6.9	
EMCON 1995a	5/9/1995	MW-6-Dup	Toluene	4,300	640		6.7	
EMCON 1998	6/23/1997	MW-9	Toluene	3,950	640		6.2	
EMCON 1995b	7/31/1995	MW-6	Toluene	630	640		<1	
Applied Consultants 1991	4/19/1991	MW-9	Toluene	560	640		<1	
Pacific Testing Labs 1995	12/15/1994	MW-11	Toluene	560	640		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Toluene	215	640		<1	
Applied Consultants 1991	4/19/1991	OB1	Toluene	170	640		<1	
EMCON 1998	4/14/1997	MW-9	Toluene	121	640		<1	
EMCON 1998	9/30/1997	MW-6	Toluene	53	640		<1	
EMCON 1997	1/2/1997	MW-8	Toluene	36	640		<1	
Pacific Testing Labs 1995	12/2/1994	MW-9	Toluene	31	640		<1	
Pacific Testing Labs 1995	12/15/1994	MW-8	Toluene	10	640		<1	
Pacific Testing Labs 1995	12/2/1994	MW-8	Toluene	8	640		<1	
EMCON 1998	9/30/1997	MW-9	Toluene	3	640		<1	
Pacific Testing Labs 1995	12/15/1994	MW-10	Toluene	1.4	640		<1	
Applied Consultants 1991	4/19/1991	MW-8	Toluene	0.9	640		<1	
Pacific Testing Labs 1995	12/15/1994	MW-9	Toluene	0.61	640		<1	
Pacific Testing Labs 1995	12/2/1994	MW-6	Total recoverable petroleum hydrocarbons	6,900	500		14	
Pacific Testing Labs 1995	12/2/1994	MW-7	Total recoverable petroleum hydrocarbons	4,630	500		9.3	
Pacific Testing Labs 1995	12/2/1994	MW-8	Total recoverable petroleum hydrocarbons	3,180	500		6.4	
Pacific Testing Labs 1995	12/2/1994	MW-9	Total recoverable petroleum hydrocarbons	3,180	500		6.4	
Applied Consultants 1990a	2/1/1990	MW-3	Trichloroethene	6.2	5		1.2	
Applied Consultants 1991	4/19/1991	MW-9	Trichloroethene	0.3	5		<1	
EMCON 1997	1/2/1997	MW-9	Xylenes, total	1,100	1,000		1.1	
EMCON 1995a	5/9/1995	MW-6-Dup	Xylenes, total	570	1,000		<1	
EMCON 1995a	5/9/1995	MW-6	Xylenes, total	510	1,000		<1	
Chiyoda 1992b	3/29/1990	MW-3	Xylenes, total	490	1,000		<1	
Pacific Testing Labs 1995	12/15/1994	MW-6	Xylenes, total	430	1,000		<1	
Applied Consultants 1990a	2/2/1990	MW-3	Xylenes, total	390	1,000		<1	
EMCON 1998	4/8/1997	MW-9	Xylenes, total	344	1,000		<1	
Applied Consultants 1991	4/19/1991	OB1	Xylenes, total	330	1,000		<1	
Applied Consultants 1991	4/19/1991	RW-1	Xylenes, total	180	1,000		<1	
Applied Consultants 1990b	8/28/1990	RW-1	Xylenes, total	180	1,000		<1	
EMCON 1995b	7/31/1995	MW-6	Xylenes, total	160	1,000		<1	
Applied Consultants 1990b	8/28/1990	MW-6	Xylenes, total	130	1,000		<1	
EMCON 1998	6/23/1997	MW-9	Xylenes, total	122	1,000		<1	
EMCON 1997	1/2/1997	MW-8	Xylenes, total	30	1,000		<1	

Table C-6
Chemicals Detected in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Applied Consultants 1991	4/19/1991	MW-9	Xylenes, total	14	1,000		<1	
Pacific Testing Labs 1995	12/15/1994	MW-11	Xylenes, total	13	1,000		<1	
EMCON 1998	4/14/1997	MW-11	Xylenes, total	9.0	1,000		<1	
EMCON 1996	6/6/1996	GB-5-WS	Xylenes, total	9	1,000		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Xylenes, total	9	1,000		<1	
EMCON 1998	9/30/1997	MW-9	Xylenes, total	6.0	1,000		<1	
EMCON 1998	9/30/1997	MW-11	Xylenes, total	5.0	1,000		<1	
EMCON 1998	6/23/1997	MW-11	Xylenes, total	3.0	1,000		<1	
Applied Consultants 1991	4/19/1991	MW-8	Xylenes, total	1.5	1,000		<1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Zinc	10,000	4,800	76	2.1	132
EMCON 1995a	5/9/1995	MW-7	Zinc	1,240	4,800	76	<1	16
Pacific Testing Labs 1995	12/2/1994	MW-8	Zinc	602	4,800	76	<1	7.9
Pacific Testing Labs 1995	12/2/1994	MW-6	Zinc	450	4,800	76	<1	5.9
Pacific Testing Labs 1995	12/2/1994	MW-9	Zinc	350	4,800	76	<1	4.6
EMCON 1995a	5/9/1995	MW-10	Zinc	138	4,800	76	<1	1.8
EMCON 1995a	5/9/1995	MW-6	Zinc	116	4,800	76	<1	1.5
EMCON 1995a	5/9/1995	MW-11	Zinc	108	4,800	76	<1	1.4
EMCON 1995a	5/9/1995	MW-8	Zinc	99	4,800	76	<1	1.3
EMCON 1995a	5/9/1995	MW-12	Zinc	55	4,800	76	<1	<1
EMCON 1995a	5/9/1995	MW-9	Zinc	53	4,800	76	<1	<1
EMCON 1995a	5/9/1995	MW-6	Zinc	23	4,800	76	<1	<1
EMCON 1996	6/6/1996	GB-4-WS	Zinc	23	4,800	76	<1	<1
EMCON 1995a	5/9/1995	MW-8	Zinc	18	4,800	76	<1	<1

GW - Groundwater
ug/L - Micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Former Precision Engineering Property									
MFA 2008	6/17/2005	GP10	1.5	1,1-Dichloroethene	0.0237	4,000		<1	
MFA 2008	12/13/2005	GP18	1	1-Methylnaphthalene	0.0167	34.5		<1	
MFA 2008	12/13/2005	GP13	1	2-Butanone	0.215	48,000		<1	
MFA 2008	12/13/2005	GP15	3	2-Butanone	0.123	48,000		<1	
MFA 2008	12/14/2005	GP21	6.5	2-Butanone	0.0667	48,000		<1	
MFA 2008	12/13/2005	GP19	1	2-Butanone	0.0601	48,000		<1	
MFA 2008	12/12/2005	GP31	6	2-Butanone	0.0568	48,000		<1	
MFA 2008	12/12/2005	GP30	6	2-Butanone	0.0526	48,000		<1	
MFA 2008	12/13/2005	GP13	6	2-Butanone	0.0476	48,000		<1	
MFA 2008	12/13/2005	GP19	1 (Dup)	2-Butanone	0.0375	48,000		<1	
MFA 2008	12/13/2005	GP17	1	2-Butanone	0.0295	48,000		<1	
MFA 2008	12/13/2005	GP17	6	2-Butanone	0.0223	48,000		<1	
MFA 2008	12/12/2005	GP30	1	2-Butanone	0.0169	48,000		<1	
MFA 2008	12/13/2005	GP22	10	2-Butanone	0.0128	48,000		<1	
MFA 2008	12/13/2005	GP18	1	2-Methylnaphthalene	0.0202	320	0.073	<1	<1
MFA 2008	12/12/2005	GP29	6	Anthracene	0.0137	24,000	1.2	<1	<1
MFA 2008	12/13/2005	GP13	1	Arsenic	9.45	0.7	590	14	<1
MFA 2008	12/13/2005	GP15	3	Arsenic	7.76	0.7	590	12	<1
MFA 2008	12/12/2005	GP29	1	Arsenic	5.91	0.7	590	8.9	<1
MFA 2008	12/12/2005	GP31	1	Arsenic	5.72	0.7	590	8.6	<1
MFA 2008	12/14/2005	GP20	1	Arsenic	5.47	0.7	590	8.2	<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Arsenic	3.64	0.7	590	5.5	<1
MFA 2008	12/13/2005	GP18	1	Arsenic	3.55	0.7	590	5.3	<1
MFA 2008	12/14/2005	GP24	3	Arsenic	3.06	0.7	590	4.6	<1
MFA 2008	12/13/2005	GP14	3	Arsenic	3	0.7	590	4.5	<1
MFA 2008	12/13/2005	GP12	3	Arsenic	2.79	0.7	590	4.2	<1
MFA 2008	12/12/2005	GP28	1	Arsenic	1.89	0.7	590	2.8	<1
MFA 2008	12/12/2005	GP29	6	Benzo(a)anthracene	0.0750	1.37	0.27	<1	<1
MFA 2008	12/13/2005	GP18	1	Benzo(a)anthracene	0.0235	1.37	0.27	<1	<1
MFA 2008	12/12/2005	GP31	6	Benzo(a)anthracene	0.0211	1.37	0.27	<1	<1
MFA 2008	12/12/2005	GP30	6	Benzo(a)anthracene	0.0154	1.37	0.27	<1	<1
MFA 2008	12/12/2005	GP29	1	Benzo(a)pyrene	0.0571	0.14	0.21	<1	<1
MFA 2008	12/12/2005	GP31	6	Benzo(a)pyrene	0.0176	0.14	0.21	<1	<1
MFA 2008	12/13/2005	GP18	1	Benzo(b)fluoranthene	0.0746	1.37	0.45	<1	<1

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/12/2005	GP29	1	Benzo(b)fluoranthene	0.0611	1.37	0.45	<1	<1
MFA 2008	12/12/2005	GP31	6	Benzo(b)fluoranthene	0.0261	1.37	0.45	<1	<1
MFA 2008	12/12/2005	GP29	1	Benzo(g,h,i)perylene	0.0249		0.078		<1
MFA 2008	12/12/2005	GP29	1	Benzo(k)fluoranthene	0.0703	13.7	0.45	<1	<1
MFA 2008	12/13/2005	GP18	1	Benzo(k)fluoranthene	0.0560	13.7	0.45	<1	<1
MFA 2008	12/12/2005	GP31	6	Benzo(k)fluoranthene	0.0178	13.7	0.45	<1	<1
MFA 2008	12/13/2005	GP13	1	Cadmium	1.29	2	1.7	<1	<1
MFA 2008	12/13/2005	GP15	3	Cadmium	0.714	2	1.7	<1	<1
Precision Engineering 1993	3/11/1993	WP-8		Chromium	7,470		270		28
MFA 2008	12/14/2005	GP32	1	Chromium	6,750		270		25
Precision Engineering 1993	3/12/1993	WP-13		Chromium	6,650		270		25
Precision Engineering 1993	3/12/1993	WP-9		Chromium	6,080		270		23
Precision Engineering 1993	3/12/1993	WP-10		Chromium	5,810		270		22
Precision Engineering 1993	3/12/1993	WP-11		Chromium	5,760		270		21
Precision Engineering 1993	3/11/1993	WP-7		Chromium	5,300		270		20
MFA 2008	12/13/2005	GP18	1	Chromium	4,430		270		16
Precision Engineering 1993	3/12/1993	WP-12		Chromium	4,180		270		15
MFA 2008	6/7/2005	GP2	1	Chromium	2,680		270		9.9
MFA 2008	12/13/2005	GP17	6	Chromium	1,660		270		6.1
MFA 2008	6/16/2005	GP4	1.5	Chromium	1,230		270		4.6
MFA 2008	6/9/2005	GP3	6	Chromium	1,100		270		4.1
MFA 2008	12/14/2005	GP23	10.5	Chromium	979		270		3.6
MFA 2008	6/9/2005	GP3	14	Chromium	941		270		3.5
MFA 2008	6/9/2005	GP3	2	Chromium	915		270		3.4
MFA 2008	6/16/2005	GP6	1	Chromium	584		270		2.2
MFA 2008	6/16/2005	GP6	14.5	Chromium	259		270		<1
MFA 2008	12/13/2005	GP17	1	Chromium	254		270		<1
MFA 2008	6/7/2005	GP1	1.5	Chromium	205		270		<1
MFA 2008	6/7/2005	GP1	6	Chromium	147		270		<1
MFA 2008	6/9/2005	GP1	10	Chromium	73.5		270		<1
Precision Engineering 1993	4/30/1990	PE-430S		Chromium	73		270		<1
MFA 2008	12/13/2005	GP22	1	Chromium	46.8		270		<1
MFA 2008	12/13/2005	GP13	6	Chromium	46.6		270		<1
MFA 2008	6/17/2005	GP9	2	Chromium	43.3		270		<1
Precision Engineering 1993	5/3/1990	BW-2	12	Chromium	41		270		<1

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Precision Engineering 1993	4/30/1990	PE-430N		Chromium	34		270		<1
MFA 2008	12/12/2005	GP30	6	Chromium	32.7		270		<1
MFA 2008	12/13/2005	GP22	10	Chromium	32.1		270		<1
MFA 2008	12/12/2005	GP29	6	Chromium	31.9		270		<1
MFA 2008	12/13/2005	GP14	6	Chromium	31.4		270		<1
MFA 2008	12/14/2005	GP24	3	Chromium	30.2		270		<1
MFA 2008	12/13/2005	GP16	1	Chromium	30		270		<1
MFA 2008	12/12/2005	GP29	1	Chromium	29.6		270		<1
MFA 2008	12/14/2005	GP24	6.5	Chromium	29.3		270		<1
MFA 2008	12/12/2005	GP30	1	Chromium	27.2		270		<1
MFA 2008	12/13/2005	GP19	7	Chromium	27.1		270		<1
MFA 2008	12/13/2005	GP13	1	Chromium	26.6		270		<1
MFA 2008	12/13/2005	GP16	5	Chromium	26.2		270		<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Chromium	26.2		270		<1
MFA 2008	12/14/2005	GP21	1	Chromium	25.6		270		<1
MFA 2008	12/13/2005	GP12	5	Chromium	25.2		270		<1
MFA 2008	6/9/2005	GP2	10	Chromium	24.9		270		<1
MFA 2008	12/13/2005	GP14	3	Chromium	24.8		270		<1
MFA 2008	12/13/2005	GP19	1 (Dup)	Chromium	24.8		270		<1
MFA 2008	12/13/2005	GP15	3	Chromium	24.7		270		<1
MFA 2008	12/14/2005	GP20	6	Chromium	24.5		270		<1
MFA 2008	12/13/2005	GP12	3	Chromium	24.3		270		<1
MFA 2008	6/17/2005	GP10	13.5	Chromium	24.1		270		<1
MFA 2008	12/12/2005	GP26	9.5	Chromium	24		270		<1
MFA 2008	12/12/2005	GP26	1	Chromium	23.7		270		<1
MFA 2008	6/16/2005	GP7	2	Chromium	23.6		270		<1
MFA 2008	12/12/2005	GP31	6	Chromium	23.6		270		<1
MFA 2008	12/14/2005	GP23	7	Chromium	23.3		270		<1
MFA 2008	12/14/2005	GP21	6.5	Chromium	23		270		<1
MFA 2008	12/12/2005	GP28	7	Chromium	22.4		270		<1
MFA 2008	6/16/2005	GP8	1.5	Chromium	22.2		270		<1
MFA 2008	12/13/2005	GP19	1	Chromium	22		270		<1
MFA 2008	12/12/2005	GP27	1	Chromium	22		270		<1
MFA 2008	6/17/2005	GP10	1.5	Chromium	21.8		270		<1
MFA 2008	6/17/2005	GP11	2	Chromium	21.7		270		<1

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	6/16/2005	GP7	8	Chromium	21		270		<1
MFA 2008	12/12/2005	GP28	1	Chromium	20.5		270		<1
MFA 2008	12/13/2005	GP15	6	Chromium	20.2		270		<1
MFA 2008	6/16/2005	GP5	14	Chromium	20.1		270		<1
MFA 2008	12/12/2005	GP25	7	Chromium	19.8		270		<1
MFA 2008	12/12/2005	GP25	1	Chromium	19.3		270		<1
MFA 2008	12/12/2005	GP31	1	Chromium	19.2		270		<1
MFA 2008	6/16/2005	GP5	1.5	Chromium	18.9		270		<1
MFA 2008	12/12/2005	GP27	13	Chromium	18.6		270		<1
MFA 2008	12/14/2005	GP20	1	Chromium	17.6		270		<1
MFA 2008	6/17/2005	GP11	6.5	Chromium	17.3		270		<1
Precision Engineering 1993	4/30/1990	PE-430W		Chromium	7.3		270		<1
MFA 2008	12/14/2005	GP32	1	Chromium (hexavalent)	3,500 J	19	270	184	13
MFA 2008	12/13/2005	GP18	1	Chromium (hexavalent)	2,300 J	19	270	121	8.5
MFA 2008	6/16/2005	GP6	1	Chromium (hexavalent)	627	19	270	33	2.3
MFA 2008	6/7/2005	GP2	1	Chromium (hexavalent)	523	19	270	28	1.9
MFA 2008	6/7/2005	GP1	1.5	Chromium (hexavalent)	152	19	270	8.0	<1
MFA 2008	12/13/2005	GP17	6	Chromium (hexavalent)	60 J	19	270	3.2	<1
MFA 2008	6/16/2005	GP4	1.5	Chromium (hexavalent)	53.4	19	270	2.8	<1
MFA 2008	6/9/2005	GP3	6	Chromium (hexavalent)	49.8	19	270	2.6	<1
MFA 2008	6/9/2005	GP3	14	Chromium (hexavalent)	34.4	19	270	1.8	<1
MFA 2008	6/7/2005	GP1	6	Chromium (hexavalent)	31.8	19	270	1.7	<1
MFA 2008	6/9/2005	GP3	2	Chromium (hexavalent)	27.7	19	270	1.5	<1
MFA 2008	6/9/2005	GP1	10	Chromium (hexavalent)	14.4	19	270	<1	<1
MFA 2008	6/17/2005	GP9	2	Chromium (hexavalent)	2.97	19	270	<1	<1
MFA 2008	12/13/2005	GP22	1	Chromium (hexavalent)	2.9 J	19	270	<1	<1
MFA 2008	12/13/2005	GP14	6	Chromium (hexavalent)	1.2 J	19	270	<1	<1
MFA 2008	6/16/2005	GP8	1.5	Chromium (hexavalent)	0.661	19	270	<1	<1
MFA 2008	6/17/2005	GP11	2	Chromium (hexavalent)	0.573	19	270	<1	<1
MFA 2008	6/17/2005	GP11	6.5	Chromium (hexavalent)	0.37	19	270	<1	<1
MFA 2008	6/16/2005	GP6	14.5	Chromium (hexavalent)	0.181	19	270	<1	<1
MFA 2008	6/17/2005	GP10	1.5	Chromium (hexavalent)	0.142	19	270	<1	<1
MFA 2008	6/16/2005	GP7	2	Chromium (hexavalent)	0.119	19	270	<1	<1
MFA 2008	12/14/2005	GP32	1	Chromium (trivalent)	3,250	2,000	270	1.6	12
MFA 2008	6/7/2005	GP2	1	Chromium (trivalent)	2,157	2,000	270	1.1	8.0

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/13/2005	GP18	1	Chromium (trivalent)	2,130	2,000	270	1.1	7.9
MFA 2008	12/13/2005	GP17	6	Chromium (trivalent)	1,600	2,000	270	<1	5.9
MFA 2008	6/16/2005	GP4	1.5	Chromium (trivalent)	1,176.6	2,000	270	<1	4.4
MFA 2008	6/9/2005	GP3	6	Chromium (trivalent)	1,050.2	2,000	270	<1	3.9
MFA 2008	12/14/2005	GP23	10.5	Chromium (trivalent)	979	2,000	270	<1	3.6
MFA 2008	6/9/2005	GP3	14	Chromium (trivalent)	906.6	2,000	270	<1	3.4
MFA 2008	6/9/2005	GP3	2	Chromium (trivalent)	887.3	2,000	270	<1	3.3
MFA 2008	6/16/2005	GP6	14.5	Chromium (trivalent)	258.819	2,000	270	<1	<1
MFA 2008	12/13/2005	GP17	1	Chromium (trivalent)	254	2,000	270	<1	<1
MFA 2008	6/7/2005	GP1	6	Chromium (trivalent)	115.2	2,000	270	<1	<1
MFA 2008	6/9/2005	GP1	10	Chromium (trivalent)	59.1	2,000	270	<1	<1
MFA 2008	6/7/2005	GP1	1.5	Chromium (trivalent)	53	2,000	270	<1	<1
MFA 2008	12/13/2005	GP13	6	Chromium (trivalent)	46.6	2,000	270	<1	<1
MFA 2008	12/13/2005	GP22	1	Chromium (trivalent)	43.9	2,000	270	<1	<1
MFA 2008	6/17/2005	GP9	2	Chromium (trivalent)	40.33	2,000	270	<1	<1
MFA 2008	12/12/2005	GP30	6	Chromium (trivalent)	32.7	2,000	270	<1	<1
MFA 2008	12/13/2005	GP22	10	Chromium (trivalent)	32.1	2,000	270	<1	<1
MFA 2008	12/12/2005	GP29	6	Chromium (trivalent)	31.9	2,000	270	<1	<1
MFA 2008	12/14/2005	GP24	3	Chromium (trivalent)	30.2	2,000	270	<1	<1
MFA 2008	12/13/2005	GP14	6	Chromium (trivalent)	30.2	2,000	270	<1	<1
MFA 2008	12/13/2005	GP16	1	Chromium (trivalent)	30	2,000	270	<1	<1
MFA 2008	12/12/2005	GP29	1	Chromium (trivalent)	29.6	2,000	270	<1	<1
MFA 2008	12/14/2005	GP24	6.5	Chromium (trivalent)	29.3	2,000	270	<1	<1
MFA 2008	12/12/2005	GP30	1	Chromium (trivalent)	27.2	2,000	270	<1	<1
MFA 2008	12/13/2005	GP19	7	Chromium (trivalent)	27.1	2,000	270	<1	<1
MFA 2008	12/13/2005	GP13	1	Chromium (trivalent)	26.6	2,000	270	<1	<1
MFA 2008	12/13/2005	GP16	5	Chromium (trivalent)	26.2	2,000	270	<1	<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Chromium (trivalent)	26.2	2,000	270	<1	<1
MFA 2008	12/14/2005	GP21	1	Chromium (trivalent)	25.6	2,000	270	<1	<1
MFA 2008	12/13/2005	GP12	5	Chromium (trivalent)	25.2	2,000	270	<1	<1
MFA 2008	6/9/2005	GP2	10	Chromium (trivalent)	24.9	2,000	270	<1	<1
MFA 2008	12/13/2005	GP14	3	Chromium (trivalent)	24.8	2,000	270	<1	<1
MFA 2008	12/13/2005	GP19	1 (Dup)	Chromium (trivalent)	24.8	2,000	270	<1	<1
MFA 2008	12/13/2005	GP15	3	Chromium (trivalent)	24.7	2,000	270	<1	<1
MFA 2008	12/14/2005	GP20	6	Chromium (trivalent)	24.5	2,000	270	<1	<1

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MFA 2008	12/13/2005	GP12	3	Chromium (trivalent)	24.3	2,000	270	<1	<1
MFA 2008	6/17/2005	GP10	13.5	Chromium (trivalent)	24.1	2,000	270	<1	<1
MFA 2008	12/12/2005	GP26	9.5	Chromium (trivalent)	24	2,000	270	<1	<1
MFA 2008	12/12/2005	GP26	1	Chromium (trivalent)	23.7	2,000	270	<1	<1
MFA 2008	12/12/2005	GP31	6	Chromium (trivalent)	23.6	2,000	270	<1	<1
MFA 2008	6/16/2005	GP7	2	Chromium (trivalent)	23.48	2,000	270	<1	<1
MFA 2008	12/14/2005	GP23	7	Chromium (trivalent)	23.3	2,000	270	<1	<1
MFA 2008	12/14/2005	GP21	6.5	Chromium (trivalent)	23	2,000	270	<1	<1
MFA 2008	12/12/2005	GP28	7	Chromium (trivalent)	22.4	2,000	270	<1	<1
MFA 2008	12/13/2005	GP19	1	Chromium (trivalent)	22	2,000	270	<1	<1
MFA 2008	12/12/2005	GP27	1	Chromium (trivalent)	22	2,000	270	<1	<1
MFA 2008	6/17/2005	GP10	1.5	Chromium (trivalent)	21.658	2,000	270	<1	<1
MFA 2008	6/16/2005	GP8	1.5	Chromium (trivalent)	21.54	2,000	270	<1	<1
MFA 2008	6/17/2005	GP11	2	Chromium (trivalent)	21.127	2,000	270	<1	<1
MFA 2008	6/16/2005	GP7	8	Chromium (trivalent)	21	2,000	270	<1	<1
MFA 2008	12/12/2005	GP28	1	Chromium (trivalent)	20.5	2,000	270	<1	<1
MFA 2008	12/13/2005	GP15	6	Chromium (trivalent)	20.2	2,000	270	<1	<1
MFA 2008	6/16/2005	GP5	14	Chromium (trivalent)	20.1	2,000	270	<1	<1
MFA 2008	12/12/2005	GP25	7	Chromium (trivalent)	19.8	2,000	270	<1	<1
MFA 2008	12/12/2005	GP25	1	Chromium (trivalent)	19.3	2,000	270	<1	<1
MFA 2008	12/12/2005	GP31	1	Chromium (trivalent)	19.2	2,000	270	<1	<1
MFA 2008	6/16/2005	GP5	1.5	Chromium (trivalent)	18.9	2,000	270	<1	<1
MFA 2008	12/12/2005	GP27	13	Chromium (trivalent)	18.6	2,000	270	<1	<1
MFA 2008	12/14/2005	GP20	1	Chromium (trivalent)	17.6	2,000	270	<1	<1
MFA 2008	6/17/2005	GP11	6.5	Chromium (trivalent)	16.93	2,000	270	<1	<1
MFA 2008	12/12/2005	GP29	1	Chrysene	0.122	137	0.46	<1	<1
MFA 2008	12/13/2005	GP18	1	Chrysene	0.0717	137	0.46	<1	<1
MFA 2008	12/12/2005	GP31	6	Chrysene	0.0449	137	0.46	<1	<1
MFA 2008	12/12/2005	GP31	1	Chrysene	0.0340	137	0.46	<1	<1
MFA 2008	12/12/2005	GP30	6	Chrysene	0.0334	137	0.46	<1	<1
MFA 2008	12/13/2005	GP19	1	Chrysene	0.0127	137	0.46	<1	<1
MFA 2008	6/16/2005	GP6	14.5	cis-1,2-Dichloroethene	0.149	160		<1	
MFA 2008	6/17/2005	GP11	6.5	cis-1,2-Dichloroethene	0.0788	160		<1	
MFA 2008	12/12/2005	GP29	6	cis-1,2-Dichloroethene	0.00996	160		<1	
MFA 2008	12/12/2005	GP29	1	cis-1,2-Dichloroethene	0.00494	160		<1	

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MFA 2008	12/13/2005	GP18	1	Copper	113	3,200	39	<1	2.9
MFA 2008	12/12/2005	GP31	1	Copper	40.2	3,200	39	<1	1.0
MFA 2008	12/13/2005	GP15	3	Copper	30.4	3,200	39	<1	<1
MFA 2008	12/14/2005	GP20	1	Copper	29.4	3,200	39	<1	<1
MFA 2008	12/13/2005	GP13	1	Copper	29	3,200	39	<1	<1
MFA 2008	12/13/2005	GP12	3	Copper	17.6	3,200	39	<1	<1
MFA 2008	12/14/2005	GP24	3	Copper	16.5	3,200	39	<1	<1
MFA 2008	12/12/2005	GP29	1	Copper	15.6	3,200	39	<1	<1
MFA 2008	12/13/2005	GP14	3	Copper	14.4	3,200	39	<1	<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Copper	14.3	3,200	39	<1	<1
MFA 2008	12/12/2005	GP28	1	Copper	12.6	3,200	39	<1	<1
MFA 2008	12/12/2005	GP29	1	Dibenzo(a,h)anthracene	0.0162	0.137	0.033	<1	<1
MFA 2008	12/14/2005	GP21	6.5	Diesel-range hydrocarbons	5,270	2,000		2.6	
MFA 2008	12/14/2005	GP20	1	Diesel-range hydrocarbons	198	2,000		<1	
MFA 2008	12/13/2005	GP18	1	Diesel-range hydrocarbons	156	2,000		<1	
MFA 2008	12/12/2005	GP31	1	Diesel-range hydrocarbons	145	2,000		<1	
MFA 2008	12/12/2005	GP29	1	Diesel-range hydrocarbons	80.4	2,000		<1	
MFA 2008	12/14/2005	GP20	6	Diesel-range hydrocarbons	75.9	2,000		<1	
MFA 2008	12/12/2005	GP31	6	Diesel-range hydrocarbons	58.9	2,000		<1	
MFA 2008	12/13/2005	GP19	1	Diesel-range hydrocarbons	52.8	2,000		<1	
MFA 2008	12/12/2005	GP30	6	Diesel-range hydrocarbons	39.6	2,000		<1	
MFA 2008	12/12/2005	GP26	1	Diesel-range hydrocarbons	36.4	2,000		<1	
MFA 2008	12/13/2005	GP19	1 (Dup)	Diesel-range hydrocarbons	18.2	2,000		<1	
MFA 2008	12/13/2005	GP15	3	Diesel-range hydrocarbons	17.7	2,000		<1	
MFA 2008	12/12/2005	GP30	1	Diesel-range hydrocarbons	14.9	2,000		<1	
MFA 2008	12/13/2005	GP17	1	Diesel-range hydrocarbons	11.6	2,000		<1	
MFA 2008	12/13/2005	GP18	1	Fluoranthene	0.1950	3,200	1.2	<1	<1
MFA 2008	12/12/2005	GP29	6	Fluoranthene	0.149	3,200	1.2	<1	<1
MFA 2008	12/12/2005	GP31	6	Fluoranthene	0.0517	3,200	1.2	<1	<1
MFA 2008	12/12/2005	GP30	6	Fluoranthene	0.0467	3,200	1.2	<1	<1
MFA 2008	12/12/2005	GP31	1	Fluoranthene	0.0253	3,200	1.2	<1	<1
MFA 2008	12/13/2005	GP19	1	Fluoranthene	0.0245	3,200	1.2	<1	<1
MFA 2008	12/14/2005	GP21	6.5	Heavy-oil range hydrocarbons	19,900	2,000		10	
MFA 2008	12/12/2005	GP31	1	Heavy-oil range hydrocarbons	1,300	2,000		<1	
MFA 2008	12/13/2005	GP18	1	Heavy-oil range hydrocarbons	742	2,000		<1	

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MFA 2008	12/14/2005	GP20	1	Heavy-oil range hydrocarbons	301	2,000		<1	
MFA 2008	12/14/2005	GP20	6	Heavy-oil range hydrocarbons	294	2,000		<1	
MFA 2008	12/12/2005	GP29	1	Heavy-oil range hydrocarbons	249	2,000		<1	
MFA 2008	12/13/2005	GP19	1	Heavy-oil range hydrocarbons	172	2,000		<1	
MFA 2008	12/12/2005	GP30	6	Heavy-oil range hydrocarbons	165	2,000		<1	
MFA 2008	12/12/2005	GP31	6	Heavy-oil range hydrocarbons	157	2,000		<1	
MFA 2008	12/12/2005	GP26	1	Heavy-oil range hydrocarbons	121	2,000		<1	
MFA 2008	12/12/2005	GP30	1	Heavy-oil range hydrocarbons	90.5	2,000		<1	
MFA 2008	12/13/2005	GP17	1	Heavy-oil range hydrocarbons	63.1	2,000		<1	
MFA 2008	12/13/2005	GP15	3	Heavy-oil range hydrocarbons	59.1	2,000		<1	
MFA 2008	12/13/2005	GP19	7	Heavy-oil range hydrocarbons	56.7	2,000		<1	
MFA 2008	12/13/2005	GP13	6	Heavy-oil range hydrocarbons	56.1	2,000		<1	
MFA 2008	12/13/2005	GP19	1 (Dup)	Heavy-oil range hydrocarbons	43.8	2,000		<1	
MFA 2008	12/12/2005	GP29	6	Indeno(1,2,3-cd)pyrene	0.0260	1.37	0.088	<1	<1
MFA 2008	12/13/2005	GP18	1	Lead	26.3	250	67	<1	<1
MFA 2008	12/13/2005	GP13	1	Lead	21.1	250	67	<1	<1
MFA 2008	12/13/2005	GP15	3	Lead	18.7	250	67	<1	<1
MFA 2008	12/12/2005	GP29	1	Lead	18	250	67	<1	<1
MFA 2008	12/12/2005	GP31	1	Lead	14.2	250	67	<1	<1
MFA 2008	12/14/2005	GP20	1	Lead	10.1	250	67	<1	<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Lead	3.33	250	67	<1	<1
MFA 2008	12/14/2005	GP24	3	Lead	3.09	250	67	<1	<1
MFA 2008	12/13/2005	GP12	3	Lead	2.45	250	67	<1	<1
MFA 2008	12/13/2005	GP14	3	Lead	2.2	250	67	<1	<1
MFA 2008	12/12/2005	GP28	1	Lead	1.54	250	67	<1	<1
MFA 2008	12/13/2005	GP18	1	Mercury	1.1	2	0.030	<1	37
MFA 2008	12/12/2005	GP29	1	Mercury	0.876	2	0.030	<1	29
MFA 2008	6/17/2005	GP10	1.5	Methylene chloride	0.0179	0.02		<1	
MFA 2008	12/13/2005	GP18	1	Naphthalene	0.0179	5	0.2	<1	<1
MFA 2008	12/13/2005	GP14	3	Nickel	32.9				
MFA 2008	12/14/2005	GP24	3	Nickel	28.5				
MFA 2008	12/12/2005	GP29	1	Nickel	27				
MFA 2008	12/13/2005	GP12	3	Nickel	25.6				
MFA 2008	12/14/2005	GP24	3 (Dup)	Nickel	25.3				
MFA 2008	12/13/2005	GP18	1	Nickel	23.1				

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MFA 2008	12/12/2005	GP28	1	Nickel	22.5				
MFA 2008	12/13/2005	GP13	1	Nickel	21.8				
MFA 2008	12/13/2005	GP15	3	Nickel	16.4				
MFA 2008	12/12/2005	GP31	1	Nickel	14.4				
MFA 2008	12/14/2005	GP20	1	Nickel	13				
MFA 2008	12/13/2005	GP18	1	Phenanthrene	0.1090		0.49		<1
MFA 2008	12/12/2005	GP29	6	Phenanthrene	0.0382		0.49		<1
MFA 2008	12/12/2005	GP31	6	Phenanthrene	0.0287		0.49		<1
MFA 2008	12/12/2005	GP30	6	Phenanthrene	0.0258		0.49		<1
MFA 2008	12/13/2005	GP19	1	Phenanthrene	0.0161		0.49		<1
MFA 2008	12/12/2005	GP31	1	Phenanthrene	0.0153		0.49		<1
MFA 2008	12/12/2005	GP29	6	Pyrene	0.1560	2,400	1.4	<1	<1
MFA 2008	12/13/2005	GP18	1	Pyrene	0.0884	2,400	1.4	<1	<1
MFA 2008	12/12/2005	GP30	6	Pyrene	0.0531	2,400	1.4	<1	<1
MFA 2008	12/12/2005	GP31	6	Pyrene	0.05	2,400	1.4	<1	<1
MFA 2008	12/12/2005	GP31	1	Pyrene	0.0254	2,400	1.4	<1	<1
MFA 2008	12/13/2005	GP19	1	Pyrene	0.0203	2,400	1.4	<1	<1
MFA 2008	6/7/2005	GP1	6	Toluene	0.00162	7		<1	
MFA 2008	6/16/2005	GP6	14.5	Trichloroethene	1.16	0.03		39	
MFA 2008	6/17/2005	GP11	6.5	Trichloroethene	0.281	0.03		9.4	
MFA 2008	6/17/2005	GP11	2	Trichloroethene	0.0872	0.03		2.9	
MFA 2008	6/16/2005	GP6	1	Trichloroethene	0.0405	0.03		1.4	
MFA 2008	12/13/2005	GP14	3	Trichloroethene	0.00449	0.03		<1	
MFA 2008	12/13/2005	GP16	1	Trichloroethene	0.00363	0.03		<1	
MFA 2008	12/13/2005	GP18	1	Trichloroethene	0.00343	0.03		<1	
MFA 2008	12/13/2005	GP13	1	Zinc	84.9	24,000	38	<1	2.2
MFA 2008	12/13/2005	GP15	3	Zinc	71.6	24,000	38	<1	1.9
MFA 2008	12/14/2005	GP24	3 (Dup)	Zinc	50.4	24,000	38	<1	1.3
MFA 2008	12/14/2005	GP20	1	Zinc	49.3	24,000	38	<1	1.3
MFA 2008	12/12/2005	GP31	1	Zinc	46.1	24,000	38	<1	1.2
MFA 2008	12/14/2005	GP24	3	Zinc	44.3	24,000	38	<1	1.2
MFA 2008	12/13/2005	GP18	1	Zinc	40.9	24,000	38	<1	1.1
MFA 2008	12/13/2005	GP14	3	Zinc	38.4	24,000	38	<1	1.0
MFA 2008	12/12/2005	GP29	1	Zinc	36.9	24,000	38	<1	<1
MFA 2008	12/13/2005	GP12	3	Zinc	32.9	24,000	38	<1	<1

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MFA 2008	12/12/2005	GP28	1	Zinc	24.9	24,000	38	<1	<1
Drainage Ditch									
MFA 2008	12/15/2005	HA5	1.5	2-Butanone	0.0272	48,000		<1	
MFA 2008	12/15/2005	HA5	1.5	Acetone	0.0803	72,000		<1	
MFA 2008	12/15/2005	HA4	0.5	Antimony	6.68	32		<1	
MFA 2008	10/25/2007	P9	0.5	Arsenic	111	0.7	12,000	159	<1
MFA 2008	12/15/2005	HA3	0.5	Arsenic	53.9	0.7	12,000	77	<1
MFA 2008	1/10/2007	HA22	0.5	Arsenic	53.5	0.7	12,000	76	<1
MFA 2008	12/15/2005	HA4	0.5	Arsenic	44.3	0.7	12,000	63	<1
Ecology 1989d	3/22/1989	S-1	0.5	Arsenic	44	0.7	12,000	63	<1
MFA 2008	11/19/2007	SS-3	1.5	Arsenic	37	0.7	590	53	<1
MFA 2008	12/15/2005	HA5	0.5	Arsenic	35.9	0.7	12,000	51	<1
MFA 2008	10/24/2007	B13	1.5	Arsenic	26.3	0.7	590	38	<1
MFA 2008	11/19/2007	SS-6	1.5	Arsenic	23.7	0.7	590	34	<1
MFA 2008	10/24/2007	P1	0.5	Arsenic	22	0.7	12,000	31	<1
MFA 2008	3/27/2008	C-2	1.5	Arsenic	21.6	0.7	590	31	<1
MFA 2008	10/24/2007	P7	0.5	Arsenic	19.9	0.7	12,000	28	<1
MFA 2008	11/19/2007	SS-6	0.5	Arsenic	16.8	0.7	12,000	24	<1
MFA 2008	10/24/2007	B1	1.5	Arsenic	16.2	0.7	590	23	<1
MFA 2008	10/24/2007	B10	1.5	Arsenic	16.1	0.7	590	23	<1
MFA 2008	10/24/2007	P2	0.5	Arsenic	15.7	0.7	12,000	22	<1
MFA 2008	10/25/2007	P10	0.5	Arsenic	15.6	0.7	12,000	22	<1
MFA 2008	10/24/2007	B2	1.5	Arsenic	13.9	0.7	590	20	<1
MFA 2008	10/24/2007	P8	0.5	Arsenic	13.8	0.7	12,000	20	<1
MFA 2008	10/24/2007	P3	0.5	Arsenic	13.3	0.7	12,000	19	<1
MFA 2008	3/27/2008	C-3	1.5	Arsenic	13.2	0.7	590	19	<1
MFA 2008	1/9/2007	HA19	0.5	Arsenic	12.7	0.7	12,000	18	<1
MFA 2008	12/15/2005	HA5	1.5	Arsenic	12.5	0.7	590	18	<1
MFA 2008	1/10/2007	HA25	1.5	Arsenic	11.8	0.7	590	17	<1
MFA 2008	1/10/2007	HA25	0.5	Arsenic	11.6	0.7	12,000	17	<1
MFA 2008	10/24/2007	P4	0.5	Arsenic	11.6	0.7	12,000	17	<1
MFA 2008	10/24/2007	B12	1.5	Arsenic	11.3	0.7	590	16	<1
MFA 2008	10/24/2007	B3	1.5	Arsenic	10.7	0.7	590	15	<1
MFA 2008	1/10/2007	HA22	1.5	Arsenic	10.3	0.7	590	15	<1
MFA 2008	10/24/2007	B8	1.5	Arsenic	10	0.7	590	14	<1

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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	3/27/2008	C-1	2	Arsenic	9.91	0.7	590	14	<1
MFA 2008	10/24/2007	P5	0.5	Arsenic	9.54	0.7	12,000	14	<1
MFA 2008	10/24/2007	P6	0.5	Arsenic	9.05	0.7	12,000	13	<1
MFA 2008	4/19/2006	HA12	0.5	Arsenic	9	0.7	12,000	13	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Arsenic	8.35 J	0.7	590	12	<1
MFA 2008	10/24/2007	B11	1.5	Arsenic	8.26	0.7	590	12	<1
MFA 2008	10/24/2007	B9	1.5	Arsenic	8	0.7	590	11	<1
MFA 2008	10/24/2007	B7	1.5	Arsenic	7.21	0.7	590	10	<1
MFA 2008	12/15/2005	HA3	1.5	Arsenic	6.96	0.7	590	10	<1
MFA 2008	11/19/2007	SS-3	0.5	Arsenic	6.79	0.7	12,000	9.7	<1
MFA 2008	1/9/2007	HA17	0.5	Arsenic	6.61	0.7	12,000	9.4	<1
MFA 2008	1/10/2007	HA21	1.5	Arsenic	5.83	0.7	590	8.3	<1
MFA 2008	1/10/2007	HA21	0.5	Arsenic	5.72	0.7	12,000	8.2	<1
MFA 2008	1/9/2007	HA17	1.5	Arsenic	5.3	0.7	590	7.6	<1
MFA 2008	12/15/2005	HA4	1.5	Arsenic	5.25	0.7	590	7.5	<1
MFA 2008	1/10/2007	HA24	1.5	Arsenic	5.23	0.7	590	7.5	<1
MFA 2008	1/9/2007	HA18	0.5	Arsenic	5.03	0.7	12,000	7.2	<1
MFA 2008	1/10/2007	HA23	1.5	Arsenic	4.91	0.7	590	7.0	<1
MFA 2008	1/10/2007	HA24	0.5	Arsenic	4.9	0.7	12,000	7.0	<1
MFA 2008	11/19/2007	SS-2	0.5	Arsenic	4.82	0.7	12,000	6.9	<1
MFA 2008	1/10/2007	HA23	0.5	Arsenic	4.44	0.7	12,000	6.3	<1
MFA 2008	11/19/2007	SS-5	0.5	Arsenic	4.43	0.7	12,000	6.3	<1
MFA 2008	1/9/2007	HA19	1.5	Arsenic	4.02	0.7	590	5.7	<1
MFA 2008	12/15/2005	HA2	0.5	Arsenic	3.94	0.7	12,000	5.6	<1
MFA 2008	12/15/2005	HA1	0.5	Arsenic	3.81	0.7	12,000	5.4	<1
MFA 2008	10/24/2007	B4	1.5	Arsenic	3.79	0.7	590	5.4	<1
MFA 2008	11/19/2007	SS-4	0.5	Arsenic	3.58	0.7	12,000	5.1	<1
MFA 2008	10/24/2007	B5	1.5	Arsenic	3.07	0.7	590	4.4	<1
MFA 2008	12/15/2005	HA1	1.5	Arsenic	2.88 J	0.7	590	4.1	<1
MFA 2008	10/24/2007	B6	1.5	Arsenic	2.76	0.7	590	3.9	<1
MFA 2008	12/15/2005	HA2	1.5	Arsenic	2.71	0.7	590	3.9	<1
MFA 2008	11/19/2007	SS-1	0.5	Arsenic	2.64	0.7	12,000	3.8	<1
Ecology 1989d	3/22/1989	S-1	0.5	Barium	201				
MFA 2008	12/15/2005	HA5	0.5	Benzo(a)anthracene	0.862	1.37	5.4	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(a)anthracene	0.554	1.37	5.4	<1	<1

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MFA 2008	12/15/2005	HA3	0.5	Benzo(a)anthracene	0.0340	1.37	5.4	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Benzo(a)anthracene	0.0288	1.37	0.27	<1	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(a)pyrene	1.45	0.14	4.2	10	<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(a)pyrene	0.694	0.14	4.2	5.0	<1
MFA 2008	12/15/2005	HA3	0.5	Benzo(a)pyrene	0.0525	0.14	4.2	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Benzo(a)pyrene	0.0500	0.14	0.21	<1	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(b)fluoranthene	1.62	1.37	9.0	1.2	<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(b)fluoranthene	0.771	1.37	9.0	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Benzo(b)fluoranthene	0.0982	1.37	9.0	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Benzo(b)fluoranthene	0.0769	1.37	0.45	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Benzo(b)fluoranthene	0.0222	1.37	9.0	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Benzo(b)fluoranthene	0.0204	1.37	0.45	<1	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(g,h,i)perylene	1.19		1.6		<1
MFA 2008	12/15/2005	HA3	0.5	Benzo(g,h,i)perylene	0.532		1.6		<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(g,h,i)perylene	0.352		1.6		<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Benzo(g,h,i)perylene	0.0243		0.078		<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(k)fluoranthene	1.82	13.7	9.0	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(k)fluoranthene	0.749	13.7	9.0	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Benzo(k)fluoranthene	0.0706	13.7	9.0	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Benzo(k)fluoranthene	0.0581	13.7	0.45	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Benzo(k)fluoranthene	0.0205	13.7	9.0	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Benzo(k)fluoranthene	0.0151	13.7	0.45	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Cadmium	28.7	2	34	14	<1
MFA 2008	12/15/2005	HA5	0.5	Cadmium	3.13	2	34	1.6	<1
MFA 2008	12/15/2005	HA3	0.5	Cadmium	2.53	2	34	1.3	<1
MFA 2008	12/15/2005	HA5	1.5	Cadmium	1.09	2	1.7	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Cadmium	0.984	2	34	<1	<1
MFA 2008	4/19/2006	HA12	0.5	Cadmium	0.48 J	2	34	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Chromium	8,480		5,400		1.6
MFA 2008	12/15/2005	HA3	0.5	Chromium	1,590		5,400		<1
Ecology 1989d	3/22/1989	S-1	0.5	Chromium	1,510		5,400		<1
MFA 2008	12/15/2005	HA4	1.5	Chromium	280		270		1.0
MFA 2008	12/15/2005	HA2	1.5	Chromium	215		270		<1
MFA 2008	12/15/2005	HA2	0.5	Chromium	206		5,400		<1
MFA 2008	12/15/2005	HA5	0.5	Chromium	155		5,400		<1

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MFA 2008	12/15/2005	HA1	1.5	Chromium	110		270		<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Chromium	84.5		270		<1
MFA 2008	12/15/2005	HA3	1.5	Chromium	55.2		270		<1
MFA 2008	12/15/2005	HA1	0.5	Chromium	34.3		5,400		<1
MFA 2008	12/15/2005	HA5	1.5	Chromium	32.7		270		<1
MFA 2008	12/15/2005	HA2	0.5	Chromium (hexavalent)	89 J	19	5,400	4.7	<1
MFA 2008	12/15/2005	HA1	1.5	Chromium (hexavalent)	6.5 J	19	270	<1	<1
MFA 2008	4/19/2006	HA9	0.5	Chromium (hexavalent)	3.4 J	19	5,400	<1	<1
MFA 2008	4/18/2006	HA6	0.5	Chromium (hexavalent)	3.33 J	19	5,400	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Chromium (hexavalent)	3.2 J	19	270	<1	<1
MFA 2008	4/19/2006	HA11	0.5	Chromium (hexavalent)	0.45 J	19	5,400	<1	<1
MFA 2008	4/18/2006	HA8	0.5	Chromium (hexavalent)	0.26 J	19	5,400	<1	<1
MFA 2008	4/18/2006	HA7	0.5	Chromium (hexavalent)	0.22 J	19	5,400	<1	<1
MFA 2008	4/19/2006	HA10	0.5	Chromium (hexavalent)	0.074 J	19	5,400	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Chromium (trivalent)	8,480	2,000	5,400	4.2	1.6
MFA 2008	12/15/2005	HA3	0.5	Chromium (trivalent)	1,590	2,000	5,400	<1	<1
MFA 2008	12/15/2005	HA4	1.5	Chromium (trivalent)	280	2,000	270	<1	1.0
MFA 2008	12/15/2005	HA2	1.5	Chromium (trivalent)	211.8	2,000	270	<1	<1
MFA 2008	12/15/2005	HA5	0.5	Chromium (trivalent)	155	2,000	5,400	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Chromium (trivalent)	117	2,000	5,400	<1	<1
MFA 2008	12/15/2005	HA1	1.5	Chromium (trivalent)	103.5	2,000	270	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Chromium (trivalent)	84.5	2,000	270	<1	<1
MFA 2008	12/15/2005	HA3	1.5	Chromium (trivalent)	55.2	2,000	270	<1	<1
MFA 2008	12/15/2005	HA1	0.5	Chromium (trivalent)	34.3	2,000	5,400	<1	<1
MFA 2008	12/15/2005	HA5	1.5	Chromium (trivalent)	32.7	2,000	270	<1	<1
MFA 2008	12/15/2005	HA5	0.5	Chrysene	1.54	137	9.2	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Chrysene	0.899	137	9.2	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Chrysene	0.0804	137	9.2	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Chrysene	0.0612	137	0.46	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Chrysene	0.0276	137	9.2	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Chrysene	0.0179	137	0.46	<1	<1
MFA 2008	12/15/2005	HA4	1.5	Chrysene	0.0159	137	0.46	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Copper	978	3,200	780	<1	1.3
MFA 2008	12/15/2005	HA3	0.5	Copper	528	3,200	780	<1	<1
Ecology 1989d	3/22/1989	S-1	0.5	Copper	179	3,200	780	<1	<1

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MFA 2008	12/15/2005	HA5	0.5	Copper	129	3,200	780	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Copper	70.9	3,200	780	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Copper	68.4 J	3,200	39	<1	1.8
MFA 2008	12/15/2005	HA4	1.5	Copper	48.8	3,200	39	<1	1.3
MFA 2008	12/15/2005	HA5	1.5	Copper	39.6	3,200	39	<1	1.0
MFA 2008	4/19/2006	HA12	0.5	Copper	39	3,200	780	<1	<1
MFA 2008	12/15/2005	HA1	0.5	Copper	32.8	3,200	780	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Copper	28.2	3,200	39	<1	<1
MFA 2008	12/15/2005	HA3	1.5	Copper	16.4	3,200	39	<1	<1
MFA 2008	12/15/2005	HA1	1.5	Copper	16.2 J	3,200	39	<1	<1
MFA 2008	12/15/2005	HA5	0.5	Dibenzo(a,h)anthracene	0.435	0.137	0.66	3.2	<1
MFA 2008	12/15/2005	HA4	0.5	Diesel-range hydrocarbons	35,900	2,000		18	
MFA 2008	12/15/2005	HA4	1.5	Diesel-range hydrocarbons	1,350	2,000		<1	
MFA 2008	12/15/2005	HA5	0.5	Diesel-range hydrocarbons	1,130	2,000		<1	
MFA 2008	12/15/2005	HA2	0.5	Diesel-range hydrocarbons	636	2,000		<1	
MFA 2008	12/15/2005	HA3	0.5	Diesel-range hydrocarbons	278	2,000		<1	
MFA 2008	12/15/2005	HA1	0.5	Diesel-range hydrocarbons	210	2,000		<1	
MFA 2008	12/15/2005	HA2	1.5	Diesel-range hydrocarbons	73.8	2,000		<1	
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Diesel-range hydrocarbons	67	2,000		<1	
MFA 2008	12/15/2005	HA5	1.5	Diesel-range hydrocarbons	61.8	2,000		<1	
MFA 2008	12/15/2005	HA1	1.5	Diesel-range hydrocarbons	37.6	2,000		<1	
MFA 2008	12/15/2005	HA5	0.5	Fluoranthene	2.38	3,200	24	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Fluoranthene	1.3	3,200	24	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Fluoranthene	0.12	3,200	24	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Fluoranthene	0.0951	3,200	1.2	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Fluoranthene	0.0455	3,200	24	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Fluoranthene	0.0329	3,200	1.2	<1	<1
MFA 2008	12/15/2005	HA1	0.5	Fluoranthene	0.0196	3,200	24	<1	<1
MFA 2008	12/15/2005	HA4	1.5	Fluoranthene	0.0191	3,200	1.2	<1	<1
MFA 2008	12/15/2005	HA1	0.5	Gasoline-range hydrocarbons	11.4	100		<1	
MFA 2008	12/15/2005	HA4	0.5	Heavy-oil range hydrocarbons	106,000	2,000		53	
MFA 2008	12/15/2005	HA5	0.5	Heavy-oil range hydrocarbons	7,330	2,000		3.7	
MFA 2008	12/15/2005	HA4	1.5	Heavy-oil range hydrocarbons	3,550	2,000		1.8	
MFA 2008	12/15/2005	HA2	0.5	Heavy-oil range hydrocarbons	3,170	2,000		1.6	
MFA 2008	12/15/2005	HA3	0.5	Heavy-oil range hydrocarbons	2,470	2,000		1.2	

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MFA 2008	12/15/2005	HA1	0.5	Heavy-oil range hydrocarbons	1,170	2,000		<1	
MFA 2008	12/15/2005	HA2	1.5	Heavy-oil range hydrocarbons	409	2,000		<1	
MFA 2008	12/15/2005	HA5	1.5	Heavy-oil range hydrocarbons	347	2,000		<1	
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Heavy-oil range hydrocarbons	328	2,000		<1	
MFA 2008	12/15/2005	HA1	1.5	Heavy-oil range hydrocarbons	182	2,000		<1	
MFA 2008	12/15/2005	HA3	1.5	Heavy-oil range hydrocarbons	30.1	2,000		<1	
MFA 2008	12/15/2005	HA5	0.5	Indeno(1,2,3-cd)pyrene	1.02	1.37	1.8	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Indeno(1,2,3-cd)pyrene	0.0385	1.37	1.8	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Indeno(1,2,3-cd)pyrene	0.0201	1.37	0.088	<1	<1
MFA 2008	10/25/2007	P9	0.5	Lead	2,410	250	1,300	9.6	1.9
MFA 2008	12/15/2005	HA4	0.5	Lead	1,710	250	1,300	6.8	1.3
MFA 2008	12/15/2005	HA5	0.5	Lead	1,440	250	1,300	5.8	1.1
Ecology 1989d	3/22/1989	S-1	0.5	Lead	1,310	250	1,300	5.2	1.0
MFA 2008	3/27/2008	C-2	1.5	Lead	1,020	250	67	4.1	15
MFA 2008	1/10/2007	HA22	0.5	Lead	986	250	1,300	3.9	<1
MFA 2008	11/19/2007	SS-6	0.5	Lead	838	250	1,300	3.4	<1
MFA 2008	11/19/2007	SS-3	1.5	Lead	668	250	67	2.7	10
MFA 2008	10/24/2007	P1	0.5	Lead	653	250	1,300	2.6	<1
MFA 2008	12/15/2005	HA3	0.5	Lead	545	250	1,300	2.2	<1
MFA 2008	11/19/2007	SS-6	1.5	Lead	526	250	67	2.1	7.9
MFA 2008	3/27/2008	C-1	2	Lead	470	250	67	1.9	7.0
MFA 2008	1/10/2007	HA21	0.5	Lead	398	250	1,300	1.6	<1
MFA 2008	10/25/2007	P10	0.5	Lead	365	250	1,300	1.5	<1
MFA 2008	1/10/2007	HA25	0.5	Lead	302	250	1,300	1.2	<1
MFA 2008	1/9/2007	HA17	0.5	Lead	278	250	1,300	1.1	<1
MFA 2008	11/19/2007	SS-3	0.5	Lead	230	250	1,300	<1	<1
MFA 2008	4/19/2006	HA12	0.5	Lead	220	250	1,300	<1	<1
MFA 2008	3/27/2008	C-3	1.5	Lead	213	250	67	<1	3.2
MFA 2008	12/15/2005	HA5	1.5	Lead	209	250	67	<1	3.1
MFA 2008	10/24/2007	P3	0.5	Lead	202	250	1,300	<1	<1
MFA 2008	10/24/2007	P2	0.5	Lead	200	250	1,300	<1	<1
MFA 2008	10/24/2007	P7	0.5	Lead	196	250	1,300	<1	<1
MFA 2008	1/9/2007	HA19	0.5	Lead	134	250	1,300	<1	<1
MFA 2008	1/10/2007	HA21	1.5	Lead	121	250	67	<1	1.8
MFA 2008	11/19/2007	SS-1	0.5	Lead	120	250	1,300	<1	<1

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MFA 2008	10/24/2007	P6	0.5	Lead	108	250	1,300	<1	<1
MFA 2008	10/24/2007	B12	1.5	Lead	108	250	67	<1	1.6
MFA 2008	10/24/2007	P4	0.5	Lead	103	250	1,300	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Lead	95.3 J	250	67	<1	1.4
MFA 2008	12/15/2005	HA2	0.5	Lead	81.4	250	1,300	<1	<1
MFA 2008	10/24/2007	P8	0.5	Lead	76.8	250	1,300	<1	<1
MFA 2008	11/19/2007	SS-2	0.5	Lead	75.2	250	1,300	<1	<1
MFA 2008	10/24/2007	P5	0.5	Lead	64.6	250	1,300	<1	<1
MFA 2008	1/10/2007	HA24	0.5	Lead	63.9	250	1,300	<1	<1
MFA 2008	1/9/2007	HA18	0.5	Lead	61.5	250	1,300	<1	<1
MFA 2008	10/24/2007	B13	1.5	Lead	55.5	250	67	<1	<1
MFA 2008	12/15/2005	HA4	1.5	Lead	50.8	250	67	<1	<1
MFA 2008	11/19/2007	SS-5	0.5	Lead	44	250	1,300	<1	<1
MFA 2008	10/24/2007	B8	1.5	Lead	40.4	250	67	<1	<1
MFA 2008	10/24/2007	B10	1.5	Lead	37.2	250	67	<1	<1
MFA 2008	10/24/2007	B2	1.5	Lead	36.7	250	67	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Lead	36.5	250	67	<1	<1
MFA 2008	12/15/2005	HA1	0.5	Lead	34.6	250	1,300	<1	<1
MFA 2008	1/10/2007	HA22	1.5	Lead	32.4	250	67	<1	<1
MFA 2008	10/24/2007	B3	1.5	Lead	29.7	250	67	<1	<1
MFA 2008	1/9/2007	HA20	0.5	Lead	27.9	250	1,300	<1	<1
MFA 2008	1/10/2007	HA23	0.5	Lead	26.9	250	1,300	<1	<1
MFA 2008	1/10/2007	HA24	1.5	Lead	24.3	250	67	<1	<1
MFA 2008	1/9/2007	HA17	1.5	Lead	23.5	250	67	<1	<1
MFA 2008	10/24/2007	B7	1.5	Lead	22.2	250	67	<1	<1
MFA 2008	1/10/2007	HA23	1.5	Lead	20.5	250	67	<1	<1
MFA 2008	10/24/2007	B9	1.5	Lead	19.5	250	67	<1	<1
MFA 2008	11/19/2007	SS-4	0.5	Lead	18.5	250	1,300	<1	<1
MFA 2008	10/24/2007	B11	1.5	Lead	16	250	67	<1	<1
MFA 2008	1/10/2007	HA25	1.5	Lead	15.5	250	67	<1	<1
MFA 2008	12/15/2005	HA1	1.5	Lead	15.3 J	250	67	<1	<1
MFA 2008	1/9/2007	HA19	1.5	Lead	11.3	250	67	<1	<1
MFA 2008	10/24/2007	B1	1.5	Lead	11.2	250	67	<1	<1
MFA 2008	1/9/2007	HA20	1.5	Lead	8.91	250	67	<1	<1
MFA 2008	12/15/2005	HA3	1.5	Lead	8.41	250	67	<1	<1

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	10/24/2007	B5	1.5	Lead	5.19	250	67	<1	<1
MFA 2008	10/24/2007	B4	1.5	Lead	3.6	250	67	<1	<1
MFA 2008	10/24/2007	B6	1.5	Lead	3.5	250	67	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Mercury	2.65	2	0.59	1.3	4.5
MFA 2008	12/15/2005	HA4	0.5	Mercury	2.28	2	0.59	1.1	3.9
Ecology 1989d	3/22/1989	S-1	0.5	Mercury	2.08	2	0.59	1.0	3.5
MFA 2008	12/15/2005	HA5	0.5	Mercury	0.918	2	0.59	<1	1.6
MFA 2008	12/15/2005	HA1	1.5	Mercury	0.328	2	0.030	<1	11
MFA 2008	12/15/2005	HA2	1.5	Mercury	0.232	2	0.030	<1	7.7
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Nickel	108 J				
MFA 2008	12/15/2005	HA4	0.5	Nickel	99.7				
MFA 2008	12/15/2005	HA3	0.5	Nickel	98.4				
Ecology 1989d	3/22/1989	S-1	0.5	Nickel	72.1				
MFA 2008	12/15/2005	HA5	0.5	Nickel	41.6				
MFA 2008	12/15/2005	HA2	0.5	Nickel	36.0				
MFA 2008	12/15/2005	HA2	1.5	Nickel	31				
MFA 2008	12/15/2005	HA3	1.5	Nickel	30.8				
MFA 2008	12/15/2005	HA1	1.5	Nickel	24.7 J				
MFA 2008	12/15/2005	HA5	1.5	Nickel	22.2				
MFA 2008	12/15/2005	HA4	1.5	Nickel	21.9				
MFA 2008	12/15/2005	HA1	0.5	Nickel	21.3				
MFA 2008	12/15/2005	HA5	0.5	Phenanthrene	0.93		9.7		<1
MFA 2008	12/15/2005	HA3	0.5	Phenanthrene	0.0826		9.7		<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Phenanthrene	0.0382		0.49		<1
MFA 2008	12/15/2005	HA2	0.5	Phenanthrene	0.0180		9.7		<1
MFA 2008	12/15/2005	HA5	0.5	Pyrene	2.15	2,400	28	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Pyrene	1.52	2,400	28	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Pyrene	0.134	2,400	28	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Pyrene	0.0657	2,400	1.4	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Pyrene	0.0334	2,400	28	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Pyrene	0.024	2,400	1.4	<1	<1
MFA 2008	12/15/2005	HA4	1.5	Pyrene	0.0218	2,400	1.4	<1	<1
MFA 2008	12/15/2005	HA4	0.5	Zinc	2,620	24,000	770	<1	3.4
Ecology 1989d	3/22/1989	S-1	0.5	Zinc	529	24,000	770	<1	<1
MFA 2008	12/15/2005	HA3	0.5	Zinc	433	24,000	770	<1	<1

Table C-7
Chemicals Detected in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA5	0.5	Zinc	358	24,000	770	<1	<1
MFA 2008	12/15/2005	HA2	0.5	Zinc	341	24,000	770	<1	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Zinc	293 J	24,000	38	<1	7.7
MFA 2008	12/15/2005	HA1	0.5	Zinc	140	24,000	770	<1	<1
MFA 2008	12/15/2005	HA2	1.5	Zinc	134	24,000	38	<1	3.5
MFA 2008	12/15/2005	HA5	1.5	Zinc	110	24,000	38	<1	2.9
MFA 2008	12/15/2005	HA4	1.5	Zinc	86.3	24,000	38	<1	2.3
MFA 2008	12/15/2005	HA1	1.5	Zinc	70.8 J	24,000	38	<1	1.9
MFA 2008	12/15/2005	HA3	1.5	Zinc	46.2	24,000	38	<1	1.2

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards
C - Composite sample
D - Duplicate sample

F - Results is from the analysis of a diluted sample.
G - Possible blank contamination
J - Estimated value
🟩 Soil removed during remedial excavation
🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is tidally influenced at this property, and was observed between 3 and 7 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/28/2005	MW8	1-Methylnaphthalene	0.106	1.51		<1	
MFA 2008	12/28/2005	MW8 (Dup)	1-Methylnaphthalene	0.103	1.51		<1	
MFA 2008	6/9/2005	GP2	2-Butanone	729	4,800		<1	
MFA 2008	12/28/2005	MW5	2-Butanone	34	4,800		<1	
MFA 2008	12/28/2005	MW8	2-Butanone	17	4,800		<1	
MFA 2008	12/28/2005	MW8 (Dup)	2-Butanone	15.5	4,800		<1	
MFA 2008	12/29/2005	MW6	2-Butanone	10.7	4,800		<1	
MFA 2008	6/16/2005	GP8	2-Butanone	10.3	4,800		<1	
MFA 2008	6/17/2005	MW2	2-Butanone	5.43	4,800		<1	
MFA 2008	12/14/2005	GP15	2-Butanone	2.07	4,800		<1	
MFA 2008	6/16/2005	GP8	2-Methylnaphthalene	8.6	32	31	<1	<1
MFA 2008	4/19/2006	MW5	2-Methylnaphthalene	0.017 J	32	31	<1	<1
MFA 2008	4/18/2006	MW7	2-Methylnaphthalene	0.014 J	32	31	<1	<1
MFA 2008	4/19/2006	MW6	2-Methylnaphthalene	0.012 J	32	31	<1	<1
MFA 2008	6/16/2005	GP8	Acenaphthene	0.328	960	9.3	<1	<1
MFA 2008	4/19/2006	MW2	Acenaphthene	0.015 J	960	9.3	<1	<1
MFA 2008	4/18/2006	MW7	Acenaphthene	0.011 J	960	9.3	<1	<1
MFA 2008	4/19/2006	MW5	Acenaphthene	0.0061 J	960	9.3	<1	<1
MFA 2008	4/18/2006	MW7 (Dup)	Acenaphthene	0.0043 J	960	9.3	<1	<1
MFA 2008	4/18/2006	MW1	Acenaphthene	0.0038 J	960	9.3	<1	<1
MFA 2008	4/18/2006	MW7	Acenaphthylene	0.028 J		11		<1
MFA 2008	4/19/2006	MW5	Acenaphthylene	0.02 J		11		<1
MFA 2008	4/18/2006	MW4	Acenaphthylene	0.019 J		11		<1
MFA 2008	6/9/2005	GP2	Acetone	295	7,200		<1	
MFA 2008	6/16/2005	GP8	Acetone	75.8	7,200		<1	
MFA 2008	6/16/2005	GP4	Acetone	40.5	7,200		<1	
Precision Engineering 1993	3/8/1990	MW1	Acetone	21	7,200		<1	
MFA 2008	6/17/2005	MW2	Acetone	17.1	7,200		<1	
MFA 2008	6/16/2005	GP5	Acetone	7.2	7,200		<1	
MFA 2008	4/19/2006	MW6	Anthracene	0.039 J		59		<1
MFA 2008	4/18/2006	MW7	Anthracene	0.037 J		59		<1
MFA 2008	4/19/2006	MW2	Anthracene	0.035 J		59		<1
MFA 2008	4/18/2006	MW1	Anthracene	0.03 J		59		<1
MFA 2008	4/18/2006	MW7 (Dup)	Anthracene	0.029 J		59		<1
MFA 2011	7/16/2010	MW6	Arsenic	35.7	0.0583	370	612	<1
MFA 2008	4/18/2006	MW1	Arsenic	33	0.0583	370	566	<1

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/27/2005	MW1	Arsenic	32.3	0.0583	370	554	<1
MFA 2011	7/15/2010	MW1	Arsenic	28.1	0.0583	370	482	<1
MFA 2008	4/19/2006	MW6	Arsenic	24	0.0583	370	412	<1
MFA 2008	12/29/2005	MW3	Arsenic	15.3	0.0583	370	262	<1
MFA 2008	12/27/2005	MW4	Arsenic	15.1	0.0583	370	259	<1
MFA 2008	4/18/2006	MW4	Arsenic	15	0.0583	370	257	<1
MFA 2011	7/13/2010	MW3	Arsenic	14.5	0.0583	370	249	<1
MFA 2008	12/29/2005	MW6	Arsenic	11.9	0.0583	370	204	<1
MFA 2011	7/15/2010	MW4	Arsenic	11.2	0.0583	370	192	<1
MFA 2008	12/28/2005	MW8 (Dup)	Arsenic	7.85	0.0583	370	135	<1
MFA 2008	4/18/2006	MW7 (Dup)	Arsenic	7.3	0.0583	370	125	<1
MFA 2008	4/18/2006	MW7	Arsenic	7.1	0.0583	370	122	<1
MFA 2008	12/28/2005	MW7	Arsenic	6.62	0.0583	370	114	<1
MFA 2008	12/28/2005	MW8	Arsenic	6.41	0.0583	370	110	<1
MFA 2011	7/15/2010	MW8	Arsenic	6.3	0.0583	370	108	<1
MFA 2008	12/28/2005	MW2	Arsenic	5.63	0.0583	370	97	<1
MFA 2011	7/13/2010	MW7	Arsenic	5.6	0.0583	370	96	<1
MFA 2011	7/13/2010	MW7 (Dup)	Arsenic	5.4	0.0583	370	93	<1
MFA 2008	4/19/2006	MW5	Arsenic	4.9	0.0583	370	84	<1
MFA 2008	4/18/2006	MW8	Arsenic	4.8	0.0583	370	82	<1
MFA 2008	12/28/2005	MW5	Arsenic	4.59	0.0583	370	79	<1
MFA 2008	4/19/2006	MW2	Arsenic	3.8	0.0583	370	65	<1
MFA 2011	7/15/2010	MW2	Arsenic	2.3	0.0583	370	39	<1
MFA 2008	12/27/2005	MW1	Benzo(a)anthracene	0.107	0.12	0.63	<1	<1
MFA 2008	4/18/2006	MW7	Benzo(a)anthracene	0.035 J	0.12	0.63	<1	<1
MFA 2008	4/19/2006	MW2	Benzo(a)anthracene	0.031 J	0.12	0.63	<1	<1
MFA 2008	4/18/2006	MW1	Benzo(a)anthracene	0.029 J	0.12	0.63	<1	<1
MFA 2008	12/27/2005	MW1	Benzo(b)fluoranthene	0.104	0.12	0.56	<1	<1
MFA 2008	12/27/2005	MW1	Benzo(k)fluoranthene	0.108	0.12	0.57	<1	<1
MFA 2008	12/28/2005	MW5	Chromium	497,000	50	320	9,940	1,553
MFA 2008	6/16/2005	GP8	Chromium	355,000	50	320	7,100	1,109
MFA 2008	6/16/2005	GP6	Chromium	343,000	50	320	6,860	1,072
MFA 2008	6/16/2005	GP4	Chromium	267,000	50	320	5,340	834
MFA 2008	6/9/2005	GP2	Chromium	37,100	50	320	742	116
MFA 2008	4/19/2006	MW5	Chromium	32,000	50	320	640	100
Precision Engineering 1993	6/22/1988	MW3	Chromium	923	50	320	18	2.9

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Precision Engineering 1993	3/8/1990	MW1	Chromium	332	50	320	6.6	1.0
Precision Engineering 1993	6/22/1988	MW2	Chromium	278	50	320	5.6	<1
Precision Engineering 1993	3/8/1990	MW4	Chromium	239	50	320	4.8	<1
Precision Engineering 1993	3/8/1990	MW3	Chromium	57	50	320	1.1	<1
MFA 2008	4/19/2006	MW6	Chromium	47	50	320	<1	<1
Precision Engineering 1993	6/22/1988	MW1	Chromium	40	50	320	<1	<1
Precision Engineering 1993	5/5/1989	MW3	Chromium	28	50	320	<1	<1
MFA 2008	4/19/2006	MW2	Chromium	21	50	320	<1	<1
MFA 2008	4/18/2006	MW8	Chromium	21	50	320	<1	<1
MFA 2008	12/28/2005	MW6	Chromium	18.7	50	320	<1	<1
MFA 2008	4/18/2006	MW7	Chromium	13	50	320	<1	<1
MFA 2008	4/18/2006	MW7 (Dup)	Chromium	13	50	320	<1	<1
MFA 2008	12/28/2005	MW7	Chromium	10.6	50	320	<1	<1
MFA 2008	12/28/2005	MW2	Chromium	8.79	50	320	<1	<1
MFA 2008	12/28/2005	MW8 (Dup)	Chromium	8.49	50	320	<1	<1
MFA 2008	4/17/2006	MW3	Chromium	7.8	50	320	<1	<1
MFA 2008	12/28/2005	MW8	Chromium	7.55	50	320	<1	<1
Precision Engineering 1993	5/5/1989	MW2	Chromium	6	50	320	<1	<1
MFA 2008	12/29/2005	MW3	Chromium	2.15	50	320	<1	<1
MFA 2008	4/18/2006	MW4	Chromium	2	50	320	<1	<1
MFA 2008	12/28/2005	MW5	Chromium (hexavalent)	450,000	48		9,375	
MFA 2008	4/19/2006	MW5	Chromium (hexavalent)	350,000	48		7,292	
MFA 2008	6/16/2005	GP6	Chromium (hexavalent)	300,000	48		6,250	
MFA 2008	6/16/2005	GP8	Chromium (hexavalent)	294,000	48		6,125	
MFA 2008	6/16/2005	GP4	Chromium (hexavalent)	236,000	48		4,917	
MFA 2008	6/9/2005	GP2	Chromium (hexavalent)	4,720	48		98	
MFA 2008	6/16/2005	MW1	Chromium (hexavalent)	269	48		5.6	
MFA 2008	6/16/2005	GP7	Chromium (hexavalent)	101	48		2.1	
MFA 2008	6/16/2005	GP5	Chromium (hexavalent)	89.7	48		1.9	
MFA 2011	7/16/2010	MW5	Chromium (hexavalent)	81.6	48		1.7	
MFA 2008	4/18/2006	MW4	Chromium (hexavalent)	23	48		<1	
MFA 2008	6/16/2005	GP8	Chromium (trivalent)	61,000	24,000		2.5	
MFA 2008	12/28/2005	MW5	Chromium (trivalent)	47,000	24,000		2.0	
MFA 2008	6/16/2005	GP6	Chromium (trivalent)	43,000	24,000		1.8	
MFA 2008	6/9/2005	GP2	Chromium (trivalent)	32,380	24,000		1.3	
MFA 2008	6/16/2005	GP4	Chromium (trivalent)	31,000	24,000		1.3	

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2011	7/16/2010	MW5	Chromium (trivalent)	126	24,000		<1	
MFA 2008	4/19/2006	MW2	Chromium (trivalent)	21	24,000		<1	
MFA 2008	12/28/2005	MW2	Chromium (trivalent)	8.79	24,000		<1	
MFA 2008	4/17/2006	MW3	Chromium (trivalent)	7.8	24,000		<1	
MFA 2008	12/29/2005	MW3	Chromium (trivalent)	2.15	24,000		<1	
MFA 2011	7/16/2010	MW6	Chromium (trivalent)	0.0275	24,000		<1	
MFA 2011	7/15/2010	MW8	Chromium (trivalent)	0.0084	24,000		<1	
MFA 2011	7/15/2010	MW2	Chromium (trivalent)	0.0067	24,000		<1	
MFA 2011	7/13/2010	MW3	Chromium (trivalent)	0.0021	24,000		<1	
MFA 2011	7/13/2010	MW7	Chromium (trivalent)	0.0013	24,000		<1	
MFA 2011	7/13/2010	MW7 (Dup)	Chromium (trivalent)	0.0013	24,000		<1	
MFA 2008	12/27/2005	MW1	Chrysene	0.132	12	1.9	<1	<1
MFA 2008	4/18/2006	MW1	Chrysene	0.014 J	12	1.9	<1	<1
MFA 2008	4/18/2006	MW7	Chrysene	0.013 J	12	1.9	<1	<1
MFA 2008	6/16/2005	GP6	cis-1,2-Dichloroethene	144	16		9.0	
MFA 2008	12/14/2005	GP13	cis-1,2-Dichloroethene	6.03	16		<1	
MFA 2008	12/28/2005	MW5	cis-1,2-Dichloroethene	2.42	16		<1	
MFA 2008	6/16/2005	GP8	cis-1,2-Dichloroethene	2.26	16		<1	
MFA 2008	4/18/2006	MW8	cis-1,2-Dichloroethene	1.5	16		<1	
MFA 2008	4/19/2006	MW5	cis-1,2-Dichloroethene	1.1	16		<1	
MFA 2008	12/28/2005	MW8	cis-1,2-Dichloroethene	1.03	16		<1	
MFA 2008	12/28/2005	MW8 (Dup)	cis-1,2-Dichloroethene	0.92	16		<1	
MFA 2008	12/29/2005	MW3	cis-1,2-Dichloroethene	0.2	16		<1	
Precision Engineering 1993	3/8/1990	MW1	Copper	240	640	120	<1	2.0
Precision Engineering 1993	3/8/1990	MW4	Copper	150	640	120	<1	1.3
Precision Engineering 1993	3/8/1990	MW3	Copper	40	640	120	<1	<1
MFA 2008	4/19/2006	MW6	Copper	5.1	640	120	<1	<1
MFA 2008	12/29/2005	MW6	Copper	4.02	640	120	<1	<1
MFA 2008	12/28/2005	MW5	Copper	3.67	640	120	<1	<1
MFA 2008	4/18/2006	MW7 (Dup)	Copper	3.3	640	120	<1	<1
MFA 2011	7/13/2010	MW7	Copper	2.9	640	120	<1	<1
MFA 2011	7/13/2010	MW7 (Dup)	Copper	2.9	640	120	<1	<1
MFA 2008	4/19/2006	MW2	Copper	2.5	640	120	<1	<1
MFA 2008	4/18/2006	MW7	Copper	2.4	640	120	<1	<1
MFA 2008	12/28/2005	MW7	Copper	2.12	640	120	<1	<1
MFA 2008	12/28/2005	MW2	Copper	1.17	640	120	<1	<1

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/28/2005	MW8 (Dup)	Copper	1.03	640	120	<1	<1
MFA 2008	12/27/2005	MW1	Copper	1.01	640	120	<1	<1
MFA 2011	7/16/2010	MW6	Copper	0.54	640	120	<1	<1
MFA 2008	4/18/2006	MW7	Dibenzo(a,h)anthracene	0.038 J	0.012	0.013	3.2	2.9
MFA 2008	12/29/2005	MW6	Diesel-range hydrocarbons	2,640	500		5.3	
MFA 2008	12/28/2005	MW8 (Dup)	Diesel-range hydrocarbons	1,790	500		3.6	
MFA 2008	12/28/2005	MW8	Diesel-range hydrocarbons	1,710	500		3.4	
MFA 2008	12/28/2005	MW2	Diesel-range hydrocarbons	1,190	500		2.4	
MFA 2008	12/28/2005	MW5	Diesel-range hydrocarbons	831	500		1.7	
MFA 2008	6/16/2005	GP8	Diesel-range hydrocarbons	814	500		1.6	
MFA 2008	4/19/2006	MW6	Diesel-range hydrocarbons	760	500		1.5	
MFA 2011	7/16/2010	MW6	Diesel-range hydrocarbons	730	500		1.5	
MFA 2008	4/18/2006	MW8	Diesel-range hydrocarbons	450	500		<1	
MFA 2008	6/17/2005	MW2	Diesel-range hydrocarbons	438	500		<1	
MFA 2008	4/19/2006	MW2	Diesel-range hydrocarbons	410	500		<1	
MFA 2008	6/16/2005	GP4	Diesel-range hydrocarbons	325	500		<1	
MFA 2008	12/29/2005	MW3	Diesel-range hydrocarbons	312	500		<1	
MFA 2011	7/15/2010	MW2	Diesel-range hydrocarbons	280	500		<1	
MFA 2011	7/15/2010	MW8	Diesel-range hydrocarbons	280	500		<1	
MFA 2011	7/16/2010	MW5	Diesel-range hydrocarbons	130	500		<1	
MFA 2008	12/27/2005	MW1	Fluoranthene	0.384	640	17	<1	<1
MFA 2008	4/18/2006	MW1	Fluoranthene	0.053 J	640	17	<1	<1
MFA 2008	4/18/2006	MW7	Fluoranthene	0.036 J	640	17	<1	<1
MFA 2008	4/19/2006	MW6	Fluoranthene	0.033 J	640	17	<1	<1
MFA 2008	4/19/2006	MW2	Fluoranthene	0.032 J	640	17	<1	<1
MFA 2008	4/19/2006	MW5	Fluoranthene	0.032 J	640	17	<1	<1
MFA 2008	4/18/2006	MW4	Fluoranthene	0.029 J	640	17	<1	<1
MFA 2008	6/16/2005	GP8	Fluorene	0.298	640	7.0	<1	<1
MFA 2008	4/18/2006	MW7	Fluorene	0.013 J	640	7.0	<1	<1
MFA 2008	6/16/2005	GP8	Gasoline-range hydrocarbons	155	800		<1	
MFA 2008	12/29/2005	MW6	Heavy-oil range hydrocarbons	1,320	500		2.6	
MFA 2008	12/28/2005	MW8 (Dup)	Heavy-oil range hydrocarbons	1,210	500		2.4	
MFA 2008	4/19/2006	MW6	Heavy-oil range hydrocarbons	1,200	500		2.4	
MFA 2008	12/28/2005	MW2	Heavy-oil range hydrocarbons	1,040	500		2.1	
MFA 2008	12/28/2005	MW8	Heavy-oil range hydrocarbons	1,000	500		2.0	
MFA 2011	7/16/2010	MW6	Heavy-oil range hydrocarbons	930	500		1.9	

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2008	6/17/2005	MW2	Heavy-oil range hydrocarbons	512	500		1.0	
MFA 2008	4/18/2006	MW7	Indeno(1,2,3-cd)pyrene	0.039 J	0.12	0.033	<1	1.2
MFA 2008	4/18/2006	MW1	Indeno(1,2,3-cd)pyrene	0.034 J	0.12	0.033	<1	1.0
Precision Engineering 1993	3/8/1990	MW1	Lead	57	15	13	3.8	4.4
Precision Engineering 1993	3/8/1990	MW4	Lead	35	15	13	2.3	2.7
Precision Engineering 1993	3/8/1990	MW3	Lead	9	15	13	<1	<1
Precision Engineering 1993	3/8/1990	MW2	Lead	4	15	13	<1	<1
Precision Engineering 1993	3/8/1990	MW1	Mercury	0.5	2	0.0074	<1	68
Precision Engineering 1993	3/8/1990	MW1	Methylene chloride	12	5		2.4	
MFA 2008	6/16/2005	GP8	Naphthalene	87	160	92	<1	<1
MFA 2008	6/16/2005	GP8	Naphthalene	26.5	160	92	<1	<1
MFA 2008	4/19/2006	MW2	Naphthalene	0.93	160	92	<1	<1
MFA 2008	6/17/2005	MW2	Naphthalene	0.854	160	92	<1	<1
MFA 2008	12/28/2005	MW5	Naphthalene	0.457	160	92	<1	<1
MFA 2008	12/28/2005	MW2	Naphthalene	0.271	160	92	<1	<1
MFA 2008	4/19/2006	MW5	Naphthalene	0.13	160	92	<1	<1
MFA 2008	4/18/2006	MW7	Naphthalene	0.023 J	160	92	<1	<1
MFA 2008	4/18/2006	MW7 (Dup)	Naphthalene	0.019 J	160	92	<1	<1
MFA 2008	4/19/2006	MW6	Naphthalene	0.013 J	160	92	<1	<1
MFA 2008	4/18/2006	MW1	Naphthalene	0.011 J	160	92	<1	<1
MFA 2008	4/18/2006	MW4	Naphthalene	0.011 J	160	92	<1	<1
Precision Engineering 1993	3/8/1990	MW1	Nickel	360				
Precision Engineering 1993	3/8/1990	MW4	Nickel	260				
Precision Engineering 1993	3/8/1990	MW3	Nickel	50				
MFA 2008	12/28/2005	MW5	Nickel	32.2				
MFA 2008	12/29/2005	MW6	Nickel	16.3				
MFA 2008	12/28/2005	MW7	Nickel	11.8				
MFA 2008	12/28/2005	MW8 (Dup)	Nickel	3.14				
MFA 2008	12/28/2005	MW8	Nickel	2.91				
MFA 2008	12/28/2005	MW2	Nickel	2.51				
MFA 2008	4/17/2006	MW3	Nickel	1.7				
MFA 2008	12/27/2005	MW4	Nickel	1.33				
MFA 2008	6/16/2005	GP8	Phenanthrene	5.5		23		<1
MFA 2008	12/27/2005	MW1	Phenanthrene	0.159		23		<1
MFA 2008	4/18/2006	MW1	Phenanthrene	0.024 J		23		<1
MFA 2008	12/27/2005	MW1	Pyrene	0.31	480	20	<1	<1

Table C-8
Chemicals Detected in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2008	4/19/2006	MW6	Selenium	19	80		<1	
MFA 2008	12/29/2005	MW6	Selenium	12.3	80		<1	
MFA 2008	4/19/2006	MW2	Selenium	10	80		<1	
MFA 2008	12/28/2005	MW2	Selenium	6.28	80		<1	
MFA 2008	4/18/2006	MW7	Selenium	5	80		<1	
MFA 2008	4/18/2006	MW7 (Dup)	Selenium	4.6	80		<1	
MFA 2008	12/28/2005	MW8 (Dup)	Selenium	4.27	80		<1	
MFA 2008	12/28/2005	MW8	Selenium	4.11	80		<1	
MFA 2008	4/18/2006	MW8	Selenium	3.6	80		<1	
MFA 2011	7/16/2010	MW6	Selenium	2.9	80		<1	
MFA 2008	12/28/2005	MW7	Selenium	2.77	80		<1	
MFA 2011	7/15/2010	MW2	Selenium	0.71	80		<1	
MFA 2008	12/28/2005	MW5	trans-1,2-Dichloroethene	0.26				
MFA 2008	6/16/2005	GP6	Trichloroethene	1,130	5		226	
MFA 2008	12/28/2005	MW5	Trichloroethene	22.1	5		4.4	
MFA 2008	6/16/2005	GP8	Trichloroethene	16.8	5		3.4	
MFA 2008	4/19/2006	MW5	Trichloroethene	7.9	5		1.6	
MFA 2008	12/14/2005	GP13	Trichloroethene	0.22	5		<1	
MFA 2008	12/14/2005	GP13	Vinyl chloride	16.5	0.2		83	
MFA 2008	4/18/2006	MW8	Vinyl chloride	0.8 J	0.2		4.0	
MFA 2008	12/28/2005	MW8	Vinyl chloride	0.56	0.2		2.8	
MFA 2008	12/28/2005	MW8 (Dup)	Vinyl chloride	0.4	0.2		2.0	
Precision Engineering 1993	3/8/1990	MW1	Zinc	620	4,800	76	<1	8.2
Precision Engineering 1993	3/8/1990	MW4	Zinc	370	4,800	76	<1	4.9
Precision Engineering 1993	3/8/1990	MW3	Zinc	90	4,800	76	<1	1.2
Precision Engineering 1993	3/8/1990	MW2	Zinc	30	4,800	76	<1	<1
Precision Engineering 1993	3/8/1990	MW2	Zinc	20	4,800	76	<1	<1

GW - Groundwater

🟨 Chemical exceedance

ug/L - Micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-9
Chemicals Detected in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993a	3/5/1992	T1	0	2,4-Dinitrophenol	23	160		<1	
GeoEngineers 1993a	3/5/1992	T1	0	2-Methylnaphthalene	180	320	1.4	<1	129
GeoEngineers 1993a	3/5/1992	T2	0	2-Methylnaphthalene	4.8	320	1.4	<1	3.4
GeoEngineers 1993a	3/5/1992	T1	0	Acenaphthene	47.0	4,800	1.2	<1	39
GeoEngineers 1993a	3/5/1992	T2	0	Acenaphthene	0.86	4,800	1.2	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Acenaphthylene	16		1.4		11
GeoEngineers 1993a	3/5/1992	T2	0	Acenaphthylene	0.88		1.4		<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Acenaphthylene	0.20		1.4		<1
GeoEngineers 1993a	6/10/1992	T-7	2.5	Acenaphthylene	0.12		1.4		<1
GeoEngineers 1993a	3/5/1992	T1	0	Anthracene	57	24,000		<1	
GeoEngineers 1993a	3/5/1992	T2	0	Anthracene	0.94	24,000		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Antimony	250	32		7.8	
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Antimony	0.25	32		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Arsenic	250	0.67	12,000	373	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Arsenic	4.2	0.67	12,000	6.3	<1
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Arsenic	3	0.67	590	4.5	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Arsenic	2.6	0.67	590	3.9	<1
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Arsenic	1.7	0.67	590	2.5	<1
GeoEngineers 1993b	11/26/1991	SG-1	0	Arsenic	1.4	0.67	12,000	2.1	<1
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Arsenic	1.2	0.67	590	1.8	<1
GeoEngineers 1993b	11/26/1991	SG-2	0	Arsenic	0.9	0.67	12,000	1.3	<1
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(a)anthracene	32	1.37	5.4	23	5.9
GeoEngineers 1993a	3/5/1992	T2	0	Benzo(a)anthracene	0.88	1.37	5.4	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Benzo(a)anthracene	0.64	1.4	5.4	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Benzo(a)anthracene	0.26	1.37	5.4	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Benzo(a)anthracene	0.19	1.37	5.4	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(a)pyrene	16	0.1	4.2	117	3.8
GeoEngineers 1993a	3/5/1992	T2	0	Benzo(a)pyrene	0.73	0.137	4.2	5.3	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Benzo(a)pyrene	0.29	0.137	4.2	2.1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(b)fluoranthene	23	1.4	9	17	2.6
GeoEngineers 1993a	3/5/1992	T2	0	Benzo(b)fluoranthene	1.1	1.37	9	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Benzo(b)fluoranthene	0.24	1.37	9	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Benzo(b)fluoranthene	0.22	1.37	9	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Benzo(b)fluoranthene	0.13	1.37	9	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Benzo(g,h,i)perylene	5.2		1.6		3.3
GeoEngineers 1993a	3/5/1992	T2	0	Benzo(g,h,i)perylene	0.48		1.6		<1

Table C-9
Chemicals Detected in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Beryllium	0.81	160		<1	
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Beryllium	0.71	160		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Bis(2-ethylhexyl)phthalate	1,400	71	1.6	20	875
GeoEngineers 1993a	3/5/1992	T2	0	Bis(2-ethylhexyl)phthalate	14	71	1.6	<1	8.8
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Cadmium	1.5	2	34	<1	<1
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Cadmium	0.94	2	1.7	<1	<1
GeoEngineers 1993b	11/26/1991	SG-1	0	Cadmium	0.9	2	34	<1	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Cadmium	0.83	2	1.7	<1	<1
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Cadmium	0.71	2	1.7	<1	<1
GeoEngineers 1993b	11/26/1991	SG-2	0	Cadmium	0.62	2	34	<1	<1
GeoEngineers 1993b	11/26/1991	SG-1	0	Chromium	109		5,400		<1
GeoEngineers 1993a	3/5/1992	T2	0	Chromium	90		5,400		<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Chromium	90		5,400		<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Chromium	89		5,400		<1
GeoEngineers 1993a	3/5/1992	T1	0	Chromium	61		5,400		<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Chromium	39		5,400		<1
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Chromium	36		270		<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Chromium	32		270		<1
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Chromium	31		270		<1
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Chromium	29		270		<1
GeoEngineers 1993a	3/5/92	T1	0.00	Chrysene	49	137	9.2	<1	5.33
GeoEngineers 1993a	3/5/1992	T2	0	Chrysene	1.4	137	9.2	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Chrysene	0.29	137	9.2	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Chrysene	0.23	137	9.2	<1	<1
GeoEngineers 1993a	3/5/92	T1	0.00	Copper	1,600	3,200	780	<1	2.05
GeoEngineers 1993a	3/5/1992	T2	0	Copper	210	3,200	780	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Copper	120	3,200	780	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Copper	57.0	3,200	780	<1	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Copper	33	3,200	780	<1	<1
GeoEngineers 1993b	11/26/1991	SG-1	0	Copper	27	3,200	780	<1	<1
GeoEngineers 1993b	11/26/1991	SG-2	0	Copper	17	3,200	780	<1	<1
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Copper	13	3,200	39	<1	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Copper	12	3,200	39	<1	<1
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Copper	12	3,200	39	<1	<1
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Copper	10.2	3,200	39	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	cPAHs, total	124.4	0.137		908	

Table C-9
Chemicals Detected in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993a	3/5/1992	T2	0	cPAHs, total	4.6	0.137		34	
GeoEngineers 1993a	5/13/1992	T-5	0.5	cPAHs, total	1.15	0.137		8.4	
GeoEngineers 1993a	6/10/1992	T-8	2.5	cPAHs, total	1.01	0.137		7.4	
GeoEngineers 1993a	5/13/1992	T-6	0.5	cPAHs, total	0.5	0.137		3.6	
GeoEngineers 1993a	6/10/1992	T-7	2.5	cPAHs, total	0.13	0.137		<1	
GeoEngineers 1993a	3/5/1992	T2	0	Dibenzo(a,h)anthracene	0.14	0.137	0.66	1.0	<1
GeoEngineers 1993a	6/10/1992	T-7	2.5	Dibenzo(a,h)anthracene	0.13	0.137	0.66	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Dibenzofuran	6.3	80	1.2	<1	5.3
GeoEngineers 1993b	11/26/1991	TP-6-2	10	Diesel-range hydrocarbons	1,064	2,000		<1	
GeoEngineers 1992	11/26/1991	TP6-2	10	Diesel-range hydrocarbons	830	2,000		<1	
GeoEngineers 1992	5/12/1992	PL-1	3	Diesel-range hydrocarbons	27	2,000		<1	
GeoEngineers 1992	5/12/1992	D-2	7	Diesel-range hydrocarbons	13	2,000		<1	
GeoEngineers 1993b	11/26/1991	TP-6-1	7.0	Diesel-range hydrocarbons	12	2,000		<1	
GeoEngineers 1992	11/26/1991	TP6-1	7	Diesel-range hydrocarbons	9.7	2,000		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Dimethyl phthalate	23		1.6		14
GeoEngineers 1993a	3/5/1992	T2	0	Dimethyl phthalate	0.2		1.6		<1
GeoEngineers 1993a	3/5/1992	T1	0	Di-n-butyl phthalate	2,000	8,000	39	<1	51
GeoEngineers 1993a	3/5/1992	T2	0	Di-n-butyl phthalate	2.1	8,000	39	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Fluoranthene	60	3,200	24	<1	2.5
GeoEngineers 1993a	5/13/1992	T-5	0.5	Fluoranthene	4.9	3,200	24	<1	<1
GeoEngineers 1993a	3/5/1992	T2	0	Fluoranthene	1.4	3,200	24	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Fluoranthene	0.81	3,200	24	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Fluoranthene	0.76	3,200	24	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Fluorene	56	3,200	1.6	<1	35
GeoEngineers 1993a	3/5/1992	T2	0	Fluorene	1.2	3,200	1.6	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Fluorene	0.51	3,200	1.6	<1	<1
GeoEngineers 1993a	6/10/1992	T-7	2.5	Fluorene	0.24	3,200	1.6	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Fluorene	0.14	3,200	1.6	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Indeno(1,2,3-cd)pyrene	4.4	1.37	1.8	3.2	2.4
GeoEngineers 1993a	3/5/1992	T2	0	Indeno(1,2,3-cd)pyrene	0.35	1.37	1.8	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Indeno(1,2,3-cd)pyrene	0.17	1.37	1.8	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Lead	690	250	1,300	2.8	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Lead	247	250	1,300	<1	<1
GeoEngineers 1993a	3/5/1992	T2	0	Lead	190	250	1,300	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Lead	91	250	1,300	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Lead	88	250	1,300	<1	<1

Table C-9
Chemicals Detected in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993b	11/26/1991	SG-1	0	Lead	14	250	1,300	<1	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Mercury	2.4	2	0.59	1.2	4.1
GeoEngineers 1993b	11/26/1991	SG-1	0	Mercury	0.10	2	0.59	<1	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Mercury	0.075	2	0.03	<1	2.5
GeoEngineers 1993a	5/13/1992	T-5	0.5	Mercury	0.068	2	0.59	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Mercury	0.066	2	0.59	<1	<1
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Mercury	0.05	2	0.03	<1	1.7
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Mercury	0.038	2	0.03	<1	1.3
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Mercury	0.031	2	0.03	<1	1.0
GeoEngineers 1993a	3/5/1992	T2	0	Mercury	0.025	2	0.59	<1	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Methylene chloride	4.2 B	0.02		210	
GeoEngineers 1993b	11/26/1991	TP-4-1	6.0	Methylene chloride	4.1 B	0.02		205	
GeoEngineers 1993b	11/26/1991	TP-8-1	6.5	Methylene chloride	4.1 B	0.02		205	
GeoEngineers 1993b	11/26/1991	TP-6-2	10	Methylene chloride	4.0 B	0.02		200	
GeoEngineers 1993b	11/26/1991	TP-10-1	7.0	Methylene chloride	3.8 B	0.02		190	
GeoEngineers 1993b	11/26/1991	TP-6-1	7.0	Methylene chloride	3.7 B	0.02		185	
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Methylene chloride	3.6 B	0.02		180	
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Methylene chloride	3.5 B	0.02		175	
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Methylene chloride	3.3 B	0.02		165	
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Methylene chloride	3.3 B	0.02		165	
GeoEngineers 1992	11/26/1991	TP6-2	10	Methylene chloride	3.1	0.02		155	
GeoEngineers 1992	11/26/1991	TP6-1	7	Methylene chloride	2.9	0.02		145	
GeoEngineers 1992	11/26/1991	TP6-2	10	Methylnaphthalene	0.42				
GeoEngineers 1993a	3/5/1992	T1	0	Naphthalene	290	5	3.8	58	76
GeoEngineers 1993a	3/5/1992	T2	0	Naphthalene	5.6	5	3.8	1.1	1.5
GeoEngineers 1993a	5/13/1992	T-5	0.5	Naphthalene	1.9	5	3.8	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Naphthalene	0.69	5	3.8	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Naphthalene	0.45	5	3.8	<1	<1
GeoEngineers 1993a	3/5/1992	T2	0	Nickel	630				
GeoEngineers 1993b	11/26/1991	SG-1	0	Nickel	124				
GeoEngineers 1993a	5/13/1992	T-6	0.5	Nickel	100				
GeoEngineers 1993a	5/13/1992	T-5	0.5	Nickel	88				
GeoEngineers 1993a	3/5/1992	T1	0	Nickel	52				
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Nickel	51				
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Nickel	51				
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Nickel	46				

Table C-9
Chemicals Detected in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Nickel	44				
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Nickel	44				
GeoEngineers 1993b	3/5/1992	B3-1	0.5	PCBs, total	0.20	0.5	1.3	<1	<1
GeoEngineers 1993b	11/26/1991	SG-4	0.0	PCBs, total	0.19	0.5	1.3	<1	<1
GeoEngineers 1993b	3/5/1992	B1-2	1.0	PCBs, total	0.16	0.5	1.3	<1	<1
GeoEngineers 1993b	11/26/1991	SG-3	0.0	PCBs, total	0.10	0.5	1.3	<1	<1
GeoEngineers 1993b	3/5/1992	B1-3	2.0	PCBs, total	0.072	0.5	1.3	<1	<1
GeoEngineers 1993b	3/5/1992	B2-1	0.5	PCBs, total	0.057	0.5	1.3	<1	<1
GeoEngineers 1993a	3/5/1992	T1	0	Phenanthrene	260		9.7		27
GeoEngineers 1993a	3/5/1992	T2	0	Phenanthrene	5.1		9.7		<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Phenanthrene	1.8		9.7		<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Phenanthrene	1.1		9.7		<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Phenanthrene	0.42		9.7		<1
GeoEngineers 1993a	6/10/1992	T-7	2.5	Phenanthrene	0.21		9.7		<1
GeoEngineers 1992	11/26/1991	TP6-2	10	Phenanthrene	0.16		0.49		<1
GeoEngineers 1993a	3/5/1992	T1	0	Pyrene	130	2,400	28	<1	4.6
GeoEngineers 1993a	5/13/1992	T-5	0.5	Pyrene	3.3	2,400	28	<1	<1
GeoEngineers 1993a	3/5/1992	T2	0	Pyrene	3.1	2,400	28	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Pyrene	0.32	2,400	28	<1	<1
GeoEngineers 1993a	6/10/1992	T-8	2.5	Pyrene	0.22	2,400	28	<1	<1
GeoEngineers 1993a	6/10/1992	T-7	2.5	Pyrene	0.11	2,400	28	<1	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Selenium	1.3	400		<1	
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Selenium	0.78	400		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Silver	3.8	400	12	<1	<1
GeoEngineers 1993a	5/13/1992	T-5	0.5	Silver	2.9	400	12	<1	<1
GeoEngineers 1993a	3/5/1992	T2	0	Silver	2.0	400	12	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Silver	0.99	400	12	<1	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Silver	0.84	400	12	<1	<1
GeoEngineers 1993b	3/5/1992	B1-3	2.0	Total petroleum hydrocarbons	260	2,000		<1	
GeoEngineers 1992	5/12/1992	PL-1	3	Total petroleum hydrocarbons	210	2,000		<1	
GeoEngineers 1993b	3/5/1992	B1-2	1.0	Total petroleum hydrocarbons	140	2,000		<1	
GeoEngineers 1993b	3/5/1992	B2-2	1.0	Total petroleum hydrocarbons	120	2,000		<1	
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Total petroleum hydrocarbons	58.8	2,000		<1	
GeoEngineers 1993b	3/5/1992	B3-1	0.5	Total petroleum hydrocarbons	57	2,000		<1	
GeoEngineers 1993b	3/5/1992	B2-1	0.5	Total petroleum hydrocarbons	52	2,000		<1	
GeoEngineers 1992	5/12/1992	D-2	7	Total petroleum hydrocarbons	46	2,000		<1	

Table C-9
Chemicals Detected in Soil
Puget Sound Coatings

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1993b	3/5/1992	B3-3	2.0	Total petroleum hydrocarbons	36	2,000		<1	
GeoEngineers 1993b	11/26/1991	TP-6-2	10	Total petroleum hydrocarbons	14.3	2,000		<1	
GeoEngineers 1992	11/26/1991	TP6-2	10	Total petroleum hydrocarbons	11	2,000		<1	
GeoEngineers 1992	5/12/1992	PL-2	6	Total petroleum hydrocarbons	10	2,000		<1	
GeoEngineers 1993a	3/5/1992	T2	0	Total recoverable petroleum hydrocarbons	3,600	2,000		1.8	
GeoEngineers 1993a	5/13/1992	T-5	0.5	Total recoverable petroleum hydrocarbons	1,400	2,000		<1	
GeoEngineers 1993a	5/13/1992	T-6	0.5	Total recoverable petroleum hydrocarbons	240	2,000		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Total recoverable petroleum hydrocarbons	230	2,000		<1	
GeoEngineers 1993a	3/5/1992	T1	0	Zinc	17,000	24,000	770	<1	22
GeoEngineers 1993a	3/5/1992	T2	0	Zinc	1,500	24,000	770	<1	1.9
GeoEngineers 1993a	5/13/1992	T-5	0.5	Zinc	1,100	24,000	770	<1	1.4
GeoEngineers 1993b	11/26/1991	SG-1	0	Zinc	427	24,000	770	<1	<1
GeoEngineers 1993a	5/13/1992	T-6	0.5	Zinc	370	24,000	770	<1	<1
GeoEngineers 1993b	11/26/1991	TP-9-1	5.0	Zinc	225	24,000	770	<1	<1
GeoEngineers 1993b	11/26/1991	SG-2	0	Zinc	34	24,000	770	<1	<1
GeoEngineers 1993b	11/26/1991	TP-3-1	7.5	Zinc	30	24,000	38	<1	<1
GeoEngineers 1993b	11/26/1991	TP-1-1	7.5	Zinc	29	24,000	38	<1	<1
GeoEngineers 1993b	11/26/1991	TP-2-1	8.0	Zinc	27	24,000	38	<1	<1
GeoEngineers 1993b	11/26/1991	TP-11-1	7.4	Zinc	26	24,000	38	<1	<1

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

B - Possible blank contamination
🟩 Soil removed during remedial excavation
🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 7 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level, whichever is lower.

Table C-10
Chemicals Detected in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	2-Methylnaphthalene	0.0882	320	1.4	<1	<1
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Benzene	0.06	0.03		2.0	
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Benzo(a)anthracene	0.182	1.37	5.4	<1	<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Benzo(a)pyrene	0.125	0.137	4.2	<1	<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Benzo(b)fluoranthene	0.113	1.37	9.0	<1	<1
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Benzo(b)fluoranthene	0.112	1.37	9.0	<1	<1
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Benzo(b)fluoranthene	0.0669	1.37	9.0	<1	<1
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Benzo(g,h,i)perylene	0.337		1.6		<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Benzo(g,h,i)perylene	0.288		1.6		<1
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Benzo(g,h,i)perylene	0.126		1.6		<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Benzo(k)fluoranthene	0.0408	13.7	9.0	<1	<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Chrysene	0.116	137	9.2	<1	<1
Floyd & Snider 1999b	4/27/1999	S9-2	0.5	Diesel-range hydrocarbons	29,170	2,000		15	
Floyd & Snider 1999b	4/27/1999	S14-2	0.5	Diesel-range hydrocarbons	27,610	2,000		14	
Floyd & Snider 1999b	4/27/1999	S9-1	0.5	Diesel-range hydrocarbons	19,530	2,000		9.8	
Floyd & Snider 1999b	4/27/1999	S14-1	0.5	Diesel-range hydrocarbons	12,250	2,000		6.1	
Floyd & Snider 1999b	4/27/1999	S6-2	0.5	Diesel-range hydrocarbons	11,600	2,000		5.8	
Floyd & Snider 1999a	1/14/1999	S-14	0-0.5	Diesel-range hydrocarbons	9,750	2,000		4.9	
Floyd & Snider 1999b	4/27/1999	S6-1	0.5	Diesel-range hydrocarbons	7,460	2,000		3.7	
Floyd & Snider 1999a	1/14/1999	S-1	0-0.5	Diesel-range hydrocarbons	7,440	2,000		3.7	
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Diesel-range hydrocarbons	6,310	2,000		3.2	
Floyd & Snider 1999a	1/14/1999	S-2	0-0.5	Diesel-range hydrocarbons	5,350	2,000		2.7	
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Diesel-range hydrocarbons	5,060	2,000		2.5	
Floyd & Snider 1999a	1/14/1999	S-4	2.0-3.0	Diesel-range hydrocarbons	4,790	2,000		2.4	
Floyd & Snider 1999a	4/4/1997	MW-2	5.0-6.5	Diesel-range hydrocarbons	4,500	2,000		2.3	
Floyd & Snider 1999b	4/27/1999	S5-2	0.5	Diesel-range hydrocarbons	4,390	2,000		2.2	
Floyd & Snider 1999b	4/27/1999	S6-1 (OE)	2	Diesel-range hydrocarbons	4,330	2,000		2.2	
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Diesel-range hydrocarbons	4,050	2,000		2.0	
Floyd & Snider 1999a	1/14/1999	S-3	0-0.5	Diesel-range hydrocarbons	3,800	2,000		1.9	
Floyd & Snider 1999b	4/27/1999	S8-1	0.5	Diesel-range hydrocarbons	3,530	2,000		1.8	
Floyd & Snider 1999a	1/14/1999	S-9	0-0.5	Diesel-range hydrocarbons	3,510	2,000		1.8	
Floyd & Snider 1999b	4/27/1999	S6-2 (OE)	2	Diesel-range hydrocarbons	3,198	2,000		1.6	
Floyd & Snider 1999b	4/27/1999	S1-4	4	Diesel-range hydrocarbons	3,108	2,000		1.6	
Floyd & Snider 1999b	4/27/1999	S8-2	0.5	Diesel-range hydrocarbons	2,518	2,000		1.3	
Floyd & Snider 1999b	4/27/1999	S11-2	0.5	Diesel-range hydrocarbons	2,439	2,000		1.2	
Floyd & Snider 1999b	4/27/1999	S1-2	2-4	Diesel-range hydrocarbons	2,393	2,000		1.2	
Floyd & Snider 1999a	1/14/1999	S-8	0-0.5	Diesel-range hydrocarbons	2,260	2,000		1.1	

Table C-10
Chemicals Detected in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Diesel-range hydrocarbons	1,810	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S5-1	0.5	Diesel-range hydrocarbons	1,532	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-5	0-0.5	Diesel-range hydrocarbons	1,500	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-13	0-0.5	Diesel-range hydrocarbons	1,300	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-11	0-0.5	Diesel-range hydrocarbons	1,130	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-4	0-0.5	Diesel-range hydrocarbons	1,110	2,000		<1	
Floyd & Snider 1999a	4/4/1997	MW-2	2.5-4.0	Diesel-range hydrocarbons	1,100	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Diesel-range hydrocarbons	989	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S1-3	5-6	Diesel-range hydrocarbons	916	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S1-1	2-4	Diesel-range hydrocarbons	898	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S1-5	6	Diesel-range hydrocarbons	454	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-7	0-0.5	Diesel-range hydrocarbons	265	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S11-1	0.5	Diesel-range hydrocarbons	244	2,000		<1	
Floyd & Snider 1999a	4/4/1997	MW-1	2.5-4.0	Diesel-range hydrocarbons	210	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-10	0-0.5	Diesel-range hydrocarbons	73	2,000		<1	
Floyd & Snider 1999a	4/4/1997	MW-4	2.5-4.0	Diesel-range hydrocarbons	58	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S9-2 (OE)	3	Diesel-range hydrocarbons	17	2,000		<1	
Floyd & Snider 1999b	4/27/1999	S9-1 (OE)	3	Diesel-range hydrocarbons	12.2	2,000		<1	
Floyd & Snider 1999b	4/29/1999	S14-1 (OE)	3	Diesel-range hydrocarbons	11.5	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Fluoranthene	0.0564	3,200	24	<1	<1
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Gasoline-range hydrocarbons	360	30		12	
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Gasoline-range hydrocarbons	28.2	30		<1	
Floyd & Snider 1999a	1/14/1999	S-1	0-0.5	Heavy oil-range hydrocarbons	26,900	2,000		13	
Floyd & Snider 1999a	1/14/1999	S-14	0-0.5	Heavy oil-range hydrocarbons	18,300	2,000		9.2	
Floyd & Snider 1999a	1/14/1999	S-2	0-0.5	Heavy oil-range hydrocarbons	16,800	2,000		8.4	
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Heavy oil-range hydrocarbons	16,600	2,000		8.3	
Floyd & Snider 1999a	1/14/1999	S-9	0-0.5	Heavy oil-range hydrocarbons	16,200	2,000		8.1	
Floyd & Snider 1999a	4/4/1997	MW-2	5.0-6.5	Heavy oil-range hydrocarbons	14,000	2,000		7.0	
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Heavy oil-range hydrocarbons	12,400	2,000		6.2	
Floyd & Snider 1999a	1/14/1999	S-3	0-0.5	Heavy oil-range hydrocarbons	12,100	2,000		6.1	
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Heavy oil-range hydrocarbons	10,600	2,000		5.3	
Floyd & Snider 1999a	1/14/1999	S-4	2.0-3.0	Heavy oil-range hydrocarbons	6,310	2,000		3.2	
Floyd & Snider 1999a	1/14/1999	S-8	0-0.5	Heavy oil-range hydrocarbons	6,200	2,000		3.1	
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Heavy oil-range hydrocarbons	5,310	2,000		2.7	
Floyd & Snider 1999a	1/14/1999	S-5	0-0.5	Heavy oil-range hydrocarbons	4,830	2,000		2.4	
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Heavy oil-range hydrocarbons	3,770	2,000		1.9	
Floyd & Snider 1999a	1/14/1999	S-11	0-0.5	Heavy oil-range hydrocarbons	3,390	2,000		1.7	

Table C-10
Chemicals Detected in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999a	1/14/1999	S-4	0-0.5	Heavy oil-range hydrocarbons	2,650	2,000		1.3	
Floyd & Snider 1999a	4/4/1997	MW-2	2.5-4.0	Heavy oil-range hydrocarbons	2,500	2,000		1.3	
Floyd & Snider 1999a	1/14/1999	S-13	0-0.5	Heavy oil-range hydrocarbons	2,210	2,000		1.1	
Floyd & Snider 1999a	4/4/1997	MW-1	5.0-6.5	Heavy oil-range hydrocarbons	800	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-7	0-0.5	Heavy oil-range hydrocarbons	703	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-10	0-0.5	Heavy oil-range hydrocarbons	411	2,000		<1	
Floyd & Snider 1999a	4/4/1997	MW-1	2.5-4.0	Heavy oil-range hydrocarbons	330	2,000		<1	
Floyd & Snider 1999a	4/4/1997	MW-4	2.5-4.0	Heavy oil-range hydrocarbons	260	2,000		<1	
Floyd & Snider 1999a	4/4/1997	MW-3	2.5-4.0	Heavy oil-range hydrocarbons	120	2,000		<1	
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Indeno(1,2,3-cd)pyrene	0.0502	1.37	1.8	<1	<1
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Indeno(1,2,3-cd)pyrene	0.0446	1.37	1.8	<1	<1
Floyd & Snider 1999a	1/14/1999	S-8	0-0.5	Lead	1,590	250	1,300	6.4	1.2
Floyd & Snider 1999a	1/14/1999	S-14	0-0.5	Lead	1,370	250	1,300	5.5	1.1
Floyd & Snider 1999b	4/27/1999	S14-1	0.5	Lead	1,160	250	1,300	4.6	<1
Floyd & Snider 1999b	4/27/1999	S6-1	0.5	Lead	1,130	250	1,300	4.5	<1
Floyd & Snider 1999a	1/14/1999	S-3	0-0.5	Lead	959	250	1,300	3.8	<1
Floyd & Snider 1999a	1/14/1999	S-9	0-0.5	Lead	780	250	1,300	3.1	<1
Floyd & Snider 1999b	4/27/1999	S9-1	0.5	Lead	780	250	1,300	3.1	<1
Floyd & Snider 1999b	4/27/1999	S6-1 (OE)	2	Lead	768	250	1,300	3.1	<1
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Lead	758	250	1,300	3.0	<1
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Lead	695	250	1,300	2.8	<1
Floyd & Snider 1999a	1/14/1999	S-2	0-0.5	Lead	682	250	1,300	2.7	<1
Floyd & Snider 1999a	1/14/1999	S-7	0-0.5	Lead	669	250	1,300	2.7	<1
Floyd & Snider 1999b	4/27/1999	S6-2	1	Lead	655	250	1,300	2.6	<1
Floyd & Snider 1999b	4/27/1999	S6-2 (OE)	2	Lead	616	250	1,300	2.5	<1
Floyd & Snider 1999a	1/14/1999	S-1	0-0.5	Lead	612	250	1,300	2.4	<1
Floyd & Snider 1999b	4/27/1999	S14-2	0.5	Lead	562	250	1,300	2.2	<1
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Lead	485	250	1,300	1.9	<1
Floyd & Snider 1999a	1/14/1999	S-4	0-0.5	Lead	470	250	1,300	1.9	<1
Floyd & Snider 1999b	4/27/1999	S11-2	0.5	Lead	452	250	1,300	1.8	<1
Floyd & Snider 1999a	1/14/1999	S-5	0-0.5	Lead	448	250	1,300	1.8	<1
Floyd & Snider 1999b	4/27/1999	S1-4	4	Lead	448	250	1,300	1.8	<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Lead	316	250	1,300	1.3	<1
Floyd & Snider 1999b	4/27/1999	S1-1	2-4	Lead	313	250	1,300	1.3	<1
Floyd & Snider 1999a	1/14/1999	S-1	2.0-3.0	Lead	298	250	1,300	1.2	<1
Floyd & Snider 1999a	1/14/1999	S-4	2.0-3.0	Lead	237	250	1,300	<1	<1
Floyd & Snider 1999a	1/14/1999	S-13	0-0.5	Lead	235	250	1,300	<1	<1

Table C-10
Chemicals Detected in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999b	4/27/1999	S8-2	0.5	Lead	228	250	1,300	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-2	2.5-4.0	Lead	220	250	1,300	<1	<1
Floyd & Snider 1999a	1/14/1999	S-10	0-0.5	Lead	201	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S1-2	2-4	Lead	177	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S8-1	0.5	Lead	168	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S1-5	6	Lead	121	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S9-2	0.5	Lead	105	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S5-2	0.5	Lead	91	250	1,300	<1	<1
Floyd & Snider 1999a	1/14/1999	S-11	0-0.5	Lead	72	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S11-1	0.5	Lead	53.8	250	1,300	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-4	2.5-4.0	Lead	47	250	1,300	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-1	2.5-4.0	Lead	41	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S5-1	0.5	Lead	31.2	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S1-3	5-6	Lead	19	250	1,300	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-3	2.5-4.0	Lead	6.3	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S9-1 (OE)	3	Lead	5.49	250	1,300	<1	<1
Floyd & Snider 1999b	4/29/1999	S14-1 (OE)	3	Lead	4.29	250	1,300	<1	<1
Floyd & Snider 1999b	4/27/1999	S9-2 (OE)	3	Lead	2.88	250	1,300	<1	<1
Floyd & Snider 1999a	1/14/1999	S-15	0-0.5	Pyrene	0.373	2,400	28	<1	<1
Floyd & Snider 1999a	1/14/1999	S-6	0-0.5	Pyrene	0.168	2,400	28	<1	<1
Floyd & Snider 1999a	1/14/1999	S-12	0-0.5	Pyrene	0.0706	2,400	28	<1	<1
Floyd & Snider 1999a	1/14/1999	S-2	2.0-3.0	Xylenes	0.2	9		<1	

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟩	Soil removed during remedial excavation
🟨	Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 7.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-11
Chemicals Detected in Groundwater
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Floyd & Snider 1999b	5/3/1999	MW-4	Arsenic	23.9	0.0583	370	410	<1
Floyd & Snider 1999a	1/14/1999	MW-4	Arsenic	17.4	0.0583	370	298	<1
Floyd & Snider 1999a	1/14/1999	MW-3	Arsenic	16.7	0.0583	370	286	<1
Floyd & Snider 1999a	1/14/1999	MW-2	Arsenic	10.7	0.0583	370	184	<1
Floyd & Snider 1999b	5/3/1999	MW-3	Arsenic	7.7	0.0583	370	132	<1
Floyd & Snider 1999a	4/4/1997	MW-3	Arsenic	5.5	0.0583	370	94	<1
Floyd & Snider 1999b	5/3/1999	MW-2R	Arsenic	5.5	0.0583	370	94	<1
Floyd & Snider 1999b	5/3/1999	MW-1	Arsenic	1.3	0.0583	370	22	<1
Floyd & Snider 1999a	1/14/1999	MW-1	Arsenic	1.2	0.0583	370	21	<1
Floyd & Snider 1999a	4/4/1997	MW-3	Cadmium	11	5.0	3.4	2.2	3.2
Floyd & Snider 1999a	4/4/1997	MW-3	Chloroform	2.0	80		<1	
Floyd & Snider 1999a	4/4/1997	MW-1	Chloroform	1.6	80		<1	
Floyd & Snider 1999a	1/14/1999	MW-3	Chromium	11.2	50	320	<1	<1
Floyd & Snider 1999b	5/3/1999	MW-3	Chromium	5.9	50	320	<1	<1
Floyd & Snider 1999b	5/3/1999	MW-4	Chromium	3.4	50	320	<1	<1
Floyd & Snider 1999a	1/14/1999	MW-4	Chromium	2.5	50	320	<1	<1
Floyd & Snider 1999a	1/14/1999	MW-2	Chromium	2.1	50	320	<1	<1
Floyd & Snider 1999b	5/3/1999	MW-2R	Chromium	1.5	50	320	<1	<1
Floyd & Snider 1999a	1/14/1999	MW-2	Diesel-range hydrocarbons	1,150	500		2.3	
Floyd & Snider 1999a	4/4/1997	MW-2	Diesel-range hydrocarbons	800	500		1.6	
Floyd & Snider 1999a	1/14/1999	MW-4	Diesel-range hydrocarbons	258	500		<1	
Floyd & Snider 1999b	5/3/1999	MW-2R	Lead	9.7	15	13	<1	<1
Floyd & Snider 1999a	1/14/1999	MW-3	Lead	2.3	15	13	<1	<1
Floyd & Snider 1999a	1/14/1999	MW-2	Lead	2.0	15	13	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-3	Lead	1.6	15	13	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-2	Lead	1.0	15	13	<1	<1
Floyd & Snider 1999a	4/4/1997	MW-4	Methylene chloride	3.8	5		<1	
Floyd & Snider 1999a	4/4/1997	MW-1	Methylene chloride	2.1	5		<1	
Floyd & Snider 1999a	4/4/1997	MW-2	Methylene chloride	2.1	5		<1	
Floyd & Snider 1999a	4/4/1997	MW-3	Methylene chloride	2.1	5		<1	

🟨 Chemical exceedance

GW - Groundwater

ug/L - Micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-12
Chemicals Detected in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Anthracene	0.52	24,000	1.2	<1	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Aroclor 1248	0.23	0.5	0.065	<1	3.5
GeoEngineers 1990	Jan-90	14	1.2	Aroclor 1254	0.58	0.5	0.065	1.2	8.9
GeoEngineers 1990	Jan-90	2	0	Aroclor 1254	0.38	0.5	0.065	<1	5.8
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Aroclor 1254	0.3	0.5	0.065	<1	4.9
GeoEngineers 1990	Jan-90	8	0.4	Aroclor 1254	0.31	0.5	0.065	<1	4.8
GeoEngineers 1990	Jan-90	12	2.7	Aroclor 1254	0.26	0.5	0.065	<1	4.0
GeoEngineers 1990	Jan-90	9	0.4	Aroclor 1254	0.17	0.5	0.065	<1	2.6
GeoEngineers 1990	Jan-90	10	0.9	Aroclor 1254	0.17	0.5	0.065	<1	2.6
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Aroclor 1260	1.3	0.5	0.065	2.6	20
GeoEngineers 1990	Jan-90	14	1.2	Aroclor 1260	1.1	0.5	0.065	2.2	17
GeoEngineers 1990	Jan-90	2	0	Aroclor 1260	0.78	0.5	0.065	1.6	12
GeoEngineers 1990	Jan-90	8	0.4	Aroclor 1260	0.65	0.5	0.065	1.3	10
GeoEngineers 1990	Jan-90	12	2.7	Aroclor 1260	0.42	0.5	0.065	<1	6.5
GeoEngineers 1990	Jan-90	10	0.9	Aroclor 1260	0.4	0.5	0.065	<1	6.2
GeoEngineers 1990	Jan-90	9	0.4	Aroclor 1260	0.36	0.5	0.065	<1	5.5
GeoEngineers 1989a	4/17/1989	TP-23		Arsenic	210	0.67	590	313	<1
Hart Crowser 1996	1994	B-3	1 to 8	Arsenic	205	0.67	590	306	<1
GeoEngineers 1989a	4/17/1989	TP-27		Arsenic	190	0.67	590	284	<1
GeoEngineers 1989a	4/18/1989	TP-31		Arsenic	170	0.67	590	254	<1
GeoEngineers 1989a	4/18/1989	TP-34		Arsenic	150	0.67	590	224	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Arsenic	89	0.67	590	133	<1
GeoEngineers 1989a	5/26/1988	CKD Composite		Arsenic	5.6	0.67	590	8.4	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Barium	230				
GeoEngineers 1989a	4/17/1989	TP-27		Barium	120				
GeoEngineers 1989a	4/18/1989	TP-34		Barium	93				
GeoEngineers 1989a	4/17/1989	TP-23		Barium	83				
GeoEngineers 1989a	4/18/1989	TP-31		Barium	69				
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Benzo(a)anthracene	0.22	1.37	0.27	<1	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Benzo(g,h,i)perylene	0.24		0.078		3.1
GeoEngineers 1989a	4/17/1989	TP-27		Cadmium	4	2	1.7	1.9	2.2
GeoEngineers 1989a	4/17/1989	TP-23		Cadmium	3.5	2	1.7	1.8	2.1
GeoEngineers 1989a	4/18/1989	TP-34		Cadmium	3	2	1.7	1.6	1.8
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Cadmium	2	2	1.7	1.2	1.4
GeoEngineers 1989a	4/18/1989	TP-31		Cadmium	2	2	1.7	<1	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Chromium	110		270		<1
GeoEngineers 1989a	4/17/1989	TP-23		Chromium	30		270		<1
GeoEngineers 1989a	4/17/1989	TP-27		Chromium	29		270		<1

Table C-12
Chemicals Detected in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1989a	4/18/1989	TP-34		Chromium	29		270		<1
GeoEngineers 1989a	4/18/1989	TP-31		Chromium	28		270		<1
GeoEngineers 1989a	5/26/1988	CKD Composite		Chromium	27.1		270		<1
Hart Crowser 1996	1994	B-3	1 to 8	Chromium	18.3		270		<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Chrysene	0.22	137	0.46	<1	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Copper	430	3,200	39	<1	11
GeoEngineers 1989a	4/18/1989	TP-34		Copper	100	3,200	39	<1	2.6
GeoEngineers 1989a	4/17/1989	TP-23		Copper	89	3,200	39	<1	2.3
GeoEngineers 1989a	4/17/1989	TP-27		Copper	85	3,200	39	<1	2.2
GeoEngineers 1989a	4/18/1989	TP-31		Copper	80	3,200	39	<1	2.1
GeoEngineers 1989a	5/26/1988	CKD Composite		Copper	42	3,200	39	<1	1.1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Fluoranthene	0.42	3,200	1.2	<1	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Lead	9,500	250	67	38	142
GeoEngineers 1989a	4/17/1989	TP-27		Lead	1,730	250	67	6.9	26
GeoEngineers 1989a	4/17/1989	TP-23		Lead	1300	250	67	5.2	19
Hart Crowser 1996	1994	B-3	1 to 8	Lead	1,107	250	67	4.4	17
GeoEngineers 1989a	4/18/1989	TP-34		Lead	1,080	250	67	4.3	16
GeoEngineers 1989a	4/18/1989	TP-31		Lead	960	250	67	3.8	14
GeoEngineers 1989a	5/26/1988	CKD Composite		Lead	60	250	67	<1	<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Methylene chloride	0.29	0.02		15	
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Nickel	65				
GeoEngineers 1989a	5/26/1988	CKD Composite		Nickel	33				
GeoEngineers 1989a	4/17/1989	TP-23		Nickel	14				
GeoEngineers 1989a	4/17/1989	TP-27		Nickel	10				
GeoEngineers 1989a	4/18/1989	TP-31		Nickel	10				
GeoEngineers 1989a	4/18/1989	TP-34		Nickel	9				
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		PCBs, total	1.9	0.5	0.065	3.8	29
GeoEngineers 1990	Jan-90	14	1.2	PCBs, total	1.68	0.5	0.065	3.4	26
GeoEngineers 1990	Jan-90	2	0	PCBs, total	1.16	0.5	0.065	2.3	18
GeoEngineers 1990	Jan-90	8	0.4	PCBs, total	0.96	0.5	0.065	1.9	15
GeoEngineers 1990	Jan-90	12	2.7	PCBs, total	0.68	0.5	0.065	1.4	10
GeoEngineers 1990	Jan-90	10	0.9	PCBs, total	0.57	0.5	0.065	1.1	8.8
GeoEngineers 1990	Jan-90	9	0.4	PCBs, total	0.53	0.5	0.065	1.1	8.2
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Phenanthrene	0.26		0.49		<1
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Pyrene	0.44	2,400	1.4	<1	<1
GeoEngineers 1989a	4/17/1989	TP-9		Total petroleum hydrocarbons	940	2,000		<1	
GeoEngineers 1990	Jan-90	2	0	Total petroleum hydrocarbons	900	2,000		<1	
GeoEngineers 1990	Jan-90	8	0.4	Total petroleum hydrocarbons	600	2,000		<1	

Table C-12
Chemicals Detected in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
GeoEngineers 1989a	4/17/1989	TP-6		Total petroleum hydrocarbons	570	2,000		<1	
GeoEngineers 1990	Jan-90	9	0.4	Total petroleum hydrocarbons	470	2,000		<1	
GeoEngineers 1989a	4/17/1989	TP-12		Total petroleum hydrocarbons	310	2,000		<1	
GeoEngineers 1989a	4/17/1989	TP-3		Total petroleum hydrocarbons	290	2,000		<1	
GeoEngineers 1990	Jan-90	10	0.9	Total petroleum hydrocarbons	240	2,000		<1	
GeoEngineers 1990	Jan-90	12	2.7	Total petroleum hydrocarbons	100	2,000		<1	
GeoEngineers 1990	Jan-90	14	1.2	Total petroleum hydrocarbons	84	2,000		<1	
GeoEngineers 1989a	4/17/1989	Upper Fill-Composite		Zinc	890	24,000	38	<1	23
GeoEngineers 1989a	4/18/1989	TP-31		Zinc	720	24,000	38	<1	19
GeoEngineers 1989a	4/17/1989	TP-27		Zinc	690	24,000	38	<1	18
GeoEngineers 1989a	4/17/1989	TP-23		Zinc	540	24,000	38	<1	14
GeoEngineers 1989a	4/18/1989	TP-34		Zinc	530	24,000	38	<1	14
GeoEngineers 1989a	5/26/1988	CKD Composite		Zinc	67	24,000	38	<1	1.8
10th Avenue S Ditch									
Hart Crowser 1996	8/15/1996	SED-1		Arsenic	14	0.67	590	21	<1
Hart Crowser 1996	8/15/1996	SED-1		Chromium	15		270		<1
Hart Crowser 1996	8/15/1996	SED-1		Copper	43	3,200	39	<1	1.1
Hart Crowser 1996	8/15/1996	SED-1		Lead	110	250	67	<1	1.6
Hart Crowser 1996	8/15/1996	SED-1		Zinc	160	24,000	38	<1	4.2
Hamm Creek									
Hart Crowser 1996	8/15/1996	SED-5		Arsenic	18	0.67	590	27	<1
Hart Crowser 1996	8/15/1996	SED-2		Arsenic	16	0.67	590	24	<1
Hart Crowser 1996	8/15/1996	SED-3		Arsenic	12	0.67	590	18	<1
Hart Crowser 1996	8/15/1996	SED-4		Arsenic	12	0.67	590	18	<1
Hart Crowser 1996	8/15/1996	SED-5		Chromium	91		270		<1
Hart Crowser 1996	8/15/1996	SED-4		Chromium	61		270		<1
Hart Crowser 1996	8/15/1996	SED-3		Chromium	50		270		<1
Hart Crowser 1996	8/15/1996	SED-2		Chromium	30		270		<1
Hart Crowser 1996	8/15/1996	SED-5		Copper	270	3,200	39	<1	6.9
Hart Crowser 1996	8/15/1996	SED-4		Copper	90	3,200	39	<1	2.3
Hart Crowser 1996	8/15/1996	SED-3		Copper	69	3,200	39	<1	1.8
Hart Crowser 1996	8/15/1996	SED-2		Copper	42	3,200	39	<1	1.1
Hart Crowser 1996	8/15/1996	SED-5		Lead	270	250	67	1.1	4.0
Hart Crowser 1996	8/15/1996	SED-4		Lead	240	250	67	<1	3.6
Hart Crowser 1996	8/15/1996	SED-3		Lead	160	250	67	<1	2.4
Hart Crowser 1996	8/15/1996	SED-2		Lead	79	250	67	<1	1.2
Hart Crowser 1996	8/15/1996	SED-5		Zinc	2500	24,000	38	<1	66
Hart Crowser 1996	8/15/1996	SED-3		Zinc	1300	24,000	38	<1	34

Table C-12
Chemicals Detected in Soil
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1996	8/15/1996	SED-4		Zinc	1,200	24,000	38	<1	32
Hart Crowser 1996	8/15/1996	SED-2		Zinc	760	24,000	38	<1	20
Wetland									
Hart Crowser 1996	8/15/1996	SED-6		Arsenic	14	0.67	590	21	<1
Hart Crowser 1996	8/15/1996	SED-7		Arsenic	11	0.67	590	16	<1
Hart Crowser 1996	8/15/1996	SED-8		Arsenic	9	0.67	590	13	<1
Hart Crowser 1996	8/15/1996	SED-6		Chromium	35		270		<1
Hart Crowser 1996	8/15/1996	SED-7		Chromium	34		270		<1
Hart Crowser 1996	8/15/1996	SED-8		Chromium	22		270		<1
Hart Crowser 1996	8/15/1996	SED-6		Copper	62	3,200	39	<1	1.6
Hart Crowser 1996	8/15/1996	SED-8		Copper	42	3,200	39	<1	1.1
Hart Crowser 1996	8/15/1996	SED-7		Copper	36	3,200	39	<1	<1
Hart Crowser 1996	8/15/1996	SED-6		Lead	110	250	67	<1	1.6
Hart Crowser 1996	8/15/1996	SED-7		Lead	37	250	67	<1	<1
Hart Crowser 1996	8/15/1996	SED-8		Lead	31	250	67	<1	<1
Hart Crowser 1996	8/15/1996	SED-6		Zinc	420	24,000	38	<1	11
Hart Crowser 1996	8/15/1996	SED-7		Zinc	290	24,000	38	<1	7.6
Hart Crowser 1996	8/15/1996	SED-8		Zinc	77	24,000	38	<1	2.0
East Ditch									
Hart Crowser 1996	8/15/1996	SED-9		Arsenic	8.6	0.7	590	13	<1
Hart Crowser 1996	8/15/1996	SED-10		Arsenic	2	0.67	590	3.0	<1
Hart Crowser 1996	8/15/1996	SED-9		Chromium	23		270		<1
Hart Crowser 1996	8/15/1996	SED-10		Chromium	20		270		<1
Hart Crowser 1996	8/15/1996	SED-9		Copper	49	3,200	39	<1	1.3
Hart Crowser 1996	8/15/1996	SED-10		Copper	11	3,200	39	<1	<1
Hart Crowser 1996	8/15/1996	SED-9		Lead	100	250	67	<1	1.5
Hart Crowser 1996	8/15/1996	SED-10		Lead	3	250	67	<1	<1
Hart Crowser 1996	8/15/1996	SED-9		Zinc	66	24,000	38	<1	1.7
Hart Crowser 1996	8/15/1996	SED-10		Zinc	31	24,000	38	<1	<1

Table C-12

Chemicals Detected in Soil

Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards
C - Composite sample

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is approximately 2 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-13
Chemicals Detected in Groundwater
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1996	6/21/1996	MW-2	Arsenic	140	0.0583	370	2,401	<1
Hart Crowser 1996	6/21/1996	MW-4	Arsenic	120	0.0583	370	2,058	<1
Hart Crowser 1996	6/21/1996	MW-2	Arsenic	110	0.0583	370	1,887	<1
Hart Crowser 1996	8/21/1996	MW-2	Arsenic	56	0.0583	370	961	<1
Hart Crowser 1996	8/21/1996	MW-2	Arsenic	54	0.0583	370	926	<1
Hart Crowser 1996	6/21/1996	MW-3	Arsenic	40	0.0583	370	686	<1
Hart Crowser 1996	6/21/1996	MW-3	Arsenic	26	0.0583	370	446	<1
Hart Crowser 1996	6/21/1996	MW-4	Arsenic	12	0.0583	370	206	<1
Hart Crowser 1996	8/21/1996	MW-1	Arsenic	11	0.0583	370	189	<1
Hart Crowser 1996	8/21/1996	MW-1	Arsenic	8.6	0.0583	370	148	<1
GeoEngineers 1989a	4/21/1989	MW-3	Arsenic	7	0.0583	370	120	<1
GeoEngineers 1989a	4/21/1989	MW-4	Arsenic	7	0.0583	370	120	<1
Hart Crowser 1996	6/21/1996	MW-1	Arsenic	6.2	0.0583	370	106	<1
Hart Crowser 1996	6/21/1996	MW-1	Arsenic	6	0.0583	370	103	<1
GeoEngineers 1989a	4/21/1989	MW-1	Arsenic	5	0.0583	370	86	<1
GeoEngineers 1989a	4/21/1989	MW-4	Barium	200				
GeoEngineers 1989a	4/21/1989	MW-2	Barium	170				
GeoEngineers 1989a	4/21/1989	MW-3	Barium	170				
GeoEngineers 1989a	4/21/1989	MW-1	Barium	130				
GeoEngineers 1989a	4/21/1989	MW-3	Cadmium	1.3	5	3.4	<1	<1
GeoEngineers 1989a	4/21/1989	MW-1	Cadmium	0.3	5	3.4	<1	<1
GeoEngineers 1989a	4/21/1989	MW-4	Chromium	80	50	320	1.6	<1
GeoEngineers 1989a	4/21/1989	MW-2	Chromium	50	50	320	1.0	<1
Hart Crowser 1996	6/21/1996	MW-4	Copper	49	640	120	<1	<1
Hart Crowser 1996	8/21/1996	MW-2	Copper	35	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-1	Copper	23	640	120	<1	<1
Hart Crowser 1996	8/21/1996	MW-1	Copper	14	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-2	Copper	14	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-2	Copper	13	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-1	Copper	6.9	640	120	<1	<1
Hart Crowser 1996	8/21/1996	MW-1	Copper	4.8	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-3	Copper	4.2	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-3	Copper	3.5	640	120	<1	<1
Hart Crowser 1996	8/21/1996	MW-2	Copper	2.9	640	120	<1	<1
Hart Crowser 1996	6/21/1996	MW-4	Copper	1.3	640	120	<1	<1

Table C-13
Chemicals Detected in Groundwater
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1996	6/21/1996	MW-4	Lead	160	15	13	11	12
Hart Crowser 1996	8/21/1996	MW-2	Lead	84	15	13	5.6	6.5
Hart Crowser 1996	6/21/1996	MW-2	Lead	25	15	13	1.7	1.9
Hart Crowser 1996	6/21/1996	MW-2	Lead	17	15	13	1.1	1.3
Hart Crowser 1996	6/21/1996	MW-1	Lead	17	15	13	1.1	1.3
Hart Crowser 1996	6/21/1996	MW-1	Lead	15	15	13	1.0	1.2
Hart Crowser 1996	8/21/1996	MW-1	Lead	13	15	13	<1	1.0
Hart Crowser 1996	6/21/1996	MW-3	Lead	8.4	15	13	<1	<1
GeoEngineers 1989a	4/21/1989	MW-1	Lead	8	15	13	<1	<1
GeoEngineers 1989a	4/21/1989	MW-2	Lead	7	15	13	<1	<1
GeoEngineers 1989a	4/21/1989	MW-4	Lead	6	15	13	<1	<1
Hart Crowser 1996	6/21/1996	MW-3	Lead	3.5	15	13	<1	<1
Hart Crowser 1996	8/21/1996	MW-1	Lead	3.0	15	13	<1	<1
Hart Crowser 1996	8/21/1996	MW-2	Nickel	16				
Hart Crowser 1996	6/21/1996	MW-2	Nickel	15				
Hart Crowser 1996	6/21/1996	MW-2	Nickel	14				
Hart Crowser 1996	6/21/1996	MW-4	Nickel	14				
Hart Crowser 1996	8/21/1996	MW-2	Silver	0.25	80	2	<1	<1
GeoEngineers 1989a	4/21/1989	MW-2	Total petroleum hydrocarbons	170	500		<1	
Hart Crowser 1996	8/21/1996	MW-2	Zinc	180	4,800	76	<1	2.4
Hart Crowser 1996	8/21/1996	MW-1	Zinc	91	4,800	76	<1	1.2
Hart Crowser 1996	6/21/1996	MW-4	Zinc	85	4,800	76	<1	1.1
Hart Crowser 1996	6/21/1996	MW-4	Zinc	82	4,800	76	<1	1.1
Hart Crowser 1996	6/21/1996	MW-1	Zinc	82	4,800	76	<1	1.1
GeoEngineers 1989a	4/21/1989	MW-4	Zinc	50	4,800	76	<1	<1
GeoEngineers 1989a	4/21/1989	MW-2	Zinc	30	4,800	76	<1	<1
Hart Crowser 1996	8/21/1996	MW-2	Zinc	28	4,800	76	<1	<1
Hart Crowser 1996	6/21/1996	MW-2	Zinc	23	4,800	76	<1	<1
Hart Crowser 1996	8/21/1996	MW-1	Zinc	22	4,800	76	<1	<1
Hart Crowser 1996	6/21/1996	MW-2	Zinc	22	4,800	76	<1	<1
GeoEngineers 1989a	4/21/1989	MW-3	Zinc	9	4,800	76	<1	<1

Table C-13
Chemicals Detected in Groundwater
Simplex Grinnell/Sherwin Williams/NRC Environmental (Former Markey Machinery Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor

GW - Groundwater

ug/L - Micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-14
Chemicals Detected in Surface Water
Former Markey Machinery Property (Simplex Grinnell/Sherwin Williams/NRC Environmental)

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor
10th Avenue S Ditch								
Hart Crowser 1996	7/19/1996	SW-2	Arsenic	25	0.098	190	255	<1
Hart Crowser 1996	7/19/1996	SW-1	Arsenic	24	0.098	190	245	<1
Hart Crowser 1996	7/19/1996	SW-1	Arsenic	22	0.098	190	224	<1
Hart Crowser 1996	7/19/1996	SW-2	Arsenic	21	0.098	190	214	<1
Hart Crowser 1996	7/19/1996	SW-1	Chromium	10				
Hart Crowser 1996	7/19/1996	SW-2	Copper	99	2,900	3.5	<1	28
Hart Crowser 1996	7/19/1996	SW-2	Copper	94	2,900	3.5	<1	27
Hart Crowser 1996	7/19/1996	SW-1	Copper	92	2,900	3.5	<1	26
Hart Crowser 1996	7/19/1996	SW-1	Copper	89	2,900	3.5	<1	25
Hart Crowser 1996	7/19/1996	SW-2	Lead	19		0.54		35
Hart Crowser 1996	7/19/1996	SW-1	Lead	15		0.54		28
Hart Crowser 1996	7/19/1996	SW-1	Lead	8.9		0.54		16
Hart Crowser 1996	7/19/1996	SW-2	Lead	8.6		0.54		16
Hart Crowser 1996	7/19/1996	SW-2	Nickel	17				
Hart Crowser 1996	7/19/1996	SW-2	Nickel	16				
Hart Crowser 1996	7/19/1996	SW-1	Nickel	14				
Hart Crowser 1996	7/19/1996	SW-1	Nickel	13				
Hart Crowser 1996	7/19/1996	SW-2	Silver	0.46				
Hart Crowser 1996	7/19/1996	SW-1	Silver	0.24				
Hart Crowser 1996	7/19/1996	SW-2	Silver	0.24				
Hart Crowser 1996	7/19/1996	SW-2	Zinc	37	17,000	32	<1	1.2
Hart Crowser 1996	7/19/1996	SW-1	Zinc	28	17,000	32	<1	<1
Hart Crowser 1996	7/19/1996	SW-1	Zinc	19	17,000	32	<1	<1
Hart Crowser 1996	7/19/1996	SW-2	Zinc	19	17,000	32	<1	<1
S 96th Street Ditch								
GeoEngineers 1989a	5/26/1988	Leachate	Arsenic	10	0.098	190	102	<1
GeoEngineers 1989a	5/26/1988	Leachate	Chromium	91				
GeoEngineers 1989a	5/26/1988	Leachate	Copper	314	2,900	3.5	<1	90
GeoEngineers 1989a	4/24/1989	D	Copper	280	2,900	3.5	<1	80
GeoEngineers 1989a	5/26/1988	Leachate	Lead	297		0.54		550
GeoEngineers 1989a	4/24/1989	D	Lead	25		0.54		46
GeoEngineers 1989a	5/26/1988	Leachate	Nickel	149				
GeoEngineers 1989a	5/26/1988	Leachate	Zinc	230	17,000	32	<1	7.2

Table C-14
Chemicals Detected in Surface Water
Former Markey Machinery Property (Simplex Grinnell/Sherwin Williams/NRC Environmental)

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor
Hamm Creek								
GeoEngineers 1989a	5/26/1988	Upstream	Arsenic	3	0.098	190	31	<1
GeoEngineers 1989a	5/26/1988	Downstream	Arsenic	2	0.098	190	20	<1
GeoEngineers 1989a	5/26/1988	Upstream	Cadmium	10	41	0.37	<1	27
GeoEngineers 1989a	5/26/1988	Upstream	Chromium	14				
GeoEngineers 1989a	5/26/1988	Downstream	Copper	9	2,900	3.5	<1	2.6
GeoEngineers 1989a	5/26/1988	Upstream	Copper	6	2,900	3.5	<1	1.7
GeoEngineers 1989a	5/26/1988	Downstream	Lead	50		0.54		93
GeoEngineers 1989a	4/21/1989	A	Lead	6.0		0.54		11
GeoEngineers 1989a	5/26/1988	Downstream	Nickel	36				
GeoEngineers 1989a	5/26/1988	Upstream	Nickel	25				
GeoEngineers 1989a	5/26/1988	Upstream	Selenium	10				
GeoEngineers 1989a	5/26/1988	Downstream	Zinc	26	17,000	32	<1	<1
GeoEngineers 1989a	5/26/1988	Upstream	Zinc	22	17,000	32	<1	<1
Wetland								
GeoEngineers 1989a	4/21/1989	C	Copper	80	2,900	3.5	<1	23
GeoEngineers 1989a	4/21/1989	C	Lead	360		0.54		667

GW - Groundwater
ug/L - Micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Chronic Surface Fresh Water Quality Standard.

Table C-15
Chemicals Detected in Soil
Terex Utilities (Former Fruehauf Trailer Services)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
ATC 1999	7/17/1998	S2A-4	4	1,2,4-Trimethylbenzene	19				
ATC 1999	4/23/1998	S4-8	8	1,2,4-Trimethylbenzene	3				
ATC 1999	7/17/1998	S3A-4	4	1,2,4-Trimethylbenzene	0.017				
ATC 1999	7/17/1998	S2A-4	4	1,3,5-Trimethylbenzene	6.5	800		<1	
ATC 1999	4/23/1998	S4-8	8	1,3,5-Trimethylbenzene	1	800		<1	
ATC 1999	7/17/1998	S3A-4	4	2-Butanone	0.13	48,000		<1	
ATC 1999	7/17/1998	S3A-4	4	Acetone	0.92	72,000		<1	
ATC 1999	7/17/1998	S2A-4	4	Acetone	0.33	72,000		<1	
ATC 1999	7/17/1998	S2A-4	4	Arsenic	1	0.67	12,000	1.5	<1
ATC 1999	7/17/1998	S3A-4	4	Arsenic	0.3	0.67	12,000	<1	<1
ATC 1999	7/17/1998	S3A-4	4	Barium	97				
ATC 1999	7/17/1998	S2A-4	4	Barium	50				
ATC 1999	4/23/1998	S4-8	8	Barium	37				
ATC 1999	7/17/1998	S2A-4	4	Cadmium	0.4	2	34	<1	<1
ATC 1999	7/17/1998	S3A-4	4	Cadmium	0.4	2	34	<1	<1
ATC 1999	7/17/1998	S3A-4	4	Chromium	30		5,400		<1
ATC 1999	4/23/1998	S4-8	8	Chromium	22		5,400		<1
ATC 1999	7/17/1998	S2A-4	4	Chromium	20		5,400		<1
ATC 1999	7/17/1998	S2A-4	4	Diesel-range hydrocarbons	3,600	2,000		1.8	
ATC 1999	5/22/1998	S11-4.5	4.5	Diesel-range hydrocarbons	1800	2,000		<1	
ATC 1999	4/23/1998	S4-8	8	Diesel-range hydrocarbons	1100	2,000		<1	
ATC 1999	4/23/1998	S7-6	6	Diesel-range hydrocarbons	460	2,000		<1	
ATC 1999	4/23/1998	S5-6	6	Diesel-range hydrocarbons	160	2,000		<1	
ATC 1999	7/17/1998	S2A-4	4	Ethylbenzene	1.8	6		<1	
ATC 1999	4/23/1998	S4-8	8	Ethylbenzene	0.94	6		<1	
ATC 1999	7/17/1998	S3A-4	4	Ethylbenzene	0.01	6		<1	
ATC 1999	4/23/1998	S4-8	8	Fluorene	0.14	3,200	1.6	<1	<1
ATC 1999	5/22/1998	S11-4.5	4.5	Heavy oil-range hydrocarbons	7,400	2,000		3.7	
ATC 1999	4/23/1998	S4-8	8	Heavy oil-range hydrocarbons	2,300	2,000		1.2	
ATC 1999	4/23/1998	S7-6	6	Heavy oil-range hydrocarbons	920	2,000		<1	
ATC 1999	4/23/1998	S5-6	6	Heavy oil-range hydrocarbons	170	2,000		<1	
ATC 1999	5/22/1998	S9-6	6	Heavy oil-range hydrocarbons	57	2,000		<1	
ATC 1999	7/17/1998	S2A-4	4	Isopropylbenzene	0.65	8,000		<1	
ATC 1999	4/23/1998	S4-8	8	Isopropylbenzene	0.065	8,000		<1	
ATC 1999	7/17/1998	S3A-4	4	Lead	11	250	1,300	<1	<1
ATC 1999	7/17/1998	S2A-4	4	Lead	10	250	1,300	<1	<1

Table C-15
Chemicals Detected in Soil
Terex Utilities (Former Fruehauf Trailer Services)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
ATC 1999	7/17/1998	S3A-4	4	Mercury	0.89	2	0.59	<1	1.5
ATC 1999	7/17/1998	S2A-4	4	Mercury	0.14	2	0.59	<1	<1
ATC 1999	4/23/1998	S4-8	8	Mercury	0.082	2	0.59	<1	<1
ATC 1999	4/23/1998	S4-8	8	Naphthalene	1.6	5	3.8	<1	<1
ATC 1999	7/17/1998	S2A-4	4	Naphthalene	0.09	5	3.8	<1	<1
ATC 1999	4/23/1998	S4-8	8	N-Butyl benzene	0.098				
ATC 1999	7/17/1998	S2A-4	4	N-propyl benzene	1.4	8,000		<1	
ATC 1999	4/23/1998	S4-8	8	N-propyl benzene	0.17	8,000		<1	
ATC 1999	4/23/1998	S4-8	8	Phenanthrene	0.28		9.7		<1
ATC 1999	7/17/1998	S2A-4	4	P-Isopropyltoluene	0.77				
ATC 1999	4/23/1998	S4-8	8	P-Isopropyltoluene	0.062				
ATC 1999	7/17/1998	S2A-4	4	S-Butyl benzene	0.49				
ATC 1999	4/23/1998	S4-8	8	S-Butyl benzene	0.062				
ATC 1999	7/17/1998	S2A-4	4	Tetrachloroethene	0.62	0.05		12	
ATC 1999	7/17/1998	S2A-4	4	Toluene	0.51	7		<1	
ATC 1999	4/23/1998	S4-8	8	Toluene	0.011	7		<1	
ATC 1999	7/17/1998	S2A-4	4	Trichloroethene	0.024	0.03		<1	
ATC 1999	7/17/1998	S2A-4	4	Xylenes, m+p	11	9		1.2	
ATC 1999	4/23/1998	S4-8	8	Xylenes, m+p	3.4	9		<1	
ATC 1999	7/17/1998	S2A-4	4	Xylenes, o	3.8	9		<1	
ATC 1999	4/23/1998	S4-8	8	Xylenes, o	1.1	9		<1	

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is greater than 10 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-16
Chemicals Detected in Soil
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Acetone	0.028	72,000		<1	
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Arsenic	25	0.67	12,000	37	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Arsenic	15.6	0.67	12,000	23	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Arsenic	12.8	0.67	590	19	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Arsenic	10.8	0.7	590	16	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Cadmium	0.9	2	1.7	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Cadmium	0.5	2	34	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Cadmium	0	2	34	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Cadmium	0.3	2	1.7	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Chromium	127		5,400		<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Chromium	72		270		<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Chromium	69.4		270		<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Chromium	64		5,400		<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Copper	147	3,200	780	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Copper	14.9	3,200	780	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Copper	13.2	3,200	39	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Copper	11.1	3,200	39	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Cyanide	0.462	1,600	0.66	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Cyanide	0.363	1,600	0.66	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Lead	58.9	250	1,300	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Lead	7.7	250	67	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Lead	3	250	1,300	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Mercury	0.19	2	0.59	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Mercury	0.04	2	0.59	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Mercury	0.03	2	0.03	<1	1.0
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Mercury	0.02	2	0.03	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Nickel	109				
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Nickel	88.3				
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Nickel	53				
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Nickel	43				
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Toluene	0.011	7		<1	
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Trichloroethene	0.071	0.03		2.4	
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Trichloroethene	0.011	0.03		<1	
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Zinc	504	24,000	770	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Zinc	179	24,000	38	<1	4.7
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Zinc	98.7	24,000	770	<1	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Zinc	87.8	24,000	38	<1	2.3

Table C-16
Chemicals Detected in Soil
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater was observed at 6.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-17
Chemicals Detected in Groundwater
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991b	5/13/1991	MW-01	1,1,1-Trichloroethane	330	200		1.7	
Parametrix and SAIC 1991b	5/13/1991	MW-01	1,1-Dichloroethane	8	1,600		<1	
Parametrix and SAIC 1991b	5/13/1991	MW-01	1,1-Dichloroethene	35	400		<1	
Parametrix and SAIC 1991b	5/13/1991	MW-01	1,2-Dichloroethene	38	72		<1	
Parametrix and SAIC 1991b	5/13/1991	MW-01	2-Butanone	23	4,800		<1	
Parametrix and SAIC 1991b	5/13/1991	MW-01	Acetone	74	7,200		<1	
Parametrix and SAIC 1991b	5/14/1991	MW-01	Arsenic	46	0.0583	370	789	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Arsenic	22	0.0583	370	377	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Cadmium	358	5	3.4	72	105
Parametrix and SAIC 1991b	5/14/1991	MW-01	Cadmium	327	5	3.4	65	96
Parametrix and SAIC 1991b	5/14/1991	MW-01	Chromium	5,590	50	320	112	17
Parametrix and SAIC 1991b	5/14/1991	MW-01	Chromium	5,320	50	320	106	17
Parametrix and SAIC 1991b	5/14/1991	MW-01	Copper	7,380	640	120	12	62
Parametrix and SAIC 1991b	5/14/1991	MW-01	Copper	6,420	640	120	10	54
Parametrix and SAIC 1991b	5/13/1991	MW-01	Cyanide	53				
Parametrix and SAIC 1991b	5/14/1991	MW-01	Lead	3	15	13	<1	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Lead	3	15	13	<1	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Nickel	21,600				
Parametrix and SAIC 1991b	5/14/1991	MW-01	Nickel	21,100				
Parametrix and SAIC 1991b	5/13/1991	MW-01	Tetrachloroethene	300	5		60	
Parametrix and SAIC 1991b	5/13/1991	MW-01	Toluene	7	640		<1	
Parametrix and SAIC 1991b	5/13/1991	MW-01	Trichloroethene	1,500	5		300	
Parametrix and SAIC 1991b	5/14/1991	MW-01	Zinc	64,600	4,800	76	13	850
Parametrix and SAIC 1991b	5/14/1991	MW-01	Zinc	57,100	4,800	76	12	751

GW - Groundwater
ug/L - Micrograms per liter

MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-18
Chemicals Detected in Groundwater
Old Dominion Freight Line (Desimone Trust Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1991*		Well 4	Acetone	12 B	7,200		<1	
Hart Crowser 1991*		Well 2	Benzene	4	1		5.0	
Hart Crowser 1991*		Well 2	Cadmium	14	5.0	3.4	2.8	4.1
Hart Crowser 1991*		Well 2	Copper	60	640	120	<1	<1
Hart Crowser 1991*		Well 1C	Copper	20	640	120	<1	<1
Hart Crowser 1991*		Well 3A	Methylene chloride	3 JB	5.0		<1	
Hart Crowser 1991*		Well 4	Methylene chloride	3 JB	5.0		<1	
Hart Crowser 1991*		Well 2	Nickel	260				
Hart Crowser 1991*		Well 2	Toluene	5	640		<1	
Hart Crowser 1991*		Well 2	Zinc	106,000	4,800	76	22	1,395
Hart Crowser 1991*		Well 1C	Zinc	100	4,800	76	<1	1.3
Hart Crowser 1991*		Well 3A	Zinc	100	4,800	76	<1	1.3
Hart Crowser 1991*		Well 4	Zinc	60	4,800	76	<1	<1

GW - Groundwater
ug/L - Micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

B - Possible blank contamination
J - Estimated value
🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

*As cited in Herrera 1994

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Former Penberthy Electromelt Property									
PGG 2001b	1/22/2001	S-5-0-6	0.5	2,3,7,8-TCDD TEQ	0.00046	0.000011		42	
PGG 2001b	1/22/2001	S-13-0-6	0.5	2,3,7,8-TCDD TEQ	0.00044	0.000011		40	
PGG 2001b	1/23/2001	S-7-0-6	0.5	2,3,7,8-TCDD TEQ	0.0002	0.000011		18	
PGG 2001b	1/22/2001	S-14-0-6	0.5	2,3,7,8-TCDD TEQ	7.90E-05	0.000011		7.2	
PGG 2001b	1/23/2001	S-9-0-6	0.5	2,3,7,8-TCDD TEQ	5.20E-05	0.000011		4.7	
PGG 2001b	1/22/2001	B3-48-54	4.5	2,3,7,8-TCDD TEQ	3.70E-05	0.000011		3.4	
PGG 2001b	1/22/2001	S-6-0-6	0.5	2,3,7,8-TCDD TEQ	2.20E-05	0.000011		2.0	
PGG 2001b	1/23/2001	S-10-0-6	0.5	2,3,7,8-TCDD TEQ	1.30E-05	0.000011		1.2	
PGG 2001b	1/23/2001	S-8-0-6	0.5	2,3,7,8-TCDD TEQ	1.10E-05	0.000011		1.0	
PGG 2001b	1/22/2001	B2-48-54	4.5	2,3,7,8-TCDD TEQ	9.60E-06	0.000011		<1	
PGG 2001b	1/22/2001	CS-6-0-6	0.5	2,3,7,8-TCDD TEQ	8.20E-06	0.000011		<1	
PGG 2001b	1/22/2001	B2-6-12	1	2,3,7,8-TCDD TEQ	2.30E-06	0.000011		<1	
PGG 2001b	1/22/2001	CS-1-0-6	0.5	2,3,7,8-TCDD TEQ	1.80E-06	0.000011		<1	
PGG 2001b	1/22/2001	B3-6-12	1	2,3,7,8-TCDD TEQ	1.40E-06	0.000011		<1	
PGG 2001b	1/22/2001	CS-4-0-6	0.5	2,3,7,8-TCDD TEQ	1.10E-06	0.000011		<1	
PGG 2001b	1/22/2001	B8-6-12	1	2,3,7,8-TCDD TEQ	0.00000084	0.000011		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	2,3,7,8-TCDD TEQ	0.00000074	0.000011		<1	
PGG 2001b	1/22/2001	B5-6-12	1	2,3,7,8-TCDD TEQ	0.00000069	0.000011		<1	
PGG 2001b	1/22/2001	B6-6-12	1	2,3,7,8-TCDD TEQ	0.00000063	0.000011		<1	
PGG 2001b	1/22/2001	B5-48-54	4.5	2,3,7,8-TCDD TEQ	0.00000062	0.000011		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	2,3,7,8-TCDD TEQ	0.00000062	0.000011		<1	
PGG 2001b	1/22/2001	B7-6-12	1	2,3,7,8-TCDD TEQ	0.00000057	0.000011		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	2,3,7,8-TCDD TEQ	0.00000051	0.000011		<1	
PGG 2001b	1/22/2001	CS-3-0-6	0.5	2,3,7,8-TCDD TEQ	0.00000046	0.000011		<1	
PGG 2001b	1/22/2001	B4-6-12	1	2,3,7,8-TCDD TEQ	0.00000042	0.000011		<1	
PGG 2001b	1/22/2001	CS-2-0-6	0.5	2,3,7,8-TCDD TEQ	0.00000041	0.000011		<1	
PGG 2001b	1/22/2001	B1-48-54	4.5	2,3,7,8-TCDD TEQ	0.00000034	0.000011		<1	
PGG 2001b	1/22/2001	B1-6-12	1	2,3,7,8-TCDD TEQ	0.00000012	0.000011		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	2,3,7,8-TCDD TEQ	0.000000022	0.000011		<1	
PGG 2001b	1/22/2001	CS-5-0-6	0.5	2,3,7,8-TCDD TEQ	0.000000016	0.000011		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	2-Butanone	0.0550	48,000		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	4,4'-DDD	2.4	4.2		<1	
PGG 2001b	1/22/2001	B5-48-54	4.5	4,4'-DDD	1.6	4.2		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	4,4'-DDD	1.2	4.2		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	4,4'-DDD	0.83	4.2		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	4,4'-DDD	0.36	4.2		<1	
PGG 2001b	1/22/2001	B1-48-54	4.5	4,4'-DDD	0.24	4.2		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	4,4'-DDD	0.14	4.2		<1	
PGG 2001b	1/22/2001	B3-48-54	4.5	4,4'-DDD	0.13	4.2		<1	
PGG 2001b	1/22/2001	CS-1-0-6	0.5	4,4'-DDD	0.017	4.2		<1	
PGG 2001b	1/22/2001	B6-6-12	1	4,4'-DDD	0.012	4.2		<1	

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	B8-6-12	1	4,4'-DDD	0.0044 J	4.2		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	4,4'-DDE	0.3 J	2.9		<1	
PGG 2001b	1/22/2001	B5-48-54	4.5	4,4'-DDE	0.27	2.9		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	4,4'-DDE	0.2500	2.9		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	4,4'-DDE	0.15	2.9		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	4,4'-DDE	0.14	2.9		<1	
PGG 2001b	1/22/2001	CS-1-0-6	0.5	4,4'-DDE	0.082	2.9		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	4,4'-DDE	0.071	2.9		<1	
PGG 2001b	1/22/2001	CS-2-0-6	0.5	4,4'-DDE	0.054	2.9		<1	
PGG 2001b	1/22/2001	B1-48-54	4.5	4,4'-DDE	0.045	2.9		<1	
PGG 2001b	1/22/2001	B6-6-12	1	4,4'-DDE	0.016	2.9		<1	
PGG 2001b	1/22/2001	B3-48-54	4.5	4,4'-DDE	0.014	2.9		<1	
PGG 2001b	1/22/2001	CS-1-0-6	0.5	4,4'-DDT	0.14	2.9		<1	
PGG 2001b	1/22/2001	B5-48-54	4.5	4,4'-DDT	0.13	2.9		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	4,4'-DDT	0.11	2.9		<1	
PGG 2001b	1/22/2001	CS-2-0-6	0.5	4,4'-DDT	0.089	2.9		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	4,4'-DDT	0.0440	2.9		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	4,4'-DDT	0.043	2.9		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	4,4'-DDT	0.033	2.9		<1	
PGG 2001b	1/22/2001	B6-6-12	1	4,4'-DDT	0.021	2.9		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	4,4'-DDT	0.015	2.9		<1	
PGG 2001b	1/22/2001	B5-6-12	1	4,4'-DDT	0.0054 J	2.9		<1	
PGG 2001b	1/22/2001	B1-48-54	4.5	4,4'-DDT	0.0053 J	2.9		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	Acetone	0.8	72,000		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	Acetone	0.49	72,000		<1	
PGG 2001b	1/22/2001	B5-48-54	4.5	Acetone	0.35	72,000		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	Acetone	0.063	72,000		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	Acetone	0.063	72,000		<1	
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Acetone	0.034	72,000		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	Aldrin	0.016	0.059		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	Aldrin	0.0029 J	0.059		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	Aldrin	0.0027	0.059		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	Aldrin	0.0024 J	0.059		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	alpha-Chlordane	0.016				
PGG 2001b	1/22/2001	B5-48-54	4.5	alpha-Chlordane	0.016				
PGG 2001b	1/22/2001	B2-48-54	4.5	alpha-Chlordane	0.011				
PGG 2001b	1/22/2001	B8-48-54	4.5	alpha-Chlordane	0.0095				
PGG 2001b	1/22/2001	B6-48-54	4.5	alpha-Chlordane	0.0047				
PGG 2001b	1/22/2001	B1-48-54	4.5	alpha-Chlordane	0.0025 J				
PGG 2001b	1/23/2001	S-9-0-6	0.5	Antimony	20	32		<1	
PGG 2001b	1/22/2001	S-13-0-6	0.5	Antimony	17	32		<1	
PGG 2001b	1/22/2001	B2-6-12	1	Antimony	16	32		<1	

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/23/2001	S-7-0-6	0.5	Antimony	12	32		<1	
PGG 2001b	1/22/2001	B5-6-12	1	Antimony	11	32		<1	
PGG 2001b	1/22/2001	S-B-1		Antimony	11	32		<1	
PGG 2001b	1/22/2001	S-SW		Antimony	11	32		<1	
PGG 2001b	1/23/2001	S-8-0-6	0.5	Antimony	9	32		<1	
PGG 2001b	1/22/2001	B8-6-12	1	Antimony	9	32		<1	
PGG 2001b	1/22/2001	S-SN		Antimony	9	32		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	Antimony	8	32		<1	
PGG 2001b	1/22/2001	S-Comp		Antimony	8	32		<1	
PGG 2001b	1/22/2001	B3-6-12	1	Antimony	7	32		<1	
PGG 2001b	1/22/2001	B6-6-12	1	Antimony	7	32		<1	
PGG 2001b	1/22/2001	S-6-0-6	0.5	Antimony	6	32		<1	
PGG 2001b	1/22/2001	B4-6-12	1	Antimony	6	32		<1	
PGG 2001b	1/22/2001	S-B-2S		Antimony	6	32		<1	
PGG 2001b	1/22/2001	S-SE		Antimony	6	32		<1	
PGG 2001b	1/22/2001	B7-6-12	1	Antimony	5	32		<1	
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Aroclor 1254	0.13	0.5	1.3	<1	<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Aroclor 1254	0.078	0.5	1.3	<1	<1
PGG 2001b	1/22/2001	B6-6-12	1	Aroclor 1254	0.045	0.5	1.3	<1	<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Arsenic	156	0.67	12,000	233	<1
PGG 2002	2/12/2002	Bkyd-SW+2-N	2	Arsenic	68	0.67	12,000	101	<1
PGG 2002	9/24/2001	PbO - SE		Arsenic	66	0.67	590	99	<1
PGG 2002	1/15/2002	Bkyd-SW+2	2	Arsenic	49	0.67	12,000	73	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Arsenic	44	0.67	12,000	66	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Arsenic	40	0.67	12,000	60	<1
PGG 2001b	1/22/2001	S-SW		Arsenic	40	0.67	590	60	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Arsenic	34	0.67	12,000	51	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Arsenic	32	0.67	12,000	48	<1
PGG 2002	2/12/2002	Bkyd-SW+2-S	2	Arsenic	27	0.67	12,000	40	<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Arsenic	25	0.67	12,000	37	<1
PGG 2002	12/11/2001	S-13-Conf @ 4'	4	Arsenic	25	0.67	12,000	37	<1
PGG 2002	1/15/2002	S-13-Conf-7ft	7	Arsenic	23	0.67	590	34	<1
PGG 2002	12/11/2001	Bkyd-SW+1	1	Arsenic	21	0.67	12,000	31	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Arsenic	15	0.67	12,000	22	<1
PGG 2002	9/24/2001	Beneath Sump	2	Arsenic	14	0.67	12,000	21	<1
PGG 2002	2/12/2002	Bkyd-SW+2-N Floor	2	Arsenic	14	0.67	12,000	21	<1
PGG 2002	3/13/2002	Bkyd-SW-2ft-S Native	2	Arsenic	12	0.67	12,000	18	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Arsenic	11	0.67	12,000	16	<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Arsenic	11	0.67	12,000	16	<1
PGG 2002	12/17/2001	Repeat-1-CS-3	1	Arsenic	11	0.67	12,000	16	<1
PGG 2002	2/12/2002	Bkyd-SW+2-S Floor	2	Arsenic	11	0.67	12,000	16	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Arsenic	10	0.67	12,000	15	<1

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	S-SN		Arsenic	10	0.67	590	15	<1
PGG 2002	3/13/2002	Bkyd-SW-2ft-N Native	2	Arsenic	9.8	0.67	12,000	15	<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Arsenic	9	0.67	12,000	13	<1
PGG 2002	11/9/2001	Beneath Sump - 2ft	2	Arsenic	9	0.67	12,000	13	<1
PGG 2002	3/13/2002	Bkyd-SW-4ft-Floor N	4	Arsenic	9	0.67	12,000	13	<1
PGG 2001b	1/22/2001	S-B-1		Arsenic	9	0.67	590	13	<1
PGG 2002	3/13/2002	Bkyd-SW-4ft-Floor S	4	Arsenic	8.8	0.67	12,000	13	<1
PGG 2002	11/19/2001	S-14-Conf	0.5	Arsenic	8.2	0.67	12,000	12	<1
PGG 2001b	1/22/2001	B3-6-12	1	Arsenic	8	0.67	12,000	12	<1
PGG 2001b	1/22/2001	S-Comp		Arsenic	8	0.67	590	12	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Arsenic	7.4	0.67	12,000	11	<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Arsenic	7	0.67	12,000	10	<1
PGG 2002	12/11/2001	Beneath Sump - 4ft	4	Arsenic	6.4	0.67	12,000	9.6	<1
PGG 2001b	1/22/2001	B6-6-12	1	Arsenic	6	0.67	12,000	9.0	<1
PGG 2002	11/19/2001	Bkyd-SE	1	Arsenic	5.2	0.67	12,000	7.8	<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Arsenic	4.5	0.67	12,000	6.7	<1
PGG 2002	9/24/2001	PbO - SS		Arsenic	4.2	0.67	590	6.3	<1
PGG 2002	9/24/2001	PbO - SW		Arsenic	3.9	0.67	590	5.8	<1
PGG 2002	1/29/2002	S-14-Conf @ 2'	2	Arsenic	3.6	0.67	12,000	5.4	<1
PGG 2002	11/9/2001	PbO - 2ft SE	2	Arsenic	3.2	0.67	12,000	4.8	<1
PGG 2002	9/24/2001	Drum Sump		Arsenic	3.2	0.67	590	4.8	<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Arsenic	2.7	0.67	12,000	4.0	<1
PGG 2002	9/24/2001	B2/3 Trench-6	6	Arsenic	2.4	0.67	590	3.6	<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Arsenic	2.2	0.67	12,000	3.3	<1
PGG 2002	9/24/2001	S-5-Conf	0.5	Arsenic	2.1	0.67	12,000	3.1	<1
PGG 2002	9/21/2001	Drum West		Arsenic	2.1	0.67	590	3.1	<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Arsenic	1.9	0.67	12,000	2.8	<1
PGG 2002	9/24/2001	Asphalt	0.5	Arsenic	1.6	0.67	12,000	2.4	<1
PGG 2002	9/24/2001	PbO - SN		Arsenic	1.4	0.67	590	2.1	<1
PGG 2001b	1/22/2001	B7-48-54	4.5	Beryllium	0.4	160		<1	
PGG 2001b	1/23/2001	S-9-0-6	0.5	Beryllium	0.3	160		<1	
PGG 2001b	1/22/2001	B7-6-12	1	Beryllium	0.3	160		<1	
PGG 2001b	1/22/2001	B6-48-54	4.5	Beryllium	0.3	160		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	Beryllium	0.3	160		<1	
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Beryllium	0.2	160		<1	

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Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/23/2001	S-10-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-13-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-14-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-15-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-6-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/23/2001	S-7-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/23/2001	S-8-0-6	0.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B2-6-12	1	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B3-6-12	1	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B4-6-12	1	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B6-6-12	1	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B8-6-12	1	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B1-48-54	4.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B3-48-54	4.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	B5-48-54	4.5	Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-B-2E		Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-B-2N		Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-B-2S		Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-SE		Beryllium	0.2	160		<1	
PGG 2001b	1/22/2001	S-5-0-6	0.5	Beryllium	0.1	160		<1	
PGG 2001b	1/22/2001	B5-6-12	1	Beryllium	0.1	160		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	Beryllium	0.1	160		<1	
PGG 2001b	1/22/2001	S-B-1		Beryllium	0.1	160		<1	
PGG 2001b	1/22/2001	S-SN		Beryllium	0.1	160		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	beta-BHC	0.0049	0.56		<1	
PGG 2001b	1/22/2001	S-6-0-6	0.5	Bis(2-ethylhexyl)phthalate	0.73	71	1.6	<1	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Bis(2-ethylhexyl)phthalate	0.63	71	1.6	<1	<1
PGG 2001b	1/22/2001	B5-6-12	1	Bis(2-ethylhexyl)phthalate	0.48	71	1.6	<1	<1
PGG 2001b	1/22/2001	B8-6-12	1	Bis(2-ethylhexyl)phthalate	0.47	71	1.6	<1	<1
PGG 2001b	1/22/2001	B4-6-12	1	Bis(2-ethylhexyl)phthalate	0.43	71	1.6	<1	<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Cadmium	176	2	34	88	5.2
PGG 2002	11/19/2001	S-13-Conf	0.5	Cadmium	8.8	2	34	4.4	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Cadmium	4.1	2	34	2.1	<1
PGG 2001b	1/22/2001	S-2-0-6	0.5	Cadmium	3.7	2	34	1.9	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Cadmium	3.7	2	34	1.9	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Cadmium	2.9	2	34	1.5	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Cadmium	2.1	2	34	1.1	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Cadmium	2	2	34	1.0	<1
PGG 2001b	1/22/2001	S-1-0-6	0.5	Cadmium	1.9	2	34	<1	<1
PGG 2001b	1/22/2001	S-SW		Cadmium	1.9	2	1.7	<1	1.1

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Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	11/19/2001	S-14-Conf	0.5	Cadmium	1.8	2	34	<1	<1
PGG 2001b	1/22/2001	S-B-1		Cadmium	1.6	2	1.7	<1	<1
PGG 2002	11/19/2001	Bkyd-SE	1	Cadmium	1.2	2	34	<1	<1
PGG 2002	9/24/2001	PbO - SS		Cadmium	1.2	2	1.7	<1	<1
PGG 2001b	1/22/2001	S-SN		Cadmium	1.2	2	1.7	<1	<1
PGG 2001b	1/22/2001	S-Comp		Cadmium	1.1	2	1.7	<1	<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Cadmium	1	2	34	<1	<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Cadmium	1	2	34	<1	<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Cadmium	1	2	34	<1	<1
PGG 2002	9/24/2001	PbO - SE		Cadmium	0.87	2	1.7	<1	<1
PGG 2001b	1/22/2001	S-SE		Cadmium	0.7	2	1.7	<1	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Cadmium	0.62	2	34	<1	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Cadmium	0.62	2	34	<1	<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Cadmium	0.6	2	34	<1	<1
PGG 2001b	1/22/2001	B5-48-54	4.5	Cadmium	0.6	2	34	<1	<1
PGG 2001b	1/22/2001	B6-48-54	4.5	Cadmium	0.6	2	34	<1	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Cadmium	0.4	2	34	<1	<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Cadmium	0.4	2	34	<1	<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Cadmium	0.3	2	34	<1	<1
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Cadmium	0.3	2	34	<1	<1
PGG 2001b	1/22/2001	B6-6-12	1	Cadmium	0.3	2	34	<1	<1
PGG 2001b	1/22/2001	B8-6-12	1	Cadmium	0.3	2	34	<1	<1
PGG 2001b	1/22/2001	S-B-2E		Cadmium	0.3	2	1.7	<1	<1
PGG 2001b	1/22/2001	B2-6-12	1	Cadmium	0.2	2	34	<1	<1
PGG 2001b	1/22/2001	B4-48-54	4.5	Cadmium	0.2	2	34	<1	<1
PGG 2001b	1/22/2001	S-B-1		Chromium	734		270		2.7
PGG 2001b	1/22/2001	S-SN		Chromium	408		270		1.5
PGG 2001b	1/22/2001	S-SW		Chromium	256		270		<1
PGG 2001b	1/22/2001	B6-48-54	4.5	Chromium	223		5,400		<1
PGG 2001b	1/22/2001	S-SE		Chromium	181		270		<1
PGG 2001b	1/22/2001	B3-6-12	1	Chromium	180		5,400		<1
PGG 2001b	1/22/2001	S-Comp		Chromium	130		270		<1
PGG 2001b	1/22/2001	S-B-2E		Chromium	104		270		<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Chromium	96		5,400		<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Chromium	95.5		5,400		<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Chromium	94.2		5,400		<1
PGG 2002	9/24/2001	PbO - SE		Chromium	92		270		<1
PGG 2001b	1/22/2001	B2-48-54	4.5	Chromium	79		5,400		<1
PGG 2001b	1/22/2001	B8-6-12	1	Chromium	77.4		5,400		<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Chromium	73.7		5,400		<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Chromium	71.4		5,400		<1
PGG 2001b	1/22/2001	S-SS		Chromium	61		270		<1

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Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	S-4-0-6	0.5	Chromium	54.1		5,400		<1
PGG 2001b	1/22/2001	B5-6-12	1	Chromium	49.6		5,400		<1
PGG 2001b	1/22/2001	B6-6-12	1	Chromium	48.5		5,400		<1
PGG 2001b	1/22/2001	S-B-2S		Chromium	40.5		270		<1
PGG 2001b	1/22/2001	B5-48-54	4.5	Chromium	39.8		5,400		<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Chromium	39.00		5,400		<1
PGG 2002	9/24/2001	PbO - SS		Chromium	39		270		<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Chromium	37.6		5,400		<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Chromium	37		5,400		<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Chromium	36.9		5,400		<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Chromium	36.3		5,400		<1
PGG 2001b	1/22/2001	B7-48-54	4.5	Chromium	34.4		5,400		<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Chromium	34.2		5,400		<1
PGG 2001b	1/22/2001	B1-6-12	1	Chromium	34		5,400		<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Chromium	31.8		5,400		<1
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Chromium	29.8		5,400		<1
PGG 2001b	1/22/2001	B1-48-54	4.5	Chromium	29.7		5,400		<1
PGG 2001b	1/22/2001	S-3-0-6	0.5	Chromium	29.3		5,400		<1
PGG 2001b	1/22/2001	S-B-2N		Chromium	29.3		270		<1
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Chromium	28.6		5,400		<1
PGG 2001b	1/22/2001	B2-6-12	1	Chromium	28.6		5,400		<1
PGG 2001b	1/22/2001	B4-6-12	1	Chromium	28.4		5,400		<1
PGG 2001b	1/22/2001	B7-6-12	1	Chromium	27.6		5,400		<1
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Chromium	27		5,400		<1
PGG 2002	11/19/2001	Bkyd-SE	1	Chromium	26		5,400		<1
PGG 2001b	1/22/2001	S-15-0-6	0.5	Chromium	25.3		5,400		<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Chromium	25		5,400		<1
PGG 2001b	1/22/2001	B3-48-54	4.5	Chromium	24.9		5,400		<1
PGG 2002	9/21/2001	Drum West		Chromium	24		270		<1
PGG 2001b	1/22/2001	B4-48-54	4.5	Chromium	22.7		5,400		<1
PGG 2002	9/24/2001	Beneath Sump	2	Chromium	22		5,400		<1
PGG 2002	11/19/2001	S-14-Conf	0.5	Chromium	19		5,400		<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Chromium	19		5,400		<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Chromium	19		5,400		<1
PGG 2002	9/21/2001	B6-48-54 Repeat	6	Chromium	18		270		<1
PGG 2002	9/24/2001	Asphalt	0.5	Chromium	16		5,400		<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Chromium	16		5,400		<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Chromium	16		5,400		<1
PGG 2002	9/24/2001	PbO - SW		Chromium	16		270		<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Chromium	15		5,400		<1
PGG 2002	11/19/2001	Bkyd-SW	1	Chromium	15		5,400		<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Chromium	15		5,400		<1

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	9/24/2001	S-5-Conf	0.5	Chromium	14		5,400		<1
PGG 2002	9/24/2001	Drum Sump		Chromium	12		270		<1
PGG 2002	9/24/2001	PbO - SN		Chromium	12		270		<1
PGG 2002	9/24/2001	PbO - SE		Chromium (hexavalent)	8.8	19	270	<1	<1
PGG 2002	9/24/2001	Beneath Sump	2	Chromium (hexavalent)	3.6	19	270	<1	<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Copper	441	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-B-1		Copper	437	3,200	39	<1	11
PGG 2001b	1/22/2001	B6-48-54	4.5	Copper	335	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-SN		Copper	301	3,200	39	<1	7.7
PGG 2001b	1/22/2001	S-SW		Copper	282	3,200	39	<1	7.2
PGG 2001b	1/23/2001	S-9-0-6	0.5	Copper	241	3,200	780	<1	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Copper	199	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-Comp		Copper	197	3,200	39	<1	5.1
PGG 2001b	1/22/2001	S-SE		Copper	133	3,200	39	<1	3.4
PGG 2001b	1/22/2001	B2-6-12	1	Copper	123	3,200	780	<1	<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Copper	98.9	3,200	780	<1	<1
PGG 2002	9/24/2001	PbO - SE		Copper	97	3,200	39	<1	2.5
PGG 2002	9/24/2001	PbO - SS		Copper	93	3,200	39	<1	2.4
PGG 2001b	1/23/2001	S-8-0-6	0.5	Copper	89.6	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-B-2E		Copper	84.1	3,200	39	<1	2.2
PGG 2001b	1/22/2001	S-6-0-6	0.5	Copper	68.2	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Copper	60.0	3,200	780	<1	<1
PGG 2001b	1/22/2001	B3-6-12	1	Copper	55	3,200	780	<1	<1
PGG 2001b	1/22/2001	B5-48-54	4.5	Copper	45.7	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Copper	44.6	3,200	780	<1	<1
PGG 2001b	1/22/2001	B1-6-12	1	Copper	42.8	3,200	780	<1	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Copper	39	3,200	780	<1	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Copper	39	3,200	780	<1	<1
PGG 2001b	1/22/2001	B6-6-12	1	Copper	37.9	3,200	780	<1	<1
PGG 2002	11/19/2001	Bkyd-SE	1	Copper	36	3,200	780	<1	<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Copper	35.1	3,200	780	<1	<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Copper	32	3,200	780	<1	<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Copper	31.5	3,200	780	<1	<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Copper	31	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-B-2S		Copper	30.8	3,200	39	<1	<1
PGG 2001b	1/22/2001	B8-6-12	1	Copper	29.1	3,200	780	<1	<1
PGG 2001b	1/22/2001	B4-6-12	1	Copper	28.3	3,200	780	<1	<1
PGG 2001b	1/22/2001	B5-6-12	1	Copper	28.1	3,200	780	<1	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Copper	23	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-SS		Copper	21.1	3,200	39	<1	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Copper	19.8	3,200	780	<1	<1
PGG 2001b	1/22/2001	B7-6-12	1	Copper	17.6	3,200	780	<1	<1

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Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	11/19/2001	S-14-Conf	0.5	Copper	17	3,200	780	<1	<1
PGG 2002	9/24/2001	Beneath Sump	2	Copper	17	3,200	780	<1	<1
PGG 2001b	1/22/2001	B3-48-54	4.5	Copper	16.6	3,200	780	<1	<1
PGG 2001b	1/22/2001	B7-48-54	4.5	Copper	16.1	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-B-2N		Copper	15.2	3,200	39	<1	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Copper	15	3,200	780	<1	<1
PGG 2002	9/24/2001	B2/3 Trench-6	6	Copper	15	3,200	39	<1	<1
PGG 2002	9/24/2001	PbO - SW		Copper	15	3,200	39	<1	<1
PGG 2001b	1/22/2001	B1-48-54	4.5	Copper	13.4	3,200	780	<1	<1
PGG 2001b	1/22/2001	B2-48-54	4.5	Copper	13.1	3,200	780	<1	<1
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Copper	12.6	3,200	780	<1	<1
PGG 2002	9/24/2001	Asphalt	0.5	Copper	12	3,200	780	<1	<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Copper	12	3,200	780	<1	<1
PGG 2001b	1/22/2001	S-15-0-6	0.5	Copper	11.9	3,200	780	<1	<1
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Copper	11.5	3,200	780	<1	<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Copper	11	3,200	780	<1	<1
PGG 2001b	1/22/2001	B4-48-54	4.5	Copper	10.9	3,200	780	<1	<1
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Copper	10.8	3,200	780	<1	<1
PGG 2002	9/24/2001	Drum Sump		Copper	10	3,200	39	<1	<1
PGG 2002	9/24/2001	S-5-Conf	0.5	Copper	8.9	3,200	780	<1	<1
PGG 2002	9/21/2001	B6-48-54 Repeat	6	Copper	8.7	3,200	39	<1	<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Copper	8.3	3,200	780	<1	<1
PGG 2002	9/24/2001	PbO - SN		Copper	8.3	3,200	39	<1	<1
PGG 2002	9/21/2001	Drum West		Copper	8.1	3,200	39	<1	<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Dieldrin	0.013	0.063		<1	
PGG 2001b	1/22/2001	B7-48-54	4.5	Dieldrin	0.0096	0.063		<1	
PGG 2001b	1/22/2001	B6-6-12	1	Dieldrin	0.0088	0.063		<1	
PGG 2001b	1/22/2001	B1-6-12	1	Fluoranthene	0.69	3,200	24	<1	<1
PGG 2001b	1/22/2001	B5-48-54	4.5	gamma-BHC	0.0068 J	0.01		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	gamma-BHC	0.0064	0.01		<1	
PGG 2001b	1/22/2001	B4-48-54	4.5	gamma-BHC	0.0057	0.01		<1	
PGG 2001b	1/22/2001	B8-48-54	4.5	gamma-BHC	0.0044	0.01		<1	
PGG 2001b	1/22/2001	B6-6-12	1	gamma-Chlordane	0.0045				
PGG 2001b	1/22/2001	B5-6-12	1	gamma-Chlordane	0.0027 J				
PGG 2001b	1/22/2001	B8-6-12	1	gamma-Chlordane	0.0019 J				
PGG 2001b	1/22/2001	S-5-0-6	0.5	Isophorone	0.46	1,100		<1	
PGG 2001b	1/22/2001	S-B-1		Lead	940	250	67	3.8	14
PGG 2001b	1/22/2001	S-13-0-6	0.5	Lead	592	250	1,300	2.4	<1
PGG 2001b	1/22/2001	S-B-2E		Lead	429	250	67	1.7	6.4
PGG 2002	9/24/2001	PbO - SS		Lead	410	250	67	1.6	6.1
PGG 2001b	1/22/2001	S-SN		Lead	313	250	67	1.3	4.7
PGG 2001b	1/23/2001	S-7-0-6	0.5	Lead	182	250	1,300	<1	<1

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Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	9/24/2001	PbO - SE		Lead	170	250	67	<1	2.5
PGG 2001b	1/22/2001	S-Comp		Lead	148	250	67	<1	2.2
PGG 2001b	1/22/2001	S-SE		Lead	145	250	67	<1	2.2
PGG 2002	11/9/2001	PbO - 2ft SS	2	Lead	130	250	1,300	<1	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Lead	120	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-SW		Lead	110	250	67	<1	1.6
PGG 2001b	1/23/2001	S-10-0-6	0.5	Lead	105	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Lead	84	250	1,300	<1	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Lead	66	250	1,300	<1	<1
PGG 2001b	1/22/2001	B6-48-54	4.5	Lead	58	250	1,300	<1	<1
PGG 2002	11/19/2001	Bkyd-SE	1	Lead	49	250	1,300	<1	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Lead	47	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-B-2S		Lead	45	250	67	<1	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Lead	44	250	1,300	<1	<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Lead	42	250	1,300	<1	<1
PGG 2001b	1/22/2001	B1-6-12	1	Lead	40	250	1,300	<1	<1
PGG 2001b	1/22/2001	B8-6-12	1	Lead	33	250	1,300	<1	<1
PGG 2001b	1/22/2001	B5-48-54	4.5	Lead	33	250	1,300	<1	<1
PGG 2001b	1/22/2001	B3-6-12	1	Lead	32	250	1,300	<1	<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Lead	31	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-B-2N		Lead	29	250	67	<1	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Lead	28	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Lead	27	250	1,300	<1	<1
PGG 2001b	1/22/2001	B5-6-12	1	Lead	25	250	1,300	<1	<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Lead	22	250	1,300	<1	<1
PGG 2001b	1/22/2001	B2-6-12	1	Lead	20	250	1,300	<1	<1
PGG 2001b	1/22/2001	B3-48-54	4.5	Lead	19	250	1,300	<1	<1
PGG 2002	11/19/2001	S-14-Conf	0.5	Lead	18	250	1,300	<1	<1
PGG 2002	9/24/2001	Beneath Sump	2	Lead	18	250	1,300	<1	<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Lead	17	250	1,300	<1	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Lead	17	250	1,300	<1	<1
PGG 2001b	1/22/2001	B6-6-12	1	Lead	17	250	1,300	<1	<1
PGG 2001b	1/22/2001	B7-6-12	1	Lead	15	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-SS		Lead	15	250	67	<1	<1
PGG 2001b	1/22/2001	B4-6-12	1	Lead	12	250	1,300	<1	<1
PGG 2002	9/24/2001	PbO - SW		Lead	12	250	67	<1	<1
PGG 2001b	1/22/2001	B1-48-54	4.5	Lead	11	250	1,300	<1	<1
PGG 2001b	1/22/2001	B4-48-54	4.5	Lead	11	250	1,300	<1	<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Lead	9	250	1,300	<1	<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Lead	8	250	1,300	<1	<1
PGG 2001b	1/22/2001	B7-48-54	4.5	Lead	8	250	1,300	<1	<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Lead	6	250	1,300	<1	<1

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Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	B2-48-54	4.5	Lead	5	250	1,300	<1	<1
PGG 2002	9/24/2001	B2/3 Trench-6	6	Lead	4.3	250	67	<1	<1
PGG 2002	9/24/2001	Drum Sump		Lead	4.3	250	67	<1	<1
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Lead	4	250	1,300	<1	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Lead	3.8	250	1,300	<1	<1
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Lead	3	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-15-0-6	0.5	Lead	3	250	1,300	<1	<1
PGG 2002	9/24/2001	Asphalt	0.5	Lead	2.9	250	1,300	<1	<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Lead	2.7	250	1,300	<1	<1
PGG 2002	9/21/2001	Drum West		Lead	2.6	250	67	<1	<1
PGG 2002	9/24/2001	S-5-Conf	0.5	Lead	2.1	250	1,300	<1	<1
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Lead	2	250	1,300	<1	<1
PGG 2002	9/24/2001	PbO - SN		Lead	1.7	250	67	<1	<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Mercury	0.54	2	0.59	<1	<1
PGG 2001b	1/23/2001	S-7-0-6	0.5	Mercury	0.35	2	0.59	<1	<1
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Mercury	0.16	2	0.59	<1	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Mercury	0.15	2	0.59	<1	<1
PGG 2001b	1/22/2001	B8-6-12	1	Mercury	0.12	2	0.59	<1	<1
PGG 2001b	1/22/2001	B5-48-54	4.5	Mercury	0.12	2	0.59	<1	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Mercury	0.11	2	0.59	<1	<1
PGG 2001b	1/22/2001	B6-48-54	4.5	Mercury	0.09	2	0.59	<1	<1
PGG 2001b	1/22/2001	B8-48-54	4.5	Mercury	0.08	2	0.59	<1	<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Mercury	0.06	2	0.59	<1	<1
PGG 2001b	1/22/2001	B6-6-12	1	Mercury	0.06	2	0.59	<1	<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Mercury	0.05	2	0.59	<1	<1
PGG 2001b	1/22/2001	B1-6-12	1	Naphthalene	0.47	5	3.8	<1	<1
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Naphthalene	0.2	5	3.8	<1	<1
PGG 2001b	1/22/2001	S-SS		Nickel	1020				
PGG 2001b	1/22/2001	S-SW		Nickel	862				
PGG 2001b	1/22/2001	B1-6-12	1	Nickel	856				
PGG 2001b	1/22/2001	S-B-1		Nickel	690				
PGG 2001b	1/22/2001	S-Comp		Nickel	590				
PGG 2001b	1/22/2001	B5-6-12	1	Nickel	471				
PGG 2001b	1/22/2001	S-SN		Nickel	399				
PGG 2001b	1/22/2001	B8-6-12	1	Nickel	325				
PGG 2001b	1/22/2001	B3-6-12	1	Nickel	276				
PGG 2002	11/19/2001	Bkyd-SE	1	Nickel	250				
PGG 2001b	1/22/2001	S-SE		Nickel	197				
PGG 2001b	1/22/2001	B2-6-12	1	Nickel	192				
PGG 2001b	1/22/2001	B6-48-54	4.5	Nickel	148				
PGG 2001b	1/22/2001	S-B-2E		Nickel	137				
PGG 2001b	1/22/2001	B6-6-12	1	Nickel	111				

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Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	9/24/2001	PbO - SS		Nickel	110				
PGG 2002	9/24/2001	PbO - SE		Nickel	100				
PGG 2001b	1/22/2001	S-6-0-6	0.5	Nickel	90				
PGG 2001b	1/22/2001	B2-48-54	4.5	Nickel	82				
PGG 2001b	1/23/2001	S-10-0-6	0.5	Nickel	76				
PGG 2001b	1/22/2001	S-B-2S		Nickel	72				
PGG 2001b	1/22/2001	S-5-0-6	0.5	Nickel	59				
PGG 2001b	1/23/2001	S-7-0-6	0.5	Nickel	56.0				
PGG 2001b	1/22/2001	S-B-2N		Nickel	47				
PGG 2001b	1/23/2001	S-9-0-6	0.5	Nickel	43				
PGG 2001b	1/22/2001	B7-6-12	1	Nickel	42				
PGG 2001b	1/22/2001	S-14-0-6	0.5	Nickel	41				
PGG 2001b	1/22/2001	B4-6-12	1	Nickel	41				
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Nickel	40				
PGG 2001b	1/23/2001	S-8-0-6	0.5	Nickel	40				
PGG 2001b	1/22/2001	B1-48-54	4.5	Nickel	40				
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Nickel	39				
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Nickel	39				
PGG 2001b	1/22/2001	B8-48-54	4.5	Nickel	39				
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Nickel	37				
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Nickel	37				
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Nickel	36				
PGG 2001b	1/22/2001	B3-48-54	4.5	Nickel	36				
PGG 2001b	1/22/2001	B5-48-54	4.5	Nickel	36				
PGG 2001b	1/22/2001	S-15-0-6	0.5	Nickel	35				
PGG 2001b	1/22/2001	S-13-0-6	0.5	Nickel	33				
PGG 2002	9/24/2001	B2/3 Trench-6	6	Nickel	33				
PGG 2002	11/19/2001	S-9-Conf	0.5	Nickel	32				
PGG 2002	12/14/2001	CS-7-0-6	0.5	Nickel	32				
PGG 2001b	1/22/2001	B7-48-54	4.5	Nickel	29				
PGG 2002	9/21/2001	Drum West		Nickel	28				
PGG 2002	9/24/2001	PbO - SW		Nickel	28				
PGG 2002	9/24/2001	PbO - 2' Floor	2	Nickel	27				
PGG 2002	12/14/2001	CS-8-0-6	0.5	Nickel	26				
PGG 2002	11/19/2001	Bkyd-SNE	1	Nickel	26				
PGG 2002	9/24/2001	Beneath Sump	2	Nickel	26				
PGG 2002	11/19/2001	S-14-Conf	0.5	Nickel	25				
PGG 2002	9/24/2001	S-5-Conf	0.5	Nickel	25				
PGG 2002	9/24/2001	Asphalt	0.5	Nickel	24				
PGG 2002	11/19/2001	S-13-Conf	0.5	Nickel	23				
PGG 2002	11/19/2001	S-7-Conf	0.5	Nickel	23				
PGG 2001b	1/22/2001	B4-48-54	4.5	Nickel	22				

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	9/24/2001	PbO - SN		Nickel	21				
PGG 2002	9/24/2001	Drum Sump		Nickel	20				
PGG 2002	9/21/2001	B6-48-54 Repeat	6	Nickel	19				
PGG 2002	11/19/2001	Bkyd-SW	1	Nickel	17				
PGG 2001b	1/22/2001	B1-6-12	1	Phenanthrene	1.1		9.7		<1
PGG 2001b	1/22/2001	B1-6-12	1	Selenium	20	400		<1	
PGG 2001b	1/23/2001	S-9-0-6	0.5	Selenium	10	400		<1	
PGG 2001b	1/22/2001	B8-6-12	1	Selenium	10	400		<1	
PGG 2001b	1/22/2001	B5-6-12	1	Selenium	9	400		<1	
PGG 2001b	1/22/2001	S-B-1		Selenium	9	400		<1	
PGG 2001b	1/22/2001	S-SE		Selenium	8	400		<1	
PGG 2001b	1/23/2001	S-7-0-6	0.5	Selenium	7	400		<1	
PGG 2001b	1/22/2001	B6-6-12	1	Selenium	7	400		<1	
PGG 2001b	1/22/2001	B2-48-54	4.5	Selenium	7	400		<1	
PGG 2001b	1/22/2001	S-B-2S		Selenium	7	400		<1	
PGG 2001b	1/22/2001	S-SN		Selenium	7	400		<1	
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Selenium	6	400		<1	
PGG 2001b	1/22/2001	B2-6-12	1	Selenium	6	400		<1	
PGG 2001b	1/22/2001	B3-6-12	1	Selenium	6	400		<1	
PGG 2001b	1/22/2001	B4-6-12	1	Selenium	6	400		<1	
PGG 2001b	1/22/2001	B7-6-12	1	Selenium	6	400		<1	
PGG 2001b	1/22/2001	S-B-2N		Selenium	6	400		<1	
PGG 2001b	1/23/2001	S-10-0-6	0.5	Selenium	5	400		<1	
PGG 2001b	1/22/2001	B2-6-12	1	Silver	18	400	12	<1	1.5
PGG 2001b	1/22/2001	S-B-1		Silver	2.7	400	0.61	<1	4.4
PGG 2001b	1/22/2001	S-6-0-6	0.5	Silver	1.6	400	12	<1	<1
PGG 2001b	1/22/2001	S-5-0-6	0.5	Silver	1.2	400	12	<1	<1
PGG 2001b	1/22/2001	S-SN		Silver	1	400	0.61	<1	1.6
PGG 2001b	1/22/2001	B6-48-54	4.5	Silver	0.8	400	12	<1	<1
PGG 2001b	1/22/2001	S-SW		Silver	0.8	400	0.61	<1	1.3
PGG 2001b	1/23/2001	S-7-0-6	0.5	Silver	0.7	400	12	<1	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Silver	0.7	400	12	<1	<1
PGG 2001b	1/22/2001	S-13-0-6	0.5	Silver	0.6	400	12	<1	<1
PGG 2001b	1/22/2001	S-SE		Silver	0.6	400	0.61	<1	<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Silver	0.5	400	12	<1	<1
PGG 2001b	1/22/2001	S-B-2E		Silver	0.3	400	0.61	<1	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	TCDD	0.0004209	0.000011		38	
PGG 2002	11/19/2001	S-14-Conf	0.5	TCDD	8.07E-05	0.000011		7.3	
PGG 2002	11/19/2001	Bkyd-SE	1	TCDD	0.00008042	0.000011		7.3	
PGG 2002	12/14/2001	Repeat-1-CS-6	1	TCDD	0.000026037	0.000011		2.4	
PGG 2002	11/19/2001	S-9-Conf	0.5	TCDD	0.000009841	0.000011		<1	
PGG 2002	1/29/2002	S-14-Conf @ 2'	2	TCDD	0.000004546	0.000011		<1	

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Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	2/14/2002	CS-6 Conf-2ft	2	TCDD	0.000003427	0.000011		<1	
PGG 2002	11/19/2001	S-7-Conf	0.5	TCDD	0.000002669	0.000011		<1	
PGG 2002	9/24/2001	B2/3 Trench-6	6	TCDD	0.00000232	0.000011		<1	
PGG 2002	9/24/2001	Beneath Sump	2	TCDD	0.000002175	0.000011		<1	
PGG 2002	12/11/2001	Bkyd-SE+1	1	TCDD	0.00000213	0.000011		<1	
PGG 2002	11/19/2001	Bkyd-SW	1	TCDD	0.000001739	0.000011		<1	
PGG 2002	9/24/2001	PbO - 2' Floor	2	TCDD	0.000001101	0.000011		<1	
PGG 2002	12/14/2001	CS-7-0-6	0.5	TCDD	0.000001055	0.000011		<1	
PGG 2002	12/14/2001	CS-8-0-6	0.5	TCDD	0.000001004	0.000011		<1	
PGG 2002	9/24/2001	S-5-Conf	0.5	TCDD	0.000000702	0.000011		<1	
PGG 2002	9/24/2001	Asphalt	0.5	TCDD	0.000000593	0.000011		<1	
PGG 2002	1/15/2002	S-9-Conf @2.5	2.5	TCDD	0.000000496	0.000011		<1	
PGG 2002	11/19/2001	Bkyd-SNE	1	TCDD	0.000000083	0.000011		<1	
PGG 2002	2/12/2002	S-13-9ft	9	TCDD	0.000000014	0.000011		<1	
PGG 2001b	1/22/2001	B2-6-12	1	Tetrachloroethene	0.031	0.05		<1	
PGG 2001b	1/22/2001	S-B-1		Thallium	24				
PGG 2001b	1/22/2001	S-SW		Thallium	24				
PGG 2001b	1/22/2001	S-SN		Thallium	21				
PGG 2001b	1/23/2001	S-9-0-6	0.5	Thallium	20				
PGG 2001b	1/22/2001	B1-6-12	1	Thallium	20				
PGG 2001b	1/22/2001	S-SS		Thallium	20				
PGG 2001b	1/22/2001	B3-6-12	1	Thallium	16				
PGG 2001b	1/22/2001	S-SE		Thallium	16				
PGG 2001b	1/23/2001	S-10-0-6	0.5	Thallium	15				
PGG 2001b	1/22/2001	B5-6-12	1	Thallium	14				
PGG 2001b	1/22/2001	S-Comp		Thallium	14				
PGG 2001b	1/22/2001	S-13-0-6	0.5	Thallium	12				
PGG 2001b	1/22/2001	S-14-0-6	0.5	Thallium	12				
PGG 2001b	1/22/2001	B6-6-12	1	Thallium	12				
PGG 2001b	1/22/2001	S-B-2N		Thallium	12				
PGG 2001b	1/22/2001	B4-6-12	1	Thallium	11				
PGG 2001b	1/22/2001	B7-6-12	1	Thallium	11				
PGG 2001b	1/22/2001	B6-48-54	4.5	Thallium	11				
PGG 2001b	1/23/2001	S-8-0-6	0.5	Thallium	10				
PGG 2001b	1/22/2001	B2-48-54	4.5	Thallium	10				
PGG 2001b	1/22/2001	B8-48-54	4.5	Thallium	10				
PGG 2001b	1/22/2001	S-B-2S		Thallium	10				
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Thallium	9				
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Thallium	9				
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Thallium	9				
PGG 2001b	1/22/2001	B3-48-54	4.5	Thallium	9				
PGG 2001b	1/22/2001	B5-48-54	4.5	Thallium	9				

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Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	B7-48-54	4.5	Thallium	9				
PGG 2001b	1/22/2001	S-B-2E		Thallium	9				
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Thallium	8				
PGG 2001b	1/22/2001	B8-6-12	1	Thallium	8				
PGG 2001b	1/22/2001	S-15-0-6	0.5	Thallium	7				
PGG 2001b	1/22/2001	B1-48-54	4.5	Thallium	7				
PGG 2001b	1/22/2001	B4-48-54	4.5	Thallium	7				
PGG 2001b	1/22/2001	S-5-0-6	0.5	Thallium	6				
PGG 2001b	1/22/2001	S-6-0-6	0.5	Thallium	6				
PGG 2001b	1/23/2001	S-7-0-6	0.5	Thallium	6				
PGG 2001b	1/22/2001	B4-48-54	4.5	Toluene	0.0077	7		<1	
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Toluene	0.007	7		<1	
PGG 2001b	1/22/2001	B1-6-12	1	Toluene	0.0066	7		<1	
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Xylenes, m + p-	0.025	7		<1	
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Xylenes, o	0.0073	7		<1	
PGG 2001b	1/22/2001	S-13-0-6	0.5	Zinc	1920	24,000	770	<1	2.5
PGG 2001b	1/22/2001	CS-1-0-6	0.5	Zinc	794	24,000	770	<1	1.0
PGG 2001b	1/23/2001	S-7-0-6	0.5	Zinc	585	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-6-0-6	0.5	Zinc	484	24,000	770	<1	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Zinc	440	24,000	770	<1	<1
PGG 2001b	1/23/2001	S-9-0-6	0.5	Zinc	212	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-SW		Zinc	211	24,000	38	<1	5.6
PGG 2001b	1/22/2001	S-5-0-6	0.5	Zinc	171	24,000	770	<1	<1
PGG 2001b	1/23/2001	S-10-0-6	0.5	Zinc	168	24,000	770	<1	<1
PGG 2001b	1/23/2001	S-8-0-6	0.5	Zinc	152	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-B-1		Zinc	149	24,000	38	<1	3.9
PGG 2001b	1/22/2001	S-SN		Zinc	119	24,000	38	<1	3.1
PGG 2001b	1/22/2001	B6-48-54	4.5	Zinc	113	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-14-0-6	0.5	Zinc	107	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-SE		Zinc	87.6	24,000	38	<1	2.3
PGG 2002	11/19/2001	S-14-Conf	0.5	Zinc	87	24,000	770	<1	<1
PGG 2001b	1/22/2001	B6-6-12	1	Zinc	86	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-Comp		Zinc	83.2	24,000	38	<1	2.2
PGG 2002	11/19/2001	Bkyd-SE	1	Zinc	76	24,000	770	<1	<1
PGG 2002	9/24/2001	PbO - SS		Zinc	74	24,000	38	<1	1.9
PGG 2001b	1/22/2001	B2-6-12	1	Zinc	71.4	24,000	770	<1	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Zinc	69	24,000	770	<1	<1
PGG 2001b	1/22/2001	B5-48-54	4.5	Zinc	68.9	24,000	770	<1	<1
PGG 2001b	1/22/2001	B8-6-12	1	Zinc	66.8	24,000	770	<1	<1
PGG 2002	9/24/2001	PbO - SE		Zinc	66	24,000	38	<1	1.7
PGG 2001b	1/22/2001	S-B-2E		Zinc	64.6	24,000	38	<1	1.7
PGG 2001b	1/22/2001	B3-6-12	1	Zinc	61.4	24,000	770	<1	<1

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PGG 2001b	1/22/2001	B8-48-54	4.5	Zinc	60.3	24,000	770	<1	<1
PGG 2001b	1/22/2001	CS-3-0-6	0.5	Zinc	59.9	24,000	770	<1	<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Zinc	56	24,000	770	<1	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Zinc	54	24,000	770	<1	<1
PGG 2002	9/24/2001	Beneath Sump	2	Zinc	51	24,000	770	<1	<1
PGG 2001b	1/22/2001	B7-48-54	4.5	Zinc	47.9	24,000	770	<1	<1
PGG 2001b	1/22/2001	B1-6-12	1	Zinc	47	24,000	770	<1	<1
PGG 2001b	1/22/2001	B4-6-12	1	Zinc	45.9	24,000	770	<1	<1
PGG 2001b	1/22/2001	CS-2-0-6	0.5	Zinc	45.8	24,000	770	<1	<1
PGG 2001b	1/22/2001	B1-48-54	4.5	Zinc	44.9	24,000	770	<1	<1
PGG 2001b	1/22/2001	B5-6-12	1	Zinc	44.6	24,000	770	<1	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Zinc	43	24,000	770	<1	<1
PGG 2001b	1/22/2001	B3-48-54	4.5	Zinc	42.7	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-B-2S		Zinc	42.5	24,000	38	<1	1.1
PGG 2001b	1/22/2001	B7-6-12	1	Zinc	39.5	24,000	770	<1	<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Zinc	36	24,000	770	<1	<1
PGG 2001b	1/22/2001	CS-6-0-6	0.5	Zinc	35.2	24,000	770	<1	<1
PGG 2002	9/24/2001	B2/3 Trench-6	6	Zinc	34	24,000	38	<1	<1
PGG 2001b	1/22/2001	S-B-2N		Zinc	32.6	24,000	38	<1	<1
PGG 2001b	1/22/2001	S-15-0-6	0.5	Zinc	31.3	24,000	770	<1	<1
PGG 2001b	1/22/2001	B4-48-54	4.5	Zinc	31.3	24,000	770	<1	<1
PGG 2001b	1/22/2001	B2-48-54	4.5	Zinc	30.7	24,000	770	<1	<1
PGG 2001b	1/22/2001	S-SS		Zinc	30	24,000	38	<1	<1
PGG 2001b	1/22/2001	CS-4-0-6	0.5	Zinc	29.8	24,000	770	<1	<1
PGG 2001b	1/22/2001	CS-5-0-6	0.5	Zinc	29.1	24,000	770	<1	<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Zinc	27	24,000	770	<1	<1
PGG 2002	9/24/2001	PbO - SW		Zinc	27	24,000	38	<1	<1
PGG 2002	9/24/2001	Drum Sump		Zinc	25	24,000	38	<1	<1
PGG 2002	9/24/2001	Asphalt	0.5	Zinc	23	24,000	770	<1	<1
PGG 2002	9/21/2001	Drum West		Zinc	23	24,000	38	<1	<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Zinc	22	24,000	770	<1	<1
PGG 2002	9/24/2001	S-5-Conf	0.5	Zinc	21	24,000	770	<1	<1
PGG 2002	9/24/2001	PbO - SN		Zinc	18	24,000	38	<1	<1
Drainage Ditches Adjacent to Property									
Ecology 1991e	7/2/1991	Penb-2	Surface	1,2,4-Trimethylbenzene	0.034 J				
Ecology 1991e	7/2/1991	Penb-3	Surface	1,2,4-Trimethylbenzene	0.024 J				
Ecology 1991e	7/2/1991	Penb-2	Surface	1,3,5-Trimethylbenzene	0.019 J	800		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	1,3,5-Trimethylbenzene	0.01 J	800		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	1-Methylnaphthalene	0.075 J	35		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	2,3,7,8-TCDD TEQ	3.80E-05	0.000011		3.5	
PGG 2001b	1/23/2001	S-12-0-6	0.5	2,3,7,8-TCDD TEQ	2.20E-05	0.000011		2.0	
Ecology 1991e	7/2/1991	Penb-2	Surface	2-Methylnaphthalene	0.067 J	320	1.4	<1	<1

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Ecology 1991e	7/2/1991	Penb-1	Surface	2-Methylnaphthalene	0.063 J	320	1.4	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	2-Methylnaphthalene	0.023	320	1.4	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	4,4'-DDD	0.175 J	4.2		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	4,4'-DDD	0.058	4.2		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	4,4'-DDD	0.028	4.2		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	4,4'-DDD	0.0078 J	4.2		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	4,4'-DDE	0.117	2.9		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	4,4'-DDE	0.027	2.9		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	4,4'-DDE	0.0073 J	2.9		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	4,4'-DDE	0.022	2.9		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	4,4'-DDT	0.0264	2.9		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	4,4'-DDT	0.0049 J	2.9		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	4,4'-DDT	0.0034 J	2.9		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	4-Methyl-2-pentanone	0.004 J	6,400		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	4-Methylphenol	0.06 J	400	0.98	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Acenaphthene	0.041 J	4,800	1.2	<1	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Acetone	0.31 B	72,000		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	Aldrin	0.0132	0.059		<1	
PGG 2001b	1/22/2001	S-12-0-6	0.5	alpha-Chlordane	0.005 J				
PGG 2001b	1/23/2001	S-12-0-6	0.5	Anthracene	0.71	24,000		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	Anthracene	0.022 J	24,000		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	Antimony	12	32		<1	
PGG 2001b	1/23/2001	S-12-0-6	0.5	Antimony	9	32		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	Arsenic	25	0.67	12,000	37	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Arsenic	24	0.67	12,000	36	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Arsenic	13	0.67	12,000	19	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Arsenic	10	0.67	12,000	15	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Arsenic	6.5	0.67	12,000	9.7	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Arsenic	3.3	0.67	12,000	4.9	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(a)anthracene	2.5	1.37	5.4	1.8	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(a)pyrene	5.3	0.137	4.2	39	1.3
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(b)fluoranthene	5.1	1.37	9	3.7	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(g,h,i)perylene	4		1.6		2.5
PGG 2001b	1/23/2001	S-12-0-6	0.5	Benzo(k)fluoranthene	3.8	13.7	9	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Beryllium	0.3	160		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	Bis(2-ethylhexyl)phthalate	9.5	71	1.6	<1	5.9
PGG 2001b	1/23/2001	S-12-0-6	0.5	Bis(2-ethylhexyl)phthalate	4.2	71	1.6	<1	2.6
PGG 2001b	1/22/2001	S-11-0-6	0.5	Butyl benzyl phthalate	1.8	530	1.3	<1	1.4
Ecology 1991e	7/2/1991	Penb-3	Surface	Butyl benzyl phthalate	0.12 J	530	1.3	<1	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Cadmium	6.9	2	34	3.5	<1
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	Cadmium	7	2	34	3.4	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Cadmium	3.9	2	34	2.0	<1

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2003	9/21/2001	S-11-Upstream	0.5	Cadmium	2.4	2	34	1.2	<1
Ecology 1991e	7/2/1991	Penb-2	Surface	Cadmium	1.1 P	2	34	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Cadmium	0.9	2	34	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Cadmium	0.88 P	2	34	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Cadmium	0.86 J	2	34	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Carbazole	0.87				
Ecology 1991e	7/2/1991	Penb-1	Surface	Carbon disulfide	0.002 J	8,000		<1	
Ecology 1991e	7/2/1991	Penb-1	Surface	Chlordane	0.18 J	2.9		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	Chlordane	0.091 J	2.9		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	Chlordane	0.022 J	2.9		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	Chromium	245		5,400		<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Chromium	208		5,400		<1
Ecology 1991e	7/2/1991	Penb-2	Surface	Chromium	108		5,400		<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Chromium	77.3		5,400		<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Chromium	56.3		5,400		<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Chrysene	5.5	137	9.2	<1	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Copper	94.1	3,200	780	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Copper	77.9	3,200	780	<1	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Copper	46	3,200	780	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Copper	43.4	3,200	780	<1	<1
Ecology 1991e	7/2/1991	Penb-2	Surface	Copper	37.9	3,200	780	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Copper	35.3	3,200	780	<1	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Copper	34	3,200	780	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Dibenzo(a,h)anthracene	1.1	0.137	0.66	8.0	1.7
Ecology 1991e	7/2/1991	Penb-1	Surface	Dieldrin	0.025	0.063		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	Dieldrin	0.011 J	0.063		<1	
PGG 2001b	1/22/2001	S-12-0-6	0.5	Endrin Ketone	0.011				
Ecology 1991e	7/2/1991	Penb-3	Surface	Ethylbenzene	0.001 J	6		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	Ethylbenzene	0.0004 J	6		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	Fluorene	0.076	3,200	1.6	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Fluoranthene	6	3,200	24	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Fluoranthene	0.16 J	3,200	24	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Fluoranthene	0.12 J	3,200	24	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Fluorene	0.072 J	3,200	1.6	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	gamma-Chlordane	0.0178				
Ecology 1991e	7/2/1991	Penb-2	Surface	gamma-Chlordane	0.01 J				
PGG 2001b	1/22/2001	S-11-0-6	0.5	gamma-Chlordane	0.0066 J				
PGG 2001b	1/22/2001	S-12-0-6	0.5	gamma-Chlordane	0.0033 J				
Ecology 1991e	7/2/1991	Penb-3	Surface	gamma-Chlordane	0.0022 J				
PGG 2001b	1/23/2001	S-12-0-6	0.5	Indeno(1,2,3-cd)pyrene	4.8	1.37	1.8	3.5	2.7
Ecology 1991e	7/2/1991	Penb-2	Surface	Isophorone	0.15 J	1,100		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	Lead	155	250	1,300	<1	<1

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level^a (mg/kg)	Soil-to-Sediment Screening Level^b (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001b	1/22/2001	S-11-0-6	0.5	Lead	121	250	1,300	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Lead	101	250	1,300	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Lead	54 B	250	1,300	<1	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Lead	51	250	1,300	<1	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Lead	47	250	1,300	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Lead	5.5 PB	250	1,300	<1	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Mercury	0.29	2	0.59	<1	<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Mercury	0.16	2	0.59	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Mercury	0.044 J	2	0.59	<1	<1
Ecology 1991e	7/2/1991	Penb-2	Surface	Mercury	0.044 P	2	0.59	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Mercury	0.016 P	2	0.59	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Naphthalene	0.046 J	5	3.8	<1	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Nickel	393				
Ecology 1991e	7/2/1991	Penb-1	Surface	Nickel	137 E				
Ecology 1991e	7/2/1991	Penb-3	Surface	Nickel	133 E				
PGG 2003	9/21/2001	S-11-Upstream	0.5	Nickel	110				
Ecology 1991e	7/2/1991	Penb-2	Surface	Nickel	66.7 E				
PGG 2001b	1/23/2001	S-12-0-6	0.5	Nickel	55				
PGG 2003	9/21/2001	S-11-Downstream	0.5	Nickel	28				
PGG 2001b	1/23/2001	S-12-0-6	0.5	Phenanthrene	4.4		9.7		<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Phenanthrene	0.29		9.7		<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Phenanthrene	0.28		9.7		<1
PGG 2001b	1/23/2001	S-12-0-6	0.5	Pyrene	8.9	2,400	28	<1	<1
PGG 2001b	1/22/2001	S-11-0-6	0.5	Pyrene	0.83	2,400	28	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Pyrene	0.19 J	2,400	28	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Pyrene	0.16	2,400	28	<1	<1
PGG 2003	1/16/2003	W.Drain-80ft+3ft Ex	3	TCDD	4.40E-05	0.000011		4.0	
PGG 2003	3/7/2002	W. Drain-80 ft Native	0.5	TCDD	3.87E-05	0.000011		3.5	
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	TCDD	2.98E-05	0.000011		2.7	
PGG 2003	3/5/2002	W. Drain-80 ft Excav	0.5	TCDD	1.91E-05	0.000011		1.7	
PGG 2003	9/25/2002	W.Drain-80ft+2ft Excav	0.5	TCDD	1.80E-05	0.000011		1.6	
PGG 2003	9/21/2001	S-11-Downstream	0.5	TCDD	0.000014391	0.000011		1.3	
PGG 2003	11/9/2001	W. Drain 40ft Excav	0.5	TCDD	2.83E-06	0.000011		<1	
PGG 2003	9/21/2001	S-11-Upstream	0.5	TCDD	1.61E-07	0.000011		<1	
PGG 2003	2/25/2003	W.Drain-80ft+4ft ExN	4	TCDD	0.00000014	0.000011		<1	
PGG 2001b	1/22/2001	S-11-0-6	0.5	Thallium	16				
Ecology 1991e	7/2/1991	Penb-3	Surface	Toluene	0.009 J	7		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	Toluene	0.006 J	7		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	Total Petroleum Hydrocarbons	225	2,000		<1	
Ecology 1991e	7/2/1991	Penb-3	Surface	Xylenes	0.007 J	9		<1	
Ecology 1991e	7/2/1991	Penb-2	Surface	Xylenes	0.001 J	9		<1	
PGG 2001b	1/23/2001	S-12-0-6	0.5	Zinc	1,260	24,000	770	<1	1.6

Table C-19
Chemicals Detected in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	Zinc	1,100	24,000	770	<1	1.4
PGG 2001b	1/22/2001	S-11-0-6	0.5	Zinc	1080	24,000	770	<1	1.4
PGG 2003	9/21/2001	S-11-Upstream	0.5	Zinc	450	24,000	770	<1	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Zinc	360	24,000	770	<1	<1
Ecology 1991e	7/2/1991	Penb-1	Surface	Zinc	171	24,000	770	<1	<1
Ecology 1991e	7/2/1991	Penb-2	Surface	Zinc	167	24,000	770	<1	<1
Ecology 1991e	7/2/1991	Penb-3	Surface	Zinc	82.6	24,000	770	<1	<1
PGG 2003	11/9/2001	W. Drain 40ft Excav	0.5	Zinc	74	24,000	770	<1	<1
Hamm Creek									
PGG 2003	6/12/2002	HC-50	1	TCDD	9.03E-06	0.000011		<1	
PGG 2003	6/12/2002	HC-25	1	TCDD	4.61E-06	0.000011		<1	
PGG 2003	6/12/2002	HC+20	1	TCDD	2.22E-07	0.000011		<1	
PGG 2003	9/25/2002	Confluence-Excav	1	TCDD	8.70E-06	0.000011		<1	

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards
P - The analyte was detected above the instrument detection limit but below the established minimum quantitation limit.

B - Analyte found in the analytical blank.
E - Reported result is an estimate because of the presence of interference.
J - Estimated value
🟩 Soil removed during remedial excavation
🟨 Chemical exceedance

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 6 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-20
Chemicals Detected in Soil
Ace Galvanizing

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Cadmium	4	2	34	2.0	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Cadmium	3	2	34	1.5	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Cadmium	3	2	34	1.5	<1
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Cadmium	2	2	34	1.0	<1
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Cadmium	1	2	34	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Chromium	152		5,400		<1
Parametrix and SAIC 1991a	5/10/1991	SB03-Dup	9	Chromium	139		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	MW01	22	Chromium	91		270		<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Chromium	57		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Chromium	46		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Chromium	43		5,400		<1
Parametrix and SAIC 1991a	5/9/1991	SB01	2	Chromium	33		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Chromium	31		5,400		<1
Parametrix and SAIC 1991a	5/9/1991	SB02	3.5	Chromium	25		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Chromium	25		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	MW01	9	Chromium	24		5,400		<1
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Chromium	22		5,400		<1
Parametrix and SAIC 1991a	5/10/1991	SB04	3	Chromium	20		5,400		<1
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Copper	124	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB04	3	Copper	112	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Copper	90	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03-Dup	9	Copper	62	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Copper	60	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Copper	39	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	MW01	9	Copper	37	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Copper	27	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Copper	22	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/9/1991	SB01	2	Copper	15	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/9/1991	SB02	3.5	Copper	10	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Copper	10	3,200	780	<1	<1
Parametrix and SAIC 1991a	5/8/1991	MW01	22	Copper	10	3,200	39	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Heavy oil-range hydrocarbons	82	2,000		<1	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Lead	653	250	1,300	2.6	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Lead	408	250	1,300	1.6	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Lead	284	250	1,300	1.1	<1
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Lead	205	250	1,300	<1	<1

Table C-20
Chemicals Detected in Soil
Ace Galvanizing

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Lead	118	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Lead	103	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/8/1991	MW01	9	Lead	74	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/9/1991	SB01	2	Lead	12	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB04	3	Lead	11	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03-Dup	9	Lead	8	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Lead	7	250	1,300	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03-Dup	9	Nickel	78				
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Nickel	52				
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Nickel	49				
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Nickel	42				
Parametrix and SAIC 1991a	5/9/1991	SB01	2	Nickel	38				
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Nickel	38				
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Nickel	38				
Parametrix and SAIC 1991a	5/9/1991	SB02	3.5	Nickel	37				
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Nickel	36				
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Nickel	36				
Parametrix and SAIC 1991a	5/8/1991	MW01	9	Nickel	34				
Parametrix and SAIC 1991a	5/10/1991	SB04	3	Nickel	21				
Parametrix and SAIC 1991a	5/8/1991	MW01	22	Nickel	20				
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Total petroleum hydrocarbons	31,000	2,000		16	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Total petroleum hydrocarbons	7,800	2,000		3.9	
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Total petroleum hydrocarbons	2,500	2,000		1.3	
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Total petroleum hydrocarbons	2,300	2,000		1.2	
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Total petroleum hydrocarbons	1,700	2,000		<1	
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Total petroleum hydrocarbons	640	2,000		<1	
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Total petroleum hydrocarbons	8	2,000		<1	
Parametrix and SAIC 1991a	5/9/1991	SB02	3.5	Total petroleum hydrocarbons	7	2,000		<1	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Zinc	12,100	24,000	770	<1	16
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Zinc	9,030	24,000	770	<1	12
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Zinc	6,330	24,000	770	<1	8.2
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Zinc	5,890	24,000	770	<1	7.6
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Zinc	5,810	24,000	770	<1	7.5
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Zinc	2,330	24,000	770	<1	3.0
Parametrix and SAIC 1991a	5/9/1991	SB02	3.5	Zinc	675	24,000	770	<1	<1
Parametrix and SAIC 1991a	5/8/1991	MW01	9	Zinc	143	24,000	770	<1	<1

Table C-20
Chemicals Detected in Soil
Ace Galvanizing

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	MW01	22	Zinc	116	24,000	38	<1	3.1
Parametrix and SAIC 1991a	5/9/1991	SB01	2	Zinc	43	24,000	770	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB04	3	Zinc	38	24,000	770	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03-Dup	9	Zinc	30	24,000	770	<1	<1
Parametrix and SAIC 1991a	5/10/1991	SB03	9	Zinc	29	24,000	770	<1	<1

🟨 Chemical exceedance

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 22 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table C-21
Chemicals Detected in Groundwater
Ace Galvanizing

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/14/1991	MW01	Acetone	63	7,200		<1	
Parametrix and SAIC 1991a	5/14/1991	MW01	Cadmium	139	5	3.4	28	41
Parametrix and SAIC 1991a	5/14/1991	MW01	Cadmium	126	5	3.4	25	37
Parametrix and SAIC 1991a	5/14/1991	MW01	Chromium	2,870	50	320	57	9.0
Parametrix and SAIC 1991a	5/14/1991	MW01	Chromium	2,750	50	320	55	8.6
Parametrix and SAIC 1991a	5/14/1991	MW01	Copper	850	640	120	1.3	7.1
Parametrix and SAIC 1991a	5/14/1991	MW01	Copper	807	640	120	1.3	6.7
Parametrix and SAIC 1991a	5/14/1991	MW01	Methylene chloride	16	5		3.2	
Parametrix and SAIC 1991a	5/14/1991	MW01	Nickel	5,600				
Parametrix and SAIC 1991a	5/14/1991	MW01	Nickel	5,260				
Parametrix and SAIC 1991a	5/14/1991	MW01	Zinc	1,420,000	4,800	76	296	18,684
Parametrix and SAIC 1991a	5/14/1991	MW01	Zinc	1,350,000	4,800	76	281	17,763

GW - Groundwater

🟨 Chemical exceedance

ug/L - Micrograms per liter

MTCA - Model Toxics Control Act

CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.

b - Based on CSL (SAIC 2006).

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table C-22
Chemicals Detected in Storm Drain Solids
Ace Galvanizing

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SD04	Cadmium	21	5.1	6.7	4.1	3.1
Parametrix and SAIC 1991a	5/8/1991	SD02	Cadmium	11	5.1	6.7	2.2	1.6
Parametrix and SAIC 1991a	5/8/1991	SD01	Cadmium	3	5.1	6.7	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD04	Chromium	95	260	270	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD01	Chromium	88	260	270	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD02	Chromium	64	260	270	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD01	Copper	273	390	390	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD04	Copper	195	390	390	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD02	Copper	114	390	390	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD04	Lead	1,480	450	530	3.3	2.8
Parametrix and SAIC 1991a	5/8/1991	SD02	Lead	508	450	530	1.1	<1
Parametrix and SAIC 1991a	5/8/1991	SD01	Lead	287	450	530	<1	<1
Parametrix and SAIC 1991a	5/8/1991	SD01	Nickel	148				
Parametrix and SAIC 1991a	5/8/1991	SD04	Nickel	117				
Parametrix and SAIC 1991a	5/8/1991	SD02	Nickel	45				
Parametrix and SAIC 1991a	5/8/1991	SD01	Total petroleum hydrocarbons	23,800	2,000		12	
Parametrix and SAIC 1991a	5/8/1991	SD04	Total petroleum hydrocarbons	8,900	2,000		4.5	
Parametrix and SAIC 1991a	5/8/1991	SD02	Total petroleum hydrocarbons	8,000	2,000		4	
Parametrix and SAIC 1991a	5/8/1991	SD04	Zinc	91,100	410	960	222	95
Parametrix and SAIC 1991a	5/8/1991	SD02	Zinc	29,900	410	960	73	31
Parametrix and SAIC 1991a	5/8/1991	SD01	Zinc	12,400	410	960	30	13

🟨 Chemical exceedance

mg/kg - Milligrams per kilogram
DW - Dry weight
SQS - SMS Sediment Quality Standard
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the SQS or CSL. Petroleum hydrocarbons are compared to the MTCA Method A cleanup level.

Table C-23
Chemicals Detected in Soil
Norman Property

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
SKCDPH 2005	11/2/2005	Sample 2		Diesel-range hydrocarbons	240	2,000		<1	
SKCDPH 2005	11/2/2005	Sample 3		Diesel-range hydrocarbons	150	2,000		<1	
SKCDPH 2005	11/2/2005	Sample 2		Lead	55	250	1,300	<1	<1
SKCDPH 2005	11/2/2005	Sample 4		Lead	41	250	1,300	<1	<1
SKCDPH 2005	11/2/2005	Sample 3		Lead	18	250	1,300	<1	<1
SKCDPH 2005	11/2/2005	Sample 1		Lead	9.6	250	1,300	<1	<1

ft bgs - Feet below ground surface
mg/kg - Milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 7.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Appendix C–2
KRS Marine

James P. Hurley Co.
Environmental Risk Management Consultants

P.O. Box 82206
Kenmore, WA 98028

Telephone (425) 486-6665
FAX (425) 486-7896

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SUMMARY REPORT

OIL CONTAMINATED SOIL CLEANUP PROJECT

KRS MARINE FACILITY
1621 S. 92^{ND} PLACE
SEATTLE, WASHINGTON
JPHC CO# 000102

Prepared For:

Mr. Ryan Pleas
KRS Marine
2404 Boyer Avenue East
Seattle, WA 98112

Prepared By:

James P. Hurley Company
P.O. Box 82206
Kenmore, WA 98028
Phone: (425) 486-6665

Date Prepared:

April 25, 2000

TABLE 1
SUMMARY OF LABORATORY RESULTS

DATE COLLECTED	SAMPLE#	TYPE	LOCATION	DEPTH (FEET BGS)	WTPH-DX RESULT (DIESEL) (PPM)	WTPH-DX RESULT (OIL) (PPM)
2-11-00	JH-1	DISCRETE SOIL	CAVITY 1 CENTER	2.0	ND	440
2-29-00	JH-1-2	DISCRETE SOIL	CAVITY 1 CENTER	3.0	ND	ND
2-11-00	JH-2	DISCRETE SOIL	CAVITY 1 CENTER	3.0	55	870
2-29-00	JH-2-2	DISCRETE SOIL	CAVITY 1 CENTER	3.0	ND	ND
2-11-00	JH-3	DISCRETE SOIL	CAVITY 1 WEST	2.0	ND	ND
2-11-00	JH-4	DISCRETE SOIL	CAVITY 1 SOUTH	2.0	ND	ND
2-11-00	JH-5	DISCRETE SOIL	CAVITY 1 EAST	2.0	ND	140
2-11-00	JH-6	DISCRETE SOIL	CAVITY 1 NORTH	2.0	ND	490
2-29-00	JH-6-2	DISCRETE SOIL	CAVITY 1 NORTH	3.0	ND	ND
2-11-00	JH-7	DISCRETE SOIL	CAVITY 2 SOUTH	2.0	ND	110
2-11-00	JH-8	DISCRETE SOIL	CAVITY 2 EAST	2.0	ND	140
2-11-00	JH-9	DISCRETE SOIL	CAVITY 2 NORTH	2.0	ND	82
2-11-00	JH-10	DISCRETE SOIL	CAVITY 2 NORTH	2.0	49	770
2-29-00	JH-10-2	DISCRETE SOIL	CAVITY 2 NORTH	2.5	ND	230
4-5-00	JH-10-3	DISCRETE SOIL	CAVITY 2 WEST	3.5	ND	ND
2-11-00	JH-11	DISCRETE SOIL	CAVITY 2 CENTER	3.5	ND	170
2-11-00	JH-12	DISCRETE SOIL	CAVITY 3 SOUTH	2.0	ND	170
2-11-00	JH-13	DISCRETE SOIL	CAVITY 3 NORTH	2.0	ND	260
2-29-00	JH-13-2	DISCRETE SOIL	CAVITY 3 NORTH	3.5	ND	ND
2-11-00	JH-14	DISCRETE SOIL	CAVITY 3 EAST	2.0	ND	190

Appendix C–3
Gary Merlino Construction Company

10284

RELEASE 517651
GARY MERLINO CONSTRUCTION
SEATTLE/KING

SITE CHARACTERIZATION REPORT
RELEASE FROM UNDERGROUND STORAGE TANK SYSTEM
(Chapter 173-340 WAC)

Prepared for:

Gary Merlino Construction Company, Inc.
9125 10th Avenue South
Seattle, WA 98108-9125

Prepared by:

Blue Sage Environmental, Inc.
P.O. Box 6738
Kennewick, WA 99337
(509) 586-8635

August 31, 1999

10284/
ENTERED
10/8/99

Soil/Groundwater Chemistry - Lab Report #82851

Following are the results of soil samples taken on July 23, 1999, as reported in Lab Report 82851, dated July 29, 1999 (**Appendix I**). Sample results are on a dry weight basis and reported in **mg/kg**.

Sample #	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Cleanup Levels	**100.0 mg/kg**	**0.5 mg/kg**	**40.0 mg/kg**	**20.0 mg/kg**	**20.0 mg/kg**
MC-T2-1	17	ND	ND	0.066	0.051
MC-T2-2	***910***	ND	0.039	0.86	5.16
MC-T2-3	22	ND	ND	0.075	0.7
MC-Pump	***1300***	0.28	1.4	6.5	5.7
MC-SP-1	25	ND	ND	0.034	0.48
MC-SP-2	19	ND	ND	0.015	0.31
MC-SP-3	4.9	ND	ND	ND	ND

Sample #	Diesel
Cleanup Level	**200.0 mg/kg**
MC-T1-1	ND
MC-T1-2	***730***
MC-T1-3	69
MC-Pump	170
MC-SP-1	ND
MC-SP-2	30
MC-SP-3	19

Cleanup levels for gasoline and diesel range compounds are as reported in *The Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC, Table 3, Method A Cleanup Levels - Industrial Soil, January 1996.*

Cleanup Actions

During the week of July 26th, 1999, additional soils were removed from the floor of the excavation areas around Tank 2 and the north side of Tank 1 (**Figure 7 - Pictures**). The depth of the floor under Tank 2 was lowered to approximately twelve feet bgs. The north side of the floor area under Tank 1 was lowered to approximately ten feet bgs. The area under the dispensing pumps was lowered an additional two feet.

Approximately 200 cubic yards of soil was removed from around the USTs during the excavation. It has been stockpiled at the site.

Sampling Activities - July 29, 1999

Following the removal of additional soils from the excavation area during the week of July 26th, 1999, soil samples were taken from around Tanks 1 & 2, and from under the dispensing pumps (**Figure 8**). In addition, a water sample was obtained from the floor of the excavation.

Following are the sample numbers and locations for each sample:

Sample Number	Location	Depth (bgs)
MC-T1-4	Tank 1, north edge, center	~10 feet
MC-T2-4	Tank 2, north edge, center	~12 feet
MC-Pump-2	Near dispensing pumps	~4 feet
MC-Ground W1	Tank 2, center floor area	~12 feet
MC-Ground W2	Tank 2, center floor area	~12 feet

All samples were taken to SAS. They were analyzed for gasoline range compounds using *Volatile Petroleum Products analysis by WSDOE Method NWTPH-Gx Modified*, and *BTEX analysis by USEPA Method 8021B/5030B Modified for Volatile Aromatic Hydrocarbons,* and for diesel range compounds using *WSDOE Method NWTPH-Dx.*

Soil/Groundwater Chemistry - Lab Report #82997

Following are the results of soil and liquid samples taken on July 23, 1999, as reported in Lab Report 82997, dated August 12, 1999 (**Appendix II**). Soil sample results are on a dry weight basis and reported in **mg/kg**.

Sample #	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Cleanup Levels	**100.0 mg/kg**	**0.5 mg/kg**	**40.0 mg/kg**	**20.0 mg/kg**	**20.0 mg/kg**
MC-T2-4	5.3	ND	ND	ND	ND
MC-Pump 2	ND	ND	ND	ND	ND

Sample #	Diesel
Cleanup Level	**200.0 mg/kg**
MC-T1-4	ND

Following are the results of liquid samples taken on July 29, 1999. Liquid sample results are reported in **mg/L**.

Sample #	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Cleanup Levels	**1.0 mg/L**	**0.005 mg/L**	**0.040 mg/L**	**0.030 mg/L**	**0.020 mg/L**
MC-Ground W2	***36***	***0.053***	***0.18***	***0.7***	***1.8***

Sample #	Diesel
Cleanup Level	**1.0 mg/L**
MC-Ground W1	***10***

Cleanup levels for gasoline and diesel range compounds are as reported in *The Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC, Table 3, Method A Cleanup Levels - Industrial Soil, and Table 1, Method A Cleanup Levels - Groundwater, January 1996.*

Groundwater Usage

On July 23, 1999, the depth to groundwater at the Merlino site was approximately 9½ feet bgs. On July 29, 1999, the depth to groundwater at the Merlino site was approximately 12 feet bgs. The shallow groundwater table in this area may be influenced by tidal activity. It is not used as a potable water source for the surrounding commercial/light industrial and residential properties. Shallow groundwater in this area flows towards and is discharged into the Duwamish river system.

The American Petroleum Institute (API) has released a bulletin titled ***Characteristics of Dissolved Petroleum Hydrocarbon Plumes***. References from this bulletin are provided in Appendix III. This bulletin is a summary of results from four studies of over 600 groundwater contamination sites throughout the U.S. Following are several points related to dissolved petroleum hydrocarbon plumes from LUST sites:

- Approximately 75% of dissolved petroleum hydrocarbon plumes are under 200 feet.
- The median plume length of all sites in the four studies was 132 feet.
- Both plume length and concentration are directly effected by natural biodegredation.
- Hydrogeologic variables have little apparent relationship to plume characteristics.

Summary and Recommendations

Soil from around and under the USTs that had a petroleum odor was removed down to between ten to twelve feet bgs. At these depths, soil samples from the floor of the

Appendix C–4
ICON Materials Asphalt Plant
(Former M.A. Segale Asphalt Plant)

TABLE 1
SUMMARY OF SOIL ANALYTICAL DATA
DIESEL TANK EXCAVATION NO. 1

Soil Sample Number	Date Sampled	General Location	Depth of Sample (feet)	Field Screening Results(1)		Fuel Hydrocarbons (mg/kg) (Modified EPA Method 8015)	
				Headspace Vapors (ppm)	Sheen Test	Gasoline	Diesel
D-1	01/24/91	Base - under fill port	9.5	<100	NS	<5	<5
D-2	01/24/91	Base - under fill port	9.5	<100	SS	<5	<5
D-3	01/24/91	East wall	7.5	<100	SS	<5	<5
D-4	01/24/91	North wall	7.5	<100	NS	<5	<5
D-5	01/24/91	South wall	7.5	<100	SS	26	150
D-6	01/24/91	West wall	7.5	<100	NS	<5	<5

Notes:

(1) See Appendix A for field screening methods.
NS = no sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen

mg/kg = milligrams per kilogram

ppm = parts per million

"<" = less than

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
WASTE OIL TANK EXCAVATION

Soil Sample Number	Date Sampled	General Location	Depth of Sample (feet)	Field Screening Results(1)		Total Petroleum Hydrocarbons (mg/kg) (EPA Method 418.1)	Fuel Hydrocarbons (mg/kg) (Modified EPA Method 8015)	
				Headspace Vapors (ppm)	Sheen Test		Gasoline	Diesel
W-1(2)	01/24/91	Base - under fill port	8.5	<100	SS	740	--	--
W-2(3)	01/24/91	North wall	7.8	<100	NS	--	<5	<5
W-3	01/24/91	East wall	7.8	<100	NS	1,300	--	--
W-4	01/24/91	South wall	7.5	<100	SS	11,000	47	650
W-5(3)	01/24/91	West wall	7.5	<100	NS	150	--	--
W-2A(3)	01/26/91	North wall	7.8	<100	NS	35	--	--
W-1A(3)	01/31/91	Base - under fill port	10.0	100	SS	--	6	14
W-3A(3)	01/31/91	East wall	8.0	210	SS	--	<5	<5
W-4A(3)	01/31/91	South wall	8.0	110	SS	--	<5	<5

Notes:

(1) See Appendix A for field screening methods.

NS = no sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen

(2) Sample W-1 was also analyzed for purgeable halocarbons by EPA Method 8010. These compounds were not detected.

(3) Samples obtained at final limits of excavation.

mg/kg = milligrams per kilogram

ppm = parts per million

"<" = less than

"--" = not tested

TABLE 3
SUMMARY OF SOIL ANALYTICAL DATA
DIESEL TANK EXCAVATION NO. 2

Soil Sample Number	Date Sampled	General Location	Depth of Sample (feet)	Field Screening Results(1)		Fuel Hydrocarbons (mg/kg) (Modified EPA Method 8015)	
				Headspace Vapors (ppm)	Sheen Test	Gasoline	Diesel
D-7	01/28/91	Base - under fill port	12.0	<100	NS	<5	<5
D-8	01/28/91	East wall	8.0	<100	NS	<5	<5
D-9	01/28/91	South wall	8.0	<100	NS	<5	<5
D-10	01/28/91	West wall	8.0	<100	NS	<5	<5
D-11	01/28/91	North wall	8.0	<100	NS	<5	<5

Notes:

(1) See Appendix A for field screening methods.

NS = no sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen

mg/kg = milligrams per kilogram

ppm = parts per million

"<" = less than

TABLE 4
SUMMARY OF SOIL ANALYTICAL DATA
GASOLINE AND DIESEL TANK EXCAVATION

Soil Sample Number	Date Sampled	General Location	Depth of Sample (feet)	Field Screening Results(1)		BETX (mg/kg) (EPA Method 8020)				Fuel Hydrocarbons (mg/kg) (Modified EPA Method 8015)	
				Headspace Vapors (ppm)	Sheen Test	Benzene	Ethylbenzene	Toluene	Xylenes	Gasoline	Diesel
GD-1	01/28/91	Base – under gasoline tank fill port	10.5	<100	NS	<0.025	<0.025	<0.025	<0.025	<5	<5
GD-2	01/28/91	West wall	8.0	<100	NS	<0.025	<0.025	<0.025	0.042	<5	14
GD-3	01/28/91	North wall	8.0	<100	NS	<0.025	<0.025	<0.025	<0.025	<5	<5
GD-4	01/28/91	East wall	8.0	<100	SS	<0.025	<0.025	0.030	<0.025	<5	<5
GD-5	01/28/91	Base – under diesel tank fill port	12.5	<100	NS	<0.025	<0.025	<0.025	<0.025	<5	<5
GD-6	01/28/91	South wall	8.0	180	NS	<0.025	<0.025	<0.025	<0.025	<5	<5

Notes:

(1) See Appendix A for field screening methods.

NS = no sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen

mg/kg = milligrams per kilogram

ppm = parts per million

"<" = less than

TABLE 5
SUMMARY OF SOIL ANALYTICAL DATA
EXCAVATION SOIL STOCKPILES

Soil Sample Number	Date Sampled	Depth of Sample (feet)	Field Screening Results(1)		BETX (mg/kg) (EPA Method 8020)				Fuel Hydrocarbons (mg/kg) (Modified EPA Method 8015)	
			Headspace Vapors (ppm)	Sheen Test	Benzene	Ethylbenzene	Toluene	Xylenes	Gasoline	Diesel
GDSP-1	01/28/91	6	--	MS	<0.025	0.050	0.044	0.36	140	1,600
GDSP-2	01/28/91	6	--	MS	<0.025	<0.025	0.032	0.16	94	880
GDSP-3	01/28/91	4	--	MS	<0.025	0.036	<0.025	0.29	130	940
GDSP-4	01/28/91	3	--	MS	<0.025	0.033	<0.025	0.29	180	1,700
GDSP-5	01/28/91	4	--	MS	<0.025	0.049	<0.025	0.31	99	560
GDSP-6	01/28/91	4	--	MS	<0.025	0.070	0.032	0.67	270	2,600
CSP-1	01/28/91	6	--	MS	<0.025	<0.025	<0.025	0.14	89	730
CSP-2	01/28/91	4	--	SS	<0.025	<0.025	0.033	0.24	140	1,600
WSP-1	01/28/91	3	--	MS	<0.025	<0.025	<0.025	0.045	65	39

Notes:

(1) See Appendix A for field screening methods.

NS = no sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen

mg/kg = milligrams per kilogram

ppm = parts per million

"<" = less than

Appendix C–5
Selland Auto Transport

The objectives of these interim remedial actions are to reduce the volume of potential contaminated soil and groundwater by reducing the source materials involved. Immediately upon observing soil contamination in the vicinity of UST-3 and 4 the owners of the property contacted their insurance carrier and the WA-DOE through verbal confirmation with PSCI. We are continuing to evaluate the extent and potential migration of the contamination through further testing. Based on these initial results, the following actions will be completed as appropriate:

- Removal of all fuel products from the remaining two UST's located on the site;
- Removal of the 2,000-gallon gasoline UST from the property.
- Decommissioning the 20,000-gallon diesel UST in place using foam based products.
- Evaluation of the migration ability of the groundwater through on-site and off-site data review.
- Evaluate alternative remedial technologies, as necessary.

The placement of the asphalt cover over the area associated with UST-1 and 2, in conjunction with the entire site being covered with asphalt greatly reduces or eliminates the potential for petroleum migration from affected soil to groundwater. The shallow groundwater in the vicinity of the site is known to be significantly contaminated at numerous off-site locations as a result of off-site sources. The groundwater is not used for drinking water purposes, limiting any potential hazard to human health due to ingestion of drinking water. In addition, our investigation indicates that no free-phase product is associated with this release and the soil plume is localized and limited in volume.

CONCLUSIONS

SOIL ANALYSIS

Following is a table summarizing the results of the soil samples collected by PSCI and analyzed for NWTPH-D, G and BTEX. **Bold typeface indicates that the result is above MTCA Method A clean-up level-reporting limit**.

Sample Number	***TPH-D ppm***	***TPH-G ppm***	***Benzene ppm***	***Ethylbenzene ppm***	***Toluene ppm***	***Xylenes ppm***
Standards	**200**	**100**	**0.5**	**20**	**40**	**20**
B-1-15-828	**12000**	**700**	**5**	**35**	**92**	12
B-2-13-828	**400**	**110**	**1**	**13**	**32**	9
B-2-15-828	**970**	**220**	**2**	**24**	**49**	8
***B-2-20-1015**	**292**	ND				
B-3-15-828	**2700**	**680**	6	**21**	**87**	**21**
***B-3-20-1015**	**1680**	ND				
B-4-15-828	ND	9	ND	ND	ND	ND
B-5-15-1015	**6060**	110	ND	14	16	5
***B-5-20-1015**	**5210**	ND				
B-6-16-1015	**1200**	**230**	6	13	9	12
B-7-16-1015	75	ND	ND	ND	ND	ND
B-8-16-1015	**4700**	ND	ND	ND	ND	ND
B-9-16-1016	ND	ND	ND	ND	ND	ND
B-10-16-1016	ND	ND	ND	ND	ND	ND
B-11-16-1016	ND	ND	ND	ND	ND	ND
B-12-20-1016	**200**	ND	ND	ND	ND	ND

* Indicates field screening results using a SRI GC.

GROUNDWATER

Following is a table summarizing the results of the soil samples collected by PSCI and analyzed for NWTPH-D, G and BTEX. **Bold typeface indicates that the result is above MTCA Method A clean-up level-reporting limit**.

Sample Number	TPH-D ppb	TPH-G ppb	Benzene ppb	Ethylbenzene ppb	Toluene ppb	Xylenes ppb
Standards	1000	1000	5	30	40	20
B-2-21-1016	1300	ND				
B-3-21-1016	4500	ND				
B-5-21-1016	6810	ND				

CURRENT SITE CONDITION

Based on PSCI's field investigation soil with concentrations of petroleum hydrocarbons exceeding the MTCA Method A cleanup level remain in place on the subject property. The total estimated volume of the diesel-gasoline-contaminated soil above MTCA Method A cleanup levels was calculated at 477 cubic yards. Groundwater was also identified as impacted with diesel range TPH on site. The area of contaminated groundwater influence above MTCA Method A cleanup levels at the subject site is estimated as that area representing approximately 2,277 sq. ft. *(See Site Map 2 and 4 for more detail)*

RECOMMENDATIONS

Based on the results of the forgoing sampling PSCI would recommend the following actions be completed at the site:

REMOVAL OF THE 2,000-GALLON GASOLINE UST

- PSCI would recommend the removal of the 2,000-gallon gasoline UST from the property based on the facts that it is minimally assessable for excavation purposes, and the overall risk posed by a large scale gasoline release is far greater than that of diesel fuel.
- By removing the gasoline UST further evaluations can be completed with regard to the overall risk posed by any release from this UST.

DECOMMISSIONING OF THE 20,000-GALLON DIESEL UST

- PSCI would recommend the decommissioning in place of the 20,000-gallon diesel UST due in fact to the financial burden of removal. We would also, recommend a foam based product be used in order to allow future redevelopment of the facility and the potential lower cost removal of the UST at that time.

ADDITIONAL SOIL ANALYSIS

PSCI would recommend further groundwater analysis to identify the potential migration of contamination from the UST's. We would recommend placement of three permanent monitoring wells down gradient of the UST's to evaluate potential groundwater impact and migration off-site.

EVALUATE ALTERNATIVE REMEDIAL TECHNOLOGIES, AS NECESSARY.

PSCI would recommend entry into the Voluntary Cleanup Program offered by the WA-DOE to evaluate alternative remedial technologies, if required by the WA-DOE.

STAFFING INFORMATION

CORPORATE INFORMATION

Name:	PSCI Environmental
Address:	10230 East Riverside Drive, Bothell, Washington 98011-3709
Contractor WA License Number:	PACIFSC007LW
UBI Number:	601-470-693
Fed Tax ID Number:	91-1599598