Lower Duwamish Waterway
RM 1.7 to 2.0 East
(Slip 2 to Slip 3)

Summary of Existing Information and Identification of Data Gaps

Prepared for

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Acronyms and Abbreviations

AST	aboveground storage tank
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BMP	best management practice
BOI	Bank and Office Interiors
BTEX	benzene, toluene, ethylbenzene, and xylenes
COC	chemical of concern
cPAH	carcinogenic PAH
CSCSL	Confirmed and Suspected Contaminated Sites List
CSL	Cleanup Screening Level
CSO	combined sewer overflow
DOT	Department of Transportation
DW	dry weight
ECHO	Enforcement and Compliance History Online
Ecology	Washington State Department of Ecology
EOF	emergency overflow
EPA	U.S. Environmental Protection Agency
EPH	extractable petroleum hydrocarbons
ERTS	Environmental Report Tracking System
FSD	Ecology Facility/Site Database
GIS	Geographic Information Systems
ISIS	Integrated Site Information System
ISO	International Standards Organization
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
LPG	Liquefied Petroleum Gas
LUST	leaking underground storage tank
MEK	methyl ethyl ketone
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mgy	million gallons per year
MLLW	mean lower low water
MOU	Memorandum of Understanding
MTBE	methyl tertiary-butyl ether
MTCA	Model Toxics Control Act
NAICS	North American Industry Classification System
NFA	No Further Action
ng/kg	nanograms per kilogram
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge and Elimination System
NWRO	Northwest Regional Office

Acronyms and Abbreviations (Continued)

OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PCT	polychlorinated terphenyl
PID	photoionization detector
PSC	Philips Services Corporation
PSDDA	Puget Sound Dredged Disposal Analysis
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RM	River Mile
SAIC	Science Applications International Corporation
SCAP	Source Control Action Plan
SD	storm drain
SDOT	Seattle Department of Transportation
SHA	Site Hazard Assessment
SIC	Standard Industrial Classification
SMS	Sediment Management Standards
SPU	Seattle Public Utilities
sq ft	square foot
SQS	Sediment Quality Standard
SVE	soil vapor extraction
SVOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSDE	treatment, storage, or disposal facility
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
VPH	volatile petroleum hydrocarbons
WAC	Washington Administrative Code
WQC	water quality criteria
WSDOT	Washington State Department of Transportation
WWTP	wastewater treatment plant
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

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) 1.7-2.0 East[1] (Slip 2 to Slip 3), one of several 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 Slip 2 to Slip 3 source control area. The purpose of the Data Gaps report is to:

- Identify chemicals of potential concern in sediments associated with the Slip 2 to Slip 3 source control area;
- Evaluate potential contaminant migration pathways to the sediments associated with the Slip 2 to Slip 3 source control area;
- Identify and describe potential adjacent or upland sources of contaminants that could be transported to 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; and
- Determine what, if any, effective source control is already in place.

The LDW consists of the lower 5.5 miles of the Duwamish River as it 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 Superfund site are the Lower Duwamish Waterway Group (LDWG; composed of the city of Seattle, King County, the Port of Seattle, and The Boeing Company), EPA, and the Washington State Department of Ecology (Ecology). LDWG is conducting a Remedial Investigation/Feasibility Study (RI/FS) for the LDW Superfund 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] LDWG collected data during the Phase I Remedial Investigation (RI) that were used to identify locations that could be candidates for early cleanup action. Seven candidate early action sites (or Tier 1 sites) were identified. Ecology's *Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007* (Ecology 2007e) identified another eight areas where source control actions may be necessary. The Slip 2 to Slip 3 source control area was identified as one of these Tier 2 sites.[3] Subsequently, Ecology and EPA redefined the boundaries of these and eight additional source control areas, generally defined by stormwater drainage basins. Other factors considered for determining the Slip 2 to Slip 3 source control area boundaries included the following:

[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).
[3] Note: The RM 1.7-2.0 East source control area was identified in previous documents as Tier 2 Area 12 (T2A-12).

- Sheet flow: Areas where overland flow of stormwater or spills could reach the LDW are included in the source control area (e.g. Seattle Biodiesel);

- Soil and groundwater contamination: Areas where contaminated groundwater originates and has the potential to discharge to the LDW are included (e.g. former Consolidated Freightways);

- Parcel/building layouts: If stormwater from a portion of a parcel or building is within a stormwater drainage basin used to define the Slip 2 to Slip 3 source control area, then the entire parcel or building is considered to be within the source control area (e.g. Bank and Office Interiors properties).

Ecology is the lead agency for source control for the LDW Superfund 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 2002b), 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 Slip 2 to Slip 3 source control area, Ecology requested Science Applications International Corporation (SAIC) to prepare this Data Gaps report.

1.2 Report Organization

Section 2 of this report provides background information on the Slip 2 to Slip 3 source control area, including location, physical characteristics, chemicals of concern, and pathways by which contaminants may reach sediments. Sections 3 through 6 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 7 provides a summary of data gaps, and Section 8 lists the documents reviewed during preparation of this report.

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

- Ecology Northwest Regional Office (NWRO) 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 (FSD),
- Ecology Integrated Site Information System (ISIS) Database,
- Washington Confirmed and Suspected Contaminated Sites List (CSCSL),
- EPA Enforcement and Compliance History Online (ECHO),
- EPA Envirofacts Warehouse,
- King County Geographic Information Systems (GIS) Center Parcel Viewer and Property Tax Records,
- GIS shape files produced by SPU, and
- Historical aerial photographs.

1.3 Scope of Report

This report documents readily available information relevant to potential sources of contaminants to sediments associated with the Slip 2 to Slip 3 source control area, including outfalls, adjacent properties, and upland properties.

Adjacent and upland properties include Glacier Northwest, Inc., the Lone Star Investors property (Seattle Biodiesel), Duwamish Marine Center, the former Frank's Used Cars property, the former Consolidated Freightways property, Seattle Truck Repair/Evergreen Tractor, Bank and Office Interiors, and Fittings, Inc. In addition, this report includes information about facilities within the Michigan Street combined sewer overflow (CSO) basin, which discharges to the LDW within the Slip 2 to Slip 3 source control area.

Air pollution is a potential source of sediment contamination with origins outside of the Slip 2 to Slip 3 source control area. Although limited discussion of atmospheric deposition is provided in Section 2, the scope of this report does not include an assessment of data gaps pertaining to the effects of air pollution on the sediments associated with the source control area. Because air pollution is a concern for the wider LDW region, Ecology will review work being conducted by the Washington State Department of Health and planned by the Puget Sound Partnership regarding atmospheric deposition. Ecology is planning to hire a contractor to develop options and recommendations for addressing data gaps related to air pollution.

Information presented in this report is limited to the Slip 2 to Slip 3 source control area, direct discharges to the sediments associated with the source control area, and potential adjacent and upland contaminant sources. This report focuses on sources that have the potential to recontaminate sediments associated with the source control area in the event that sediment remediation is required. It does not preclude the potential for recontamination from capped sediments if this remedial option is selected. 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 associated with the Slip 2 to Slip 3 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 Slip 2 to Slip 3 Source Control Area

The Slip 2 to Slip 3 source control area, also referred to as the RM 1.7 to 2.0 East source control area, is located along the eastern side of the LDW Superfund Site between RM 1.7 and 2.0 as measured from the southern end of Harbor Island (Figure 1). Several facilities are located directly adjacent to the LDW within the Slip 2 to Slip 3 source control area (Figure 2). From north to south, these facilities are:

- Glacier Northwest, Inc. (Glacier Northwest),
- Seattle Biodiesel,
- Samson Tug and Barge,
- Duwamish Marine Center, and
- Duwamish Metal Fabricators.

Slip 2 is situated between Glacier Northwest and the Duwamish Marine Center. Located to the east of these properties are East Marginal Way S and other industrial facilities. To the north of Glacier Northwest is James Hardie Gypsum and to the south and southeast of Duwamish Marine Center are the LDW, a vacant lot owned by the Seattle Department of Transportation (SDOT) and Slip 3.

There are six outfalls discharging to the LDW within the Slip 2 to Slip 3 source control area, including four private and two public outfalls (Figure 2):

2018: 8-inch PVC at Glacier Northwest (private)
2019: 24-inch concrete at head of Slip 2 (private)
2021: 6-inch PVC (private)
2022: 8-inch PVC (private)
2052: Michigan Street CSO (King County)
2503: 30-inch concrete at 1st Avenue S bridge (SPU)

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; historical and current commercial and industrial operations in the vicinity of the Slip 2 to Slip 3 source control area include cement production facilities, food products manufacturing and distribution, machine and tool companies, junk collection, and construction services.

In the late 1800s and early 1900s, extensive topographic modifications were made to the Duwamish River to create a straightened channel; many of the current side slips are remnants of old river meanders. Slip 2 is one of these remnants.

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 in the vicinity of the source control area is generally to the west-southwest, toward the LDW and Slip 2.

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 associated with the Slip 2 to Slip 3 source control area consist of greater than 60 percent fines along the north side and head of Slip 2, with very coarse material (0 to 20 percent fines) along the southern side of Slip 2, becoming finer-grained along the shoreline to the south (Windward 2003). The area around the Michigan Street CSO and 1st Avenue S Bridge outfalls consists of 60 to 80 percent fines. Total organic carbon (TOC) in this area ranges from 0.11 to 3.34 percent (Appendix A).

In an effort to more thoroughly understand and evaluate historical facility operations and development in the Slip 2 to Slip 3 source control area, SAIC reviewed historical aerial photographs from 1936 to 2002. These photographs represent conditions during roughly each decade. The aerial photographs and complete descriptions for the years 1936, 1946, 1956, 1969, 1980, 1990, 2000, and 2002 are provided in Appendix B. The descriptions are summarized below.

- <u>1936</u>: Slip 2 is present with clear shoreline definition. Timber rafts are stored on the north side and numerous small docks and above-water structures, possibly used to house small boats, are located along the south side of Slip 2. First Avenue S is relatively close to the east side of Slip 2. There is either the early development or decaying remains of a structure resembling a pier along the north side of the slip.
- <u>1946</u>: Slip 2 has undergone significant changes due to the apparent filling and subsequent reduction in size of approximately one-third of the original open surface water area. There appears to be a small dock or log boom present along the north and east side of the slip.
- <u>1956</u>: There are two long docks paralleling the north and south side, respectively. The primary purpose of the north dock appears to be for ship mooring. The function of the south dock is unknown. The south side of Slip 2 remains as mostly mudflats resulting from the reconfiguration and filling of the slip.
- <u>1969</u>: Slip 2 remains generally the same shape with some increased definition along the southern shoreline, which shifts from mudflats to usable developable land. Ship and barge moorage appears to be the primary function of the slip.

- 1980: The southern dock has been removed and two large barges are moored on the north side of the slip. A small pier located on the south side of the slip near the mouth has also been constructed.
- 1990: Slip 2 continues to accommodate large barge moorage along the north side. A wharf has been added to the pier located on the south side. The wharf has facilitated additional large barge moorage.
- 2000 and 2002: No significant changes are visible to the Slip 2 area.

2.2 Chemicals of Concern in Sediment

Chemicals of concern (COCs) in sediment associated with the Slip 2 to Slip 3 source control area were identified based on sediment sampling conducted between 1995 and 2006.

2.2.1 Sediment Investigations

Sediment samples have been collected adjacent to the Slip 2 to Slip 3 source control area as part of the investigations listed below. Sampling locations are listed in Table 1, and are shown in Figure 3. Data and information regarding the investigations performed prior to 2005 were compiled by Windward Environmental for the LDW RI (Windward 2003, Windward 2007c).

- **Lone Star Northwest and Hardie Gypsum (Hartman 1995)**

  In June 1995, two subsurface sediment samples were collected adjacent to the source control area. Both samples were analyzed for metals and trace elements, polycyclic aromatic hydrocarbons (PAHs), phthalates, polychlorinated biphenyls (PCBs), and pesticides, and one sample was analyzed for semivolatile organic compounds (SVOCs).

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

  Ten surface sediment samples were collected adjacent to the source control area in 1997. Six samples were analyzed for metals and trace elements, five samples were analyzed for PAHs, and two samples were analyzed for PCBs.

- **Puget Sound Sediment Sampling (Ecology 2000a)**

  One surface sediment sample was collected adjacent to the source control area in June 1998. The sample was analyzed for metals, pesticides, PCBs, SVOCs, volatile organic compounds (VOCs), and tributyltin.

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

  Fifteen surface sediment samples and two subsurface samples from one coring location were collected adjacent to the source control area in August and September 1998. All samples were analyzed for metals and trace elements; eight surface samples were analyzed for SVOCs and PAHs; nine surface samples and one subsurface sample were analyzed for phthalates; 10 surface samples were analyzed for PCBs; four surface samples were analyzed for dioxins/furans; and one surface sample was analyzed for organometals, pesticides and VOCs.

- **Hardie Gypsum Sediment Sampling and Analysis, Round 1 (Spearman 1999)**
  Three subsurface sediment samples were collected from three coring locations adjacent to the source control area in November 1998. The samples were analyzed for metals and trace elements, PAHs, phthalates, and PCBs, and one sample was analyzed for SVOCs.

- **Hardie Gypsum Sediment Sampling and Analysis, Round 2 (Spearman 1999)**
  Six subsurface sediment samples were collected from six coring locations adjacent to the source control area in July 1999. Four samples were analyzed for metals and trace elements, PAHs, PCBs, and pesticides, two samples were analyzed for SVOCs, and five samples were analyzed for phthalates.

- **PSDDA Sediment Characterization of Duwamish River Navigation Channel (PSDDA99; SEA 2000a, 2000b)**
  Five subsurface sediment samples were collected adjacent to the source control area in August 1999. All five samples were analyzed for metals and trace elements, PAHs, phthalates, and PCBs.

- **James Hardie Outfall and Nearshore Sediment Sampling Report (Weston 2000)**
  One surface sediment sample was collected adjacent to the source control area in July 2000. This sample was analyzed for metals and trace elements, SVOCs, PAHs, phthalates, and PCBs.

- **LDW Phase 2 Remedial Investigation, Round 1, 2, and 3 Sediment Sampling (Windward 2005a, 2005b, 2007b)**
  Nine surface sediment samples were collected adjacent to the source control area during three rounds of sampling for the Phase 2 RI from 2004 to 2006. All samples were analyzed for metals and trace elements, eight samples were analyzed for SVOCs, seven samples were analyzed for PAHs, six samples were analyzed for phthalates, 10 samples were analyzed for PCBs, one sample was analyzed for dioxins/furans, one sample was analyzed for pesticides, and three samples were analyzed for organometals.

- **LDW Phase 2 RI Subsurface Sediment Sampling (Windward 2007a)**
  Twenty-one sediment samples were collected from four coring locations adjacent to the source control area during 2006. Seventeen samples were analyzed for metals and trace elements, 13 samples were analyzed for SVOCs and PAHs, 11 samples were analyzed for phthalates, 15 samples were analyzed for PCBs, and two samples were analyzed for organometals.

Sediment sampling results are listed in Appendix A-1 and A-2 for surface and subsurface sediments, respectively.

2.2.2 Identification of Chemicals of Concern

A COC is defined in this report as a chemical that is present in sediments associated with the Slip 2 to Slip 3 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 Slip 2 to Slip 3 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 Tables 2 and 3 for surface and subsurface sediments, respectively. For non-polar organics, the measured dry weight concentrations were organic carbon (OC) normalized to allow comparison to the SQS/CSL. Chemicals detected in sediment for which no SQS/CSL values are available may be identified as COCs on a case-by-case basis.

Concentrations of chemicals in soil and groundwater were compared to 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 site-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 site-specific conditions, to evaluate the likelihood that they will lead to exceedances of the SMS.

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.

Chemicals with concentrations above the SQS in surface or subsurface sediment samples are listed below. In general, chemicals were present in sediment samples at concentrations only slightly above the SQS values; the greatest exceedances were observed for PCBs at sample locations on the southeastern side of Slip 2 at depths of 1 to 4 feet, and between the southern end of Slip 2 and the 1st Avenue S Bridge at depths of 1.0 to 1.5 feet (Figure 3).

Chemicals Detected at Concentrations Above the SQS/CSL	Surface Sediment		Subsurface Sediment	
	> SQS	> CSL	> SQS	> CSL
Metals				
Lead			●	
Mercury			●	
PAHs				
Acenaphthene			●	●
Benzo(g,h,i)perylene	●			
Chrysene	●			
Fluoranthene			●	
Fluorene			●	●
Indeno(1,2,3-cd)pyrene	●			
Phenanthrene			●	
Total LPAH			●	
Phthalates				
Bis (2-ethylhexyl)phthalate			●	
Butyl benzyl phthalate	●			
Other SVOCs				
Benzoic acid	●	●		
Dibenzofuran			●	●
Hexachlorobenzene			●	
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 Tables 2 and 3.
LPAH = low molecular weight PAH

Results for these chemicals are discussed in more detail below.

Metals

Metals concentrations exceeded the SQS only in subsurface sediment samples. Lead exceeded the SQS in one subsurface sample (LDW-SC201) collected near outfall 2022, which is located at the Duwamish Marine Center (Figure 3). Mercury was detected at a concentration that slightly exceeded the SQS from one subsurface sample (D), which was collected near outfall 2018, located on the Glacier Northwest property (Figure 3).

PAHs

PAH concentrations exceeding the SQS were detected in one surface sample, 205, and 12 subsurface sediment samples collected from sediment cores C, LDW-SC32, LDW-SC33, and

LDW-SC201. Concentrations of acenaphthene and fluorene in the 1- to 2-foot sample from sediment core LDW-SC32 also exceeded the CSL. Sediment core LDW-SC32 was collected in Slip 2, approximately equidistant from the Glacier Northwest and Duwamish Marine Center properties (Figure 3).

Phthalates

Butyl benzyl phthalate was detected above the SQS in surface sample 205. Bis(2-ethylhexyl)phthalate (BEHP) concentrations exceeded the SQS in two subsurface samples collected from sediment cores DR101 and LDW-SC32. Sample 205 and sediment core DR101 were collected from the mouth of Slip 2 (Figure 3).

Other SVOCs

Benzoic acid exceeded the SQS and CSL in surface sediment sample 205. Dibenzofuran concentrations exceeded the SQS in two samples collected from sediment cores LDW-SC32 and LDW-SC33. Sediment core LDW-SC33 was collected near outfall 2022 (Figure 3). Hexachlorobenzene exceeded the SQS in subsurface sample/sediment core 4, collected near the northern end of the Glacier Northwest property (Figure 3).

PCBs

PCB concentrations exceeded the SQS and/or CSL in several surface and subsurface sediment samples. The greatest PCB concentrations were observed in the 1- to 1.5-foot subsurface sediment sample collected from sediment core LDW-SC33; the SQS exceedance factor was 15 and the CSL exceedance factor was 2.9. This sample was collected near outfall 2022, which is on the Duwamish Marine Center property.

Other COCs

Although no sediment quality standards have been promulgated, dioxins and furans are considered to be COCs at the Slip 2 to Slip 3 source control area due to their presence in relatively high concentrations (Total TCDD concentrations up to 5.3 nanograms per kilogram [ng/kg], see Appendix A).

Benzene and tetrachloroethene (PCE) have also been detected in groundwater samples at the Duwamish Marine Center at concentrations above Model Toxics Control Act (MTCA) cleanup levels. Therefore, benzene and PCE are potential COCs.

2.2.3 Summary of COCs in Sediment Associated with the Slip 2 to Slip 3 Source Control Area

As described above, COCs were identified based on the results of sediment sampling conducted between 1995 and 2006. Chemicals that exceeded the SQS in at least one surface or subsurface sediment sample offshore of the Slip 2 to Slip 3 source control area are considered COCs. In addition, dioxins/furans and VOCs were identified as COCs, as described above.

In summary, the following chemicals are considered to be COCs in sediment associated with the Slip 2 to Slip 3 source control area:

Chemical Group	COC
Metals	Lead Mercury
PAHs	Acenaphthene Benzo(g,h,i)perylene Chrysene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Phenanthrene Total LPAH

Chemical Group	COC
Phthalates	BEHP Butyl benzyl phthalate
Other SVOCs	Benzoic acid Dibenzofuran Hexachlorobenzene
PCBs	
Dioxins/furans	
VOCs	Benzene PCE

2.3 Potential Pathways to Sediment

Potential sources of sediment recontamination associated with the Slip 2 to Slip 3 source control area include storm drains and CSO outfalls, adjacent properties, and upland properties. Transport pathways that could contribute to the recontamination of sediments associated with the Slip 2 to Slip 3 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 specific detail in Sections 3 through 7.

2.3.1 Direct Discharges via Outfalls

Direct discharges may occur from public or private storm drain (SD) systems, CSOs, and emergency overflows (EOFs). In the Slip 2 to Slip 3 source control area, there are four private SDs, one public SD, and one CSO (Section 3.0).

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 (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. The other 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 East Marginal Way S.

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 as a result 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 county CSOs at Michigan Street, South Brandon Street, and Hanford No. 1 (discharging via the City's Diagonal Avenue S CSO/SD outfall) had the highest average discharge volumes between 2000 and 2007. The Michigan Street CSO is located at RM 1.9 East, within the Slip 2 to Slip 3 source control area. 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 2007c).[4]

To minimize the frequency and volume of CSO events, the County utilizes 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

[4] It should be noted that stormwater discharges are regulated under a separate NPDES permit.

discharge untreated wastewater only when flows exceed the capacity of these systems (King County 2007).[5]

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.

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.

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 operational practices at adjacent properties may contribute to the movement of contaminants to the LDW via runoff. Based on aerial photographs, it appears that the Glacier Northwest property is paved and that portions of the Duwamish Marine Center property are paved. A stormwater collection system is used at Glacier Northwest, which reduces the potential for surface runoff to reach the LDW. Surface runoff from other properties adjacent to the LDW may be a source of contaminants to sediments associated with the Slip 2 to Slip 3 source control area.

2.3.3 Groundwater Discharges

Contaminants in soil resulting from spills and releases to adjacent properties may be transported to groundwater and subsequently be released to the LDW and the Slip 2 to Slip 3 source control area. Contaminated groundwater and flow directions toward the LDW have been documented at properties within the Slip 2 to Slip 3 source control area (Figure 5).

Seeps have been identified along the shoreline of the Slip 2 to Slip 3 source control area, and the southern shore of Slip 2 has been identified as an area of generally high seepage rates in the LDW (Windward 2004). One visible seep was identified during the outfall survey conducted by SPU in 2003 (Schmoyer 2008b). Copper, lead, mercury, and zinc have been detected in one seep (Seep 82) sampled adjacent to Samson Tug and Barge (former Burgess Enterprises) within Slip 2 (Table 5; Windward 2004).

2.3.4 Bank Erosion

The banks of the LDW shoreline are susceptible to erosion by wind and surface water, particularly in areas where banks are steep. Shoreline armoring and the presence of vegetation

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

reduce the potential for bank erosion. Contaminants in soils along the banks of the LDW could be released directly to sediments via erosion. Little information was available on the construction of the banks within the Slip 2 to Slip 3 source control area and the potential for sediment recontamination via this pathway.

2.3.5 Atmospheric Deposition

Atmospheric deposition occurs when air pollutants enter the LDW directly or through stormwater. Air pollutants may be generated from point or non-point sources. Point sources include industrial facilities, and air pollutants may be generated from painting, sandblasting, loading/unloading of raw materials, and other activities, or through industrial smokestacks. Non-point sources include dispersed sources such as vehicle emissions, aircraft exhaust, and off-gassing from common materials such as plastics. Air pollutants may be transported over long distances by wind, and can be deposited to land and water surfaces by precipitation or particle deposition. None of the properties within the Slip 2 to Slip 3 source control area are currently regulated as point sources of air emissions.

Contaminants originating from nearby properties and streets may be transported through the air and deposited in the LDW or in areas that drain to the LDW. Additional information on recent and ongoing atmospheric deposition studies in the LDW area is summarized in the LDW Source Control Status Report (Ecology 2007e and subsequent updates); Ecology will continue to monitor these efforts.

2.3.6 Spills to the LDW

Near-water and over-water activities have the potential to impact adjacent sediment from spills of material containing COCs. Glacier Northwest and Duwamish Marine Center conduct loading and unloading activities within the Slip 2 to Slip 3 source control area. Accidental spills during loading/unloading operations may result in transport of contaminants to sediment.

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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 drains entering the LDW carry runoff generated by rain and snow. A wide range of chemicals may become dissolved or suspended in runoff as rainwater flows over the land. Urban areas generally accumulate particulates, dust, oil, asphalt, rust, rubber, metals, pesticides, detergents, or other materials as a result of human activities throughout the drainage 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 stormwater system. In addition, contaminants in soil or groundwater could enter the storm drain system through cracks or gaps in the stormwater piping.

3.1 Public Outfalls

As described in Section 2.3.1, public outfalls include public storm drains, CSOs, and EOFs. One public storm drain and one CSO outfall discharge to the LDW within the Slip 2 to Slip 3 source control area:

Outfall No.[1]	Outfall Name	Diameter/Material	Outfall Type
2502	Michigan Street CSO	8-foot steel gate	KC CSO
2503	1st Avenue S Bridge	30-inch concrete	SPU SD

1 Outfall number as listed in Windward 2007c, Appendix H.

Lateral storm drain lines connect several of the surrounding facilities to these main lines. The extent of the area from which stormwater drains to the 1st Avenue S Bridge outfall is shown on Figure 6. The Michigan Street CSO basin is shown on Figure 7.

3.1.1 Michigan Street CSO

The Michigan Street CSO basin covers approximately 1,900 acres, spanning west-to-east from the LDW to Beacon Avenue S and north-to-south from S Bradford Street (approximately two blocks south of S Spokane Street) to S Norfolk Street. Land uses within the CSO basin include industrial, residential, and commercial properties and the King County International Airport. Parts of the Michigan Street CSO basin overlap with the Brandon Street and East Marginal CSOs. In areas where the CSO basins overlap, wastewater and stormwater within the Michigan Street CSO basin may be redirected to the Brandon Street or East Marginal outfalls depending on the route that the combined wastewater and stormwater takes through the County conveyance system.

From 2000 to 2007, combined wastewater and stormwater overflows were discharged through the Michigan Street CSO on average 11 times per year, with an annual average volume of approximately 17.6 mgy. Equipment malfunctions have led to three discharges through the Michigan CSO, in 1992, 2004, and 2006 (Tiffany 2008b).

King County Industrial Waste (KCIW) estimates that industrial discharges comprise less than 0.5 percent of the total volume of a CSO event (Tiffany 2008a). Typically, domestic users of the combined sewer system contribute a larger percentage of the chemical loading than industrial users. For example, KCIW testing has indicated that industrial users of the combined sewer system contribute less than 10 percent of the phthalate load, with the remainder coming from uncontrollable sources such as domestic users.

Although COCs from individual industrial and commercial facilities within the CSO basin are significantly diluted, the cumulative effects of CSO events could contribute to recontamination of sediments associated with the Slip 2 to Slip 3 source control area. Industrial and commercial facilities discharging industrial wastes and/or stormwater to the combined sewer system are therefore considered to represent potential but relatively minor sources of sediment recontamination.

Industrial and commercial facilities within the Michigan Street CSO basin have been identified as follows:

- 206 facilities within the Michigan Street CSO basin have been assigned Ecology Facility/Site ID numbers (Table 6);
- 22 of these facilities are listed on Ecology's Confirmed and Suspected Contaminated Sites List (CSCSL);
- 40 of these facilities have active EPA ID numbers;
- 22 of the facilities hold NPDES permits;
- 14 of these facilities have KCIW discharge authorizations or permits;
- 77 of these facilities are listed on Ecology's Underground Storage Tank (UST)/Leaking Underground Storage Tank (LUST) lists.

These facilities are listed by category in Appendix C-2. Seventy seven of the 206 facilities with Ecology Facility/Site ID numbers are included in a source control area for which a Data Gaps report has been prepared. Although activities at these 77 facilities may result in discharges that are eventually conveyed to the Michigan Street CSO, such as North Boeing Field and Marine Vacuum Services, they are not discussed further in this Data Gaps report because source control actions (if any) have been identified in previous reports and are considered to be adequate for source control with regard to the Michigan Street CSO.[6]

Seventeen of the 206 facilities are located within the Slip 2 to Slip 3 source control area, and are discussed in Sections 4 and 5 of the current Data Gaps report.

[6] Philips Services Corporation, although included in the RM 1.2-1.7 East Data Gaps report, is discussed briefly in Section 6.2.

The VIOX Corporation operates at three facilities within the Michigan Street CSO basin and holds a KCIW discharge permit. It is the only company with a KCIW permit within the Michigan Street CSO basin that has not been included in another source control area. Industrial discharges from the VIOX Corporation may be a potential contributor of contaminants to sediments associated with the Slip 2 to Slip 3 source control area.

Twenty-one of the 22 facilities holding NPDES permits are within another source control area. Georgetown Yard is the only facility with an NPDES permit that is not included in another source control area. Additional information on operations at Georgetown Yard is needed to determine if it represents a potential source of contaminants to the LDW sediments.

Fourteen of the 22 facilities on Ecology's CSCSL have been addressed in Data Gaps reports for other source control areas (Appendix C-2). The remaining eight facilities are discussed in the current (Slip 2 to Slip 3) Data Gaps report. Soil and/or groundwater contamination, which may be a source of sediment recontamination, exists at these properties. The Duwamish Marine Center and former Consolidated Freightways properties are discussed in Sections 4.0 and 5.0, respectively. The remaining six facilities listed on the CSCSL are discussed in Section 6.0 of this Data Gaps report. The Philips Services Corporation (PSC) facility, formerly Burlington Environmental, Inc. Georgetown, is also included in the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area.[7]

The remaining 112 facilities within the Michigan Street CSO basin with Ecology Facility/Site ID numbers are listed in Table 6. The Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes associated with the activities performed at these companies are listed in Appendix C-2. Based on available information, operations at these facilities are not likely to represent a source of contaminants to sediments associated with the Slip 2 to Slip 3 source control area.

Additionally, an unknown number of undocumented industrial operations may take place within the Michigan Street CSO basin. Unregulated industrial activities may be an ongoing source of contaminants to sediments associated with the Slip 2 to Slip 3 source control area.

3.1.2 1st Avenue S Bridge Outfall (SPU Storm Drain 2503)

Based on data provided by SPU, outfall 2503 drains an area of about 16 acres (Schmoyer 2008b). Catch basins on approximately 1,500 feet of 1st Avenue S (between Seattle Biodiesel and the LDW), the 1st Avenue S northbound off-ramp, and on S Front Street between the Washington State Department of Transportation (WSDOT) and former Frank's Used Cars properties, are connected to outfall 2503 (referred to in this report as the 1st Avenue S Bridge outfall). Drainage ditches beneath the 1st Avenue S Bridge are also connected to this storm drain (Figure 6).

[7] A groundwater VOC plume associated with PSC is commingled with groundwater plumes associated with other facilities in the RM 1.2-1.7 East source control area. The potential pathways for sediment recontamination from PSC to the RM 1.2-1.7 East and Slip 2 to Slip 3 source control areas are groundwater discharge and stormwater discharge, respectively. Ecology requested that PSC be included in the RM 1.2-1.7 East source control area for source control actions associated with groundwater discharge and included in the Slip 2 to Slip 3 source control area for source control actions associated with stormwater discharge.

Stormwater passes through a biofiltration swale before discharging to the LDW, as described in Section 4.4 (Schmoyer 2008b).

Ecology has assigned Facility/Site ID numbers to three roadway locations on 1st Avenue S within the Slip 2 to Slip 3 source control area. These locations are:

Location	Facility/Site ID	EPA ID No.
NE Corner of S Michigan Street and 1st Avenue S (1st Avenue Bridge BBC2)	11634416	WAD988522645 (inactive)
SR 99 1st Avenue S Bridge from Mile Post 26.27 to Mile Post 27.12 (WA DOT Brg 099530E)	8963885	WAH000020594
NW Corner of 1st Avenue S and S Michigan Street (1st Avenue S - S Michigan)	44977427	WAD988522702 (inactive)

The 1st Avenue Bridge BBC2 location was a one-time generator of 240 pounds of sodium hydroxide in 1993. The sodium hydroxide waste was apparently generated during the construction of the bridge (Environmental Associates 2000). It is assumed that Ecology assigned Facility/Site ID numbers to the other locations during road construction or repair activities.

While no specific data on COC concentrations in the1st Avenue S Bridge storm drain were available, SPU has collected storm drain solids samples from catch basins located in a wide variety of roadways to evaluate the presence and concentrations of contaminants. They found that zinc, total petroleum hydrocarbons (TPH)-oil, and BEHP are the contaminants that most frequently exceeded sediment standards (or MTCA Method A for TPH). The following key findings were observed in SPU's roadway catch basin samples (Ecology 2007e):

- Zinc exceeded the SQS in 16 of 54 samples (29 percent); two samples exceeded the SQS for mercury, and one sample exceeded the SQS for copper and lead;
- TPH-oil exceeded the MTCA Method A cleanup level in about 50 percent of the samples;
- PAH concentrations were generally low – only five of 54 samples exceeded the SQS for PAHs;
- PCBs were detected in about 77 percent of the samples, and one sample exceeded the SQS;
- Over 65 percent of the samples exceeded the SQS for BEHP.

Therefore, based on roadway catch basin samples collected throughout the LDW basin, the potential for sediment recontamination associated with this outfall is considered high.

3.1.3 Data Gaps

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

- Data on contaminant concentrations in storm drain solids within the 1st Avenue S Bridge storm drain system are needed to evaluate whether contaminants are being transported to LDW sediments via Outfall 2503.
- Data on contaminant concentrations in CSO discharges are needed to evaluate whether the Michigan Street CSO is a significant source of contaminants to LDW sediments.
- Additional information regarding operations at Georgetown Yard, including information regarding the facility's NPDES permit, is needed to determine if the facility may be a source of contaminants to LDW sediments.
- Additional information is needed to determine if undocumented and unregulated industrial operations are occurring within the Michigan Street CSO basin that may be an ongoing source of sediment recontamination.

3.2 Private Outfalls

There are two private permitted storm drain outfalls owned by Glacier Northwest located just north of Slip 2 and at the head of Slip 2 (Figure 2). Two additional private storm drain outfalls are owned by James Gilmur; one is located on the south side of Slip 2 near the Samson Tug and Barge facility; the other is located near the Duwamish Metal Fabricators facility.

Outfall No. [1]	Outfall Name	Diameter/Material	Permit Status	Outfall Owner
2018	2018-Glacier Northwest	8-inch PVC	Permitted private SD	Glacier Northwest
2019	2019-Glacier Northwest or Slip 2 Outfall	24-inch concrete	Permitted private SD	Glacier Northwest
2021	2021-Gilmur	6-inch PVC	Private SD	James Gilmur
2022	2022-Gilmur	8-inch PVC	Private SD	James Gilmur

1 Outfall number as listed in Windward 2007c, Appendix H

Storm drain piping associated with outfall 2019 extends across East Marginal Way S to 4th Avenue S (Figure 6). Based on SPU GIS data, this storm drain collects runoff from approximately 1,000 feet of East Marginal Way S and private properties along the east side of East Marginal Way S. The drainage area is estimated at approximately 10 acres (Schmoyer 2008b).

Information from SPU indicates that there is an approximately 375-foot-long storm drain line originating northwest of the head of Slip 2 and running along the southern shoreline of the Glacier Northwest property. It appears that an additional outfall may be present on the Glacier Northwest property at the terminus of this storm drain (Figure 6).

3.3 Data Gaps

Data gaps related to the private outfalls identified in Section 3.2 are listed with the associated facilities in Section 4.

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4.0 Potential for Sediment Recontamination from Adjacent Properties

Tax parcels in the vicinity of the Slip 2 to Slip 3 source control area are shown in Figure 4, identified by the last four digits of the tax identification number.[8] Parcel ownership is listed in Table 7.

Aerial photographs of the source control area for the years 1936, 1946, 1956, 1969, 1980, 1985, 1990, 2000, and 2002 are provided in Appendix B. Oblique aerial photographs of the source control area shoreline, taken in 2001 and 2006, are also included in Appendix B.

The following properties located adjacent to the LDW were identified as potential sources of contaminants to sediments associated with the Slip 2 to Slip 3 source control area:

- Glacier Northwest, Inc. (Section 4.1)
- Seattle Biodiesel (Section 4.2)
- Duwamish Marine Center (including Samson Tug and Barge and Duwamish Metal Fabricators; Section 4.3)
- Seattle DOT Parcel (Section 4.4)

As with many properties along the LDW, there is a portion of land adjacent to the Duwamish Marine Center and Seattle DOT properties that is within the boundaries of the former Commercial Waterway District No. 1, King County (Figure 4). The assets of the Commercial Waterway District were transferred to the Port of Seattle in 1963. A case decided by the Washington State Supreme Court in 1963 appears to limit the authority of the Commercial Waterway District and consequently the Port of Seattle over this type of land. Ecology will consult with the Office of the Attorney General for advice on how best to address such parcels.

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

4.1 Glacier Northwest, Inc.

Facility Summary: Glacier Northwest, Inc.	
Tax Parcel No.	1924049075 (9075a on Figure 4)
Address	5975 East Marginal Way S
Property Owner	Glacier Northwest, Inc.
Parcel Size	10.77 acres (469,100 sq ft)
Facility/Site ID	95534411 (Glacier Northwest East Marginal Way)
SIC Code(s)	3273 Ready-Mixed Concrete
EPA ID No.	WAD980986061

[8] Two parcels have tax identification numbers ending in 9075. These are shown on Figure 4 as 9075a (Glacier Northwest) and 9075b (Bank and Office Interiors).

Facility Summary: Glacier Northwest, Inc.	
NPDES Permit No.	WAG503191
UST/LUST ID No.	2211

Glacier Northwest currently operates on Tax Parcel 9075a, located directly adjacent to Slip 2 (Figure 4). Prior to December 1999, Glacier Northwest operated under the name Lone Star Northwest (Glacier Northwest 2000).

The Glacier Northwest property is bordered on the north by James Hardie Gypsum, on the south by the Lone Star Investors property and Slip 2, by East Marginal Way S on the east, and by the LDW on the west (Figure 2).

According to King County tax records, there are four buildings on this parcel:

- An 18,956 square foot (sq ft) warehouse with 2-car garage built in 1940,
- A 10,742 sq ft office building built in 1946,
- A grouping of 9 silos and 4 bunkers, totaling 8,240 sq ft, built in 1946, and
- A group of 5 sheds, totaling 892 sq ft., built in 1947.

4.1.1 Current Operations

Glacier Northwest (formerly Lone Star Northwest) operates the Duwamish Ready-Mix Concrete Plant at 5975 East Marginal Way S. The company is a supplier of ready-mix concrete, sand, gravel, rock, cement, and building materials, with several locations in the LDW basin. Glacier Northwest recently became part of the California Portland Cement Company (CalPortland) family of companies.

Concrete is produced and tested at this facility. A truck washing station and fueling station are present, and trucks are washed before leaving the yard. Other operations performed at the facility include automotive repairs and concrete, gravel, and dirt hauling and storing (SPU 2006a). Figure 8 presents a plot plan of the Glacier Northwest facility.

The facility is situated on a bermed concrete pad. Process areas at the facility are bordered by water-tight concrete walls or are graded and paved such that all process water is collected within a defined boundary (Glacier Northwest 2006). According to Glacier Northwest, the process area boundary provides physical secondary containment for all products within the process area. Process water is either recycled back into the concrete products or treated using an onsite process water treatment and recycling system, as required under the facility’s General Sand & Gravel NPDES permit, prior to discharge to the LDW.

Stormwater is contained within the process area boundary and is conveyed to the process water treatment and recycling system. All catch basins within the process area drain to the process water treatment and recycling system (Glacier Northwest 2006). Any incidental spills would be contained within this system.

Material and Waste Handling

There are two USTs in use at this facility. These tanks passed routine tightness tests conducted from 1991 to 2000 (Ecology 1994b, 1996b, 1998a, 1999a, 2000b, 2000g, 2003m, Glacier Northwest 2000, G-Logics 2003a, 2003b). In March 2000, the tank systems were upgraded to incorporate automatic tank gauging. In 2003, a diesel leak was discovered and cleaned up (see Section 4.1.3 below), and subsequent tank tightness testing detected no leaks (Ecology 2003n). Following the discovery of the leak, a containment system and leak detection sensors were installed (Glacier Northwest 2003a). These tanks passed routine cathodic protection tests conducted from 2003 to 2006 (Ecology 2003j, 2005j, 2006v, 2007i).

There is a diesel above-ground storage tank (AST) present at the property. Chemicals used in concrete processing and laboratory testing, stockpiled materials, used equipment, and equipment and materials awaiting disposal or recycling are stored outdoors (SPU 2006a). Following a May 2006 inspection by SPU and KCIW, Glacier Northwest installed a cover and secondary containment for chemicals stored outdoors (SPU 2006b).

Antifreeze and waste oils are stored in 55-gallon or 150-gallon containers and are removed from the facility for disposal.

Discharges to Sanitary Sewer System

Glacier Northwest is authorized to discharge wastewater to the sanitary sewer under KCIW discharge authorization No. 450. Washwater from the truck washing station (located next to the underground fuel tanks shown in Figure 8) is conveyed to a settling pond and then is reused or is discharged to the sanitary sewer (SPU 2006a).[9] One catch basin located near the truck maintenance shop (identified in Figure 8 as “Truck Shop”) is connected to an oil/water separator, which reportedly also discharges to the sanitary sewer (SPU 2006a). In addition, the SPU inspector observed three yard drains behind the truck maintenance shop; these are believed to discharge to the sanitary sewer (SPU 2006a).

Direct Discharges to LDW

Discharges to the LDW are covered under General Sand & Gravel Permit number WAG503191, which is valid through February 2010 (Ecology 2006x). Glacier Northwest was required to apply for coverage under the General Sand & Gravel General Permit due to the potential for cement dust from unloading operations to enter the LDW from the loading dock, and to handle overflows that may occur if the capacity of the onsite process water treatment and recycling system is exceeded.

SPU’s outfall survey (SPU 2004) identified two outfalls on the Glacier Northwest property (2018 and 2019). Glacier Northwest does not discharge to Outfall 2019. As mentioned in Section 3.2, this storm drain serves portions of East Marginal Way S and properties east of East Marginal Way S. Outfall 2018 is an 8-inch PVC pipe that extends through the bulkhead near the southwest corner of the Glacier Northwest property (Schmoyer 2008b; see photo in Appendix B). Outfall

[9] Some documents reviewed during preparation of this Data Gaps report indicate that wash water from the truck washing station may be discharged to the process water treatment and recycling system.

2018 does not appear to be connected to any storm drain lines; however, no maps showing the layout and design of piping associated with the process water treatment and recycling system on the Glacier Northwest property were available for review.

In 1985, Glacier Northwest installed a 3-inch polyvinyl chloride (PVC) force main and an 80-foot trench drain on the property (Glacier Northwest 1985, as cited in Schmoyer 2008b). The force main collects plant process water from two pits located on the Glacier Northwest property and discharges to a settling pond located on the north edge of Slip 2. The side sewer permit application for this system does not show an outfall and no outfall from this system was found during SPU's outfall survey in 2003 (SPU 2004). The holding/settling pond appears to be part of Glacier Northwest's onsite process water treatment and recycling system. The trench drain discharges to Slip 2 at the northeast corner of the Equipment Shop building, which is located near the mouth of Slip 2 (Glacier Northwest 1985, as cited in Schmoyer 2008b). This outfall was not observed during SPU's 2003 outfall survey. Further investigation is needed to determine whether these two systems are operational and whether source tracing is needed.

Based on SPU utility maps, an approximately 375-foot-long storm drain line (possibly the above-mentioned trench drain) extends from the head of Slip 2 along the southern shoreline of the Glacier Northwest property. This storm drain may discharge to Slip 2 (Figure 6). SPU did not observe an outfall at this location during the 2003 survey.

4.1.2 Regulatory History

In 1994, Lone Star Northwest was granted a Substantial Shoreline Development Permit to install and grade approximately 1,000 cubic yards of riprap and 500 cubic yards of gravel along a 230-foot-long section of the northwest Slip 2 shoreline. The purpose of the fill was to provide emergency foundation protection to the barge loading ramp and the wastewater filter press unit, and to protect the shoreline from tug boat propeller scour. The fill was planned to extend from the top of the bank to approximately -14 feet mean lower low water (MLLW) (City of Seattle 1994a, 1994b).

SPU and KCIW performed a joint inspection of the Glacier Northwest facility in May 2006. The following corrective actions were identified (SPU 2006a):

- Provide a site map showing drainage structures associated with the wash rack and fueling area;
- Place chemicals currently stored outside near the wash rack within secondary containment or move them inside;
- Label all spill material containers;
- Clean all catch basins on the property.

In response, Glacier Northwest provided a site diagram (not available in the files reviewed by SAIC); constructed a roof over the chemical storage area and placed chemical totes in this area on tote containment structures to capture any incidental leakage; labeled spill material containers; and arranged for a contractor to clean the on-site catch basins every two months (Glacier Northwest 2006, SPU 2006c).

SPU and Ecology performed two follow-up inspections at the Glacier Northwest facility in November 2006 (SPU 2006b, Ecology 2006x). Ecology inspectors noted that during barge offloading operations, gravel spilled from a conveyor belt and into the LDW. Glacier Northwest planned to construct a new conveyor and bridge to address this issue. Scrap metal and engine parts, possibly containing fluids and oils, were stored along the upper bank of the LDW outside the cement containment wall. Old containers were used to collect stormwater. Ecology directed Glacier Northwest to store the scrap metal and engine parts in a contained, impervious area and to close the open containers and dispose of them or store them under cover (Ecology 2006x). No information on additional follow-up inspections was identified in the files reviewed during preparation of this Data Gaps report.

In 2007, Glacier Northwest applied for a U.S. Army Corps of Engineers permit and Ecology Water Quality Certification and/or Coastal Zone Management Consistency Concurrence to replace and reconfigure the deteriorating gantry, bridge, and conveyor system (USACE and Ecology 2007). The following work was proposed:

- Remove existing ramp, adjacent conveyor, head-frame, towers, and a 10x7-foot portion of existing wooden pier.
- Remove 28 12-inch creosote-treated wood pilings and dispose of at an approved upland facility.
- Excavate 115 cubic yards of bank material waterward of mean higher high water: 25 cubic yards of bank material from under the bridge span and 90 cubic yards of sand and gravel from under the existing conveyor.
- Drive 11 24-inch steel pilings using a vibratory hammer and proofing with an impact hammer as necessary.
- Install a 100x25-foot ramp onto the new steel pilings and install a new conveyor above the ramp.
- Install 70 lineal feet of sheetpile in order to stabilize the bank prior to installation of the new ramp and infrastructure.

The project would result in a net overwater coverage increase of approximately 650 square feet. A public notice was issued on June 1, 2007; it is not known whether this project was implemented.

4.1.3 Historical Operations

The property has historically been used for cement manufacturing (Windward 2007c). Previous records indicate that Kaiser Cement operated at this property (City of Seattle 1985). Kaiser Cement operated at several locations on the LDW from about 1964 to 1987. In 1987, Kaiser Cement sold its operations on the west side of the LDW to Lone Star Northwest (Hart Crowser 1995). It is assumed that Kaiser sold the property at 5975 East Marginal Way South to Lone Star Northwest at the same time.

4.1.4 Environmental Investigations and Cleanups

Two environmental investigations have been conducted at Glacier Northwest. Chemical data and figures from these investigations are included in Appendix D.

Phase II Soil and Groundwater Investigation (2003)

On March 23, 2003, G-Logics conducted a Phase II soil and groundwater investigation in response to a diesel leak discovered at the Glacier Northwest property on March 5, 2003 (Glacier Northwest 2003a) during removal and upgrading of the pump system (G-Logics 2003a). Glacier Northwest employees excavated and removed approximately 3 cubic yards of petroleum-impacted soil, and G-Logics completed six soil borings around the fuel dispensers and adjacent gasoline and diesel tanks. The samples were tested for gasoline- and diesel-range hydrocarbons, benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary-butyl ether (MTBE). None of the samples contained detectable concentrations of these analytes. The report concluded that groundwater had not been impacted and contaminated soil appeared to be confined to the tank backfill material surrounding the diesel fuel dispenser. The report also recommended remediation of additional diesel-impacted soil to minimize the potential for future impacts to groundwater.

Remedial Excavation (2003)

On June 12 and 13, 2003, Glacier Northwest removed approximately 2 cubic yards of petroleum-impacted soil as part of additional remediation and cleanup efforts in response to the diesel leak discovered in March 2003 (G-Logics 2003b). All soil samples collected during the cleanup efforts were non-detect or below MTCA Method A cleanup levels for diesel- and heavy oil range-hydrocarbons, with the exception of Sample North-1, which exceeded MTCA Method A cleanup levels for diesel-range hydrocarbons. However, according to this report, contaminated soils were adequately removed and the affected soil did not appear to present a potential threat to human health or the environment. The excavation was backfilled with clean pit-run material, and new dispensers were installed and equipped with secondary containment features. No further assessment or remediation was recommended. Chemical concentrations detected in soil are listed in Appendix D.

4.1.5 Potential for Sediment Recontamination

Chemical concentrations[10] exceed the SQS in sediments near the Glacier Northwest property (Figure 3, Tables 2 and 3). The potential for sediment contamination associated with this property is summarized below by transport pathway.

Stormwater

There are two, possibly four, private outfalls located on the Glacier Northwest property. Based on inspection reports from Ecology, it appears that Glacier Northwest discharges process water and stormwater to the LDW only if the capacity of the facility’s process water treatment and

[10] Sediment COCs in the vicinity of the Glacier Northwest property include PCBs, PAHs, hexachlorobenzene, mercury, BEHP, and dibenzofuran (Figure 3).

recycling system is exceeded. The potential for sediment recontamination via this pathway depends on the status of the outfalls, the frequency of discharges, and the contaminant concentrations in discharges originating from this property.

Outfall 2018 is an 8-inch PVC pipe that extends through the bulkhead near the southwest corner of the Glacier Northwest property (Schmoyer 2008b). Outfall 2018 does not appear to be connected to any storm drain lines; however, no maps showing the layout and design of piping associated with the process water treatment and recycling system on the Glacier Northwest property were available for review.

Based on SPU maps, outfall 2019, located at the head of Slip 2, is connected to storm drain lines that originate on properties to the east, which are upland of Slip 2. It drains an area that includes a portion of East Marginal Way S, the Bank & Office Interiors facility, and the Fittings, Inc. facility. Ownership of this storm drain and outfall is unclear.

A trench drain reportedly discharges to Slip 2 at the northeast corner of the shop building, which is located at the mouth of the slip. The outfall for the trench drain was not identified during SPU's 2003 outfall survey.

Based on SPU maps, an approximately 375-foot-long storm drain line (possibly the above-mentioned trench drain) running from the head of Slip 2 along the southern shoreline of the Glacier Northwest property may discharge stormwater from Glacier Northwest to Slip 2.

Stormwater discharge from the Glacier Northwest property is therefore considered to be a potential source of sediment recontamination.

Surface Runoff/Spills

Process water, stormwater and washwater from the truck wash/UST area at Glacier Northwest drains to the facility-wide process water treatment and recycling system or the sanitary sewer. The facility is paved and graded to contain spills within the property; therefore, the potential for contaminants (if any) suspended in surface runoff to reach the LDW is low, unless a catastrophic spill or storm event breeches the containment paving.

Soil and Groundwater

Groundwater in the vicinity of the March 5, 2003 pump station leak was not contaminated. Contaminated soil appeared to be confined to the tank backfill material surrounding the diesel fuel dispenser and has been removed (G-Logics 2003a). Diesel-range hydrocarbons exceeding MTCA Method A cleanup levels were detected in one soil sample; the exceedance factor was 23. Therefore, the potential for sediment recontamination in the LDW via soil and groundwater pathways is considered to be low with regard to the USTs and associated pump island. However, little is known about the condition of soil and groundwater contamination (if any) on the remainder of the site.

Bank Erosion/Leaching

Soil is present along the banks of Slip 2 in this area. Contaminants in bank soils (if present) could be released directly to sediments via erosion.

4.1.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Glacier Northwest is listed below.

Stormwater Discharge and Surface Runoff/Spills

- A follow-up business inspection is needed to verify compliance with Ecology's recommendations, applicable regulations, and best management practices (BMPs), to prevent the release of contaminants to the LDW.
- Additional information is needed regarding the process water treatment and recycling system at Glacier Northwest, including the capacity of the system and the frequency and volume of discharges to the LDW.
- If discharges to the LDW from the process water treatment and recycling system occur, then catch basin solids samples and/or effluent discharge samples from the system are needed to determine if COCs in the discharge may be a source of sediment recontamination.
- Further investigation is needed to determine whether the trench drain installed at Glacier Northwest in 1985 discharges to the LDW.
- Further investigation is needed to determine what is connected to outfall 2018 that was identified during SPU's 2003 survey.
- Additional information on outfall 2019 is needed to determine if the outfall belongs to Glacier Northwest, an upland facility, or a public entity.
- Additional information is needed regarding a storm drain line shown on SPU maps that follows the Glacier Northwest shoreline and appears to discharge to Slip 2 approximately half-way between the head and mouth of the slip.

4.2 Seattle Biodiesel

Facility Summary: Seattle Biodiesel	
Tax Parcel No.	5367204505
Address	6335 1st Avenue S
Property Owner	Lone Star Investors LP
Parcel Size	2.55 acres (111,236 sq ft)
Facility/Site ID	5023482 (Seattle Biodiesel LLC) 27632327 (AR Torrico Sons Shipping IN)
SIC Code(s)	9999 Nonclassifiable Establishments (AR Torrico Sons Shipping)
EPA ID No.	WAH000026520 (Seattle Biodiesel LLC)

Facility Summary: Seattle Biodiesel	
	WAD980984207 (inactive) (AR Torrico Sons Shipping)
NPDES Permit No.	SO-3010447A
UST/LUST ID No.	619241

Seattle Biodiesel operates in the north end of the warehouse on Parcel 4505 (Figure 4). Various other businesses currently operate in the remainder of the warehouse, none of which have been issued Ecology Facility/Site ID numbers. AR Torrico Sons Shipping formerly operated at this location. There is one building on the parcel, a 57,540 sq ft warehouse built in 1969.[11]

4.2.1 Current Operations

Seattle Biodiesel operates at 6333 1st Avenue S; the company was founded in 2004, and the region's first commercial-scale biodiesel refinery began operation in early 2005. Biodiesel, refined using virgin vegetable oil, was sold directly to fuel distributors (Ecology 2007j). Glycerin, a byproduct from the biodiesel refining process, was packaged into 275-gallon totes for sale to interested parties. The refinery had a capacity of 5 million gallons per year and operated until late 2007.

The facility has since transitioned to a research and development facility focused on identifying and commercializing next generation biofuels (Imperium Renewables 2009). Seattle Biodiesel is a wholly-owned subsidiary of Imperium Renewables (Ecology 2007j).

Material and Waste Handling

While the facility operated as a biodiesel refinery, chemicals used in the biodiesel refining process were stored outdoors in totes without secondary containment, and most processing tanks were located indoors (Ecology 2007j). The facility was a large quantity generator of dangerous waste (over 2,200 pounds per month; Ecology 2008). Current activities and material/waste handling and storage practices at the site are unknown.

Stormwater Discharges

Stormwater at the Seattle Biodiesel facility has been observed flowing from the chemical tote storage area and loading ramp directly to the LDW. In other areas of the facility, stormwater flows toward the railroad tracks and infiltrates the ground surface. Some stormwater commingles with street run-off (Ecology 2007j). A storm drain catch basin is located near the entrance to the Glacier Northwest facility. Seattle Biodiesel operates under a Industrial Stormwater General Permit (SO3010447A), obtained in January 2008 in response to an Ecology stormwater compliance inspection.

[11] King County GIS Center Parcel Viewer: http://www.kingcounty.gov/operations/GIS/PropResearch/ParcelViewer.aspx

Spills

On July 28, 2007 approximately 620 gallons of a “process mixture” consisting of crude glycerin, methanol, canol methyl esters, sodium methalate, and a small amount of vegetable oil was released to Slip 2 from the Seattle Biodiesel facility. The spill occurred as the process mixture was transferred from a 6,600-gallon decanter into 300-gallon totes (Ecology 2008h). A valve on the decanter was left open, releasing the process mixture to the pavement; the mixture then flowed over the driveway and to Slip 2. Approximately 597 gallons of the spilled process mixture were recovered from the slip using skimmers, absorbent booms and pads, and a “flushing” operation was conducted to remove the process mixture from the gravel and soil at the shoreline (Ecology 2008g). Photos of the spill cleanup efforts are provided in Appendix B.

4.2.2 Regulatory History

Ecology records indicate that Seattle Biodiesel notified Ecology of the intent to install a 10,000 gallon UST in March 2006 (Ecology 2006c); however, as documented by an UST addendum, it appears that an 8,000-gallon UST was installed in May 2006 (Department of Licensing 2006a).

In November 2007, Ecology performed a stormwater compliance inspection at Seattle Biodiesel as part of the Duwamish Urban Waters Initiative. Ecology determined that Seattle Biodiesel was required to apply for coverage under the Industrial Stormwater General Permit. Industrial activities were exposed to stormwater and stormwater was observed to discharge directly to the LDW. Ecology inspectors noted that spills and/or leaks from chemical totes stored outdoors could reach the LDW via stormwater (Ecology 2007j). A catastrophic spill could likely discharge to the LDW.

Ecology issued a Notice of Penalty (No. 6256) in the amount of $20,000 to Imperium Renewables on December 4, 2008 for the July 2007 discharge of the process mixture to Slip 2 (Ecology 2008h).

4.2.3 Historical Operations

AR Torrico Sons Shipping operated at 6335 1st Avenue S. Activities included arranging for the transportation of freight and cargo, serving as a shipping agent and exporting lumber. The EPA ID for this facility has been inactive since 1986 (Ecology 2008d). No additional information regarding historical operations was available for review.

4.2.4 Environmental Investigations and Cleanups

No records of environmental investigations or cleanups (other than the spill cleanup described above) were identified for Seattle Biodiesel or AR Torrico Sons Shipping.

4.2.5 Potential for Sediment Recontamination

Chemical concentrations[12] exceed the SQS in sediments near the Seattle Biodiesel facility (Figure 3, Tables 2 and 3). The potential for sediment contamination associated with this property is summarized below by transport pathway.

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

Stormwater

In the past, stormwater flowed from the chemical tote storage area and loading dock to the LDW. Spills or leaks from chemical totes stored outdoors can mingle with stormwater and be discharged to the LDW. It is not known if Seattle Biodiesel continues to store chemicals outdoors since the facility was converted to a research and development facility.

Surface Runoff/Spills

A catastrophic leak or spill from chemical totes stored outdoors at the Seattle Biodiesel facility has the potential to reach the LDW. It is not known if Seattle Biodiesel continues to store chemicals outdoors since the facility was converted to a research and development facility.

Soil and Groundwater

Based on aerial photos, the entire site appears to be paved, except for a strip of soil along the bank of Slip 2. Therefore, it is unlikely that operations at Seattle Biodiesel have resulted in groundwater contamination. However, soil and/or groundwater contamination have been confirmed at several upland properties (Figure 5); it is possible that COCs in groundwater from these properties may flow to Slip 2 through the Seattle Biodiesel site.

Bank Erosion/Leaching

Soil is present along the banks of Slip 2 in this area. Contaminants in bank soils could be released directly to sediments via erosion.

4.2.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Seattle Biodiesel and AR Torrico Sons Shipping is listed below.

Stormwater Discharge and Surface Runoff/Spills

- A follow-up business inspection of Seattle Biodiesel is needed to verify compliance with Ecology’s recommendations, applicable regulations and BMPs to prevent the release of contaminants to the LDW.

[12] Sediment COCs in the vicinity of the Seattle Biodiesel facility include PCBs, PAHs, BEHP, and dibenzofuran (Figure 3).

- Facility plans showing the locations of all catch basins and storm drains (if any) are needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- Additional catch basins, floor drains, and storm drain lines on the properties (if any) should be located and mapped.
- Information regarding how any hazardous materials or chemicals are stored and used at Seattle Biodiesel is needed to evaluate the potential for spills to reach sediments associated with the Slip 2 to Slip 3 source control area.
- Information on any containment system(s) present at the site is needed to evaluate the potential for spills to reach sediments associated with the Slip 2 to Slip 3 source control area.

Bank Erosion/Leaching

- Additional information regarding chemical concentrations in bank soils is needed. A recent spill of process mixture flowed across the bank soils at this property, and residual contamination may be present.

4.3 Duwamish Marine Center

Facility Summary: Duwamish Marine Center	
Tax Parcel No.	5367204545; 5367204560; 5367204565; 5367203415; 5367203447; 5367203635
Address	4545: None 4560, 4565, 3415: 6361 1st Avenue S 3447, 3635: 16 S Michigan Street
Property Owner	James Gilmur
Parcel Size	4545: 0.65 acre (28,525 sq ft) 4560: 0.49 acre (21,439 sq ft) 4565: 2.80 acres (122,080 sq ft), approximately 0.5 acres (23,360 sq ft) submerged 3415: 0.49 acre (21,537 sq ft) 3447: 0.03 acre (1,225 sq ft) 3635: 0.29 acre (12,444 sq ft)
Facility/Site ID	1020256 (Samson Tug and Barge Co Inc Transporter) 21945598 (Duwamish Marine Center) 71371939 (Duwamish Marine Center Inc) 65697348 (Burgess Enterprises)
SIC Code(s)	9999 Nonclassifiable Establishments
EPA ID No.	WAH000029081 WAD988504999 (Duwamish Marine Center) WAD988508305 (inactive) (Burgess Enterprises)
NPDES Permit No.	None
UST/LUST ID No.	101434 (inactive) (Burgess Enterprises)

The Duwamish Marine Center occupies six parcels that are adjacent to Slip 2 and a portion of the area between Slip 2 and Slip 3 (Figure 4). In this Data Gaps report, these six parcels are collectively referred to as the Duwamish Marine Center or as "the property." The parcels are also referred to in some reference documents as the Gilmur/Hale Family Trust Property.

Duwamish Marine Center leases portions of the property to other companies. The Duwamish Marine Center is bordered on the north by the Lone Star Investors property, on the east by 1st Avenue S, on the south and west by the LDW, and by Slip 2 to the northwest. Samson Tug and Barge (Samson) operates in the northern portion of the Duwamish Marine Center; Duwamish Metal Fabricators operates on the southern portion of the property. Burgess Enterprises formerly operated in the area now occupied by Samson (Figure 2).

King County tax records provide the following information regarding each parcel:

- 4545: The parcel is a vacant lot.
- 4560: Co-owner listed as Jacqueline Gilmur, and the parcel name is Duwamish Marine Center. There is one 10,400-sq ft metal warehouse, built in 1959, on the parcel.
- 4565: The parcel name is Hale's Construction; there are no buildings on the parcel according to tax records. However, a small office building, likely constructed before 1982, is present at the northeastern corner of parcel 4565 (Environmental Associates 2000).
- 3415: The parcel name is Hale's Construction; there are no permanent buildings on the parcel. A temporary building constructed of shipping containers, tarps, corrugated metal, and fiberglass is present on parcel 3415. The area beneath the shipping containers is paved (Environmental Associates 2000).
- 3447: The parcel name is Duwamish Marine Center; there are no buildings on the parcel. The parcel is covered with a concrete pad (Environmental Associates 2000).
- 3635: The parcel name is Duwamish Marine Center; there is one 12,000-sq ft industrial light manufacturing building (Duwamish Marine Center warehouse) on the parcel, built in 1945.

Duwamish Marine Center apparently leases the portion of South Front Street that bisects the properties from the city of Seattle. There are three docks at the Duwamish Marine Center, which are known as the north, middle and south docks (Environmental Associates 2000). An approximately 80-foot-wide strip of land that runs between the docks and the parcel boundaries is owned by the Port of Seattle (Figure 4; Farallon Consulting 2002d). A series of boathouses with moorage for 12 to 15 boats is located along the shoreline near the Duwamish Metal Fabricators facility.

The parcels making up the Duwamish Marine Center property are relatively flat. The property is approximately 10 to 12 feet above mean sea level. The eastern portion of the property appears to consist of native alluvial deposits, while the western portion of the property was filled extensively (Environmental Associates 2000). The fill extends to approximately 16.5 feet below ground surface (bgs) and consists of sand, silt, and gravel with wood, plastic, brick, metal, rubber, concrete riprap and glass debris (Farallon Consulting 2002d).

Groundwater is encountered beneath the property between 9 and 12 feet bgs and generally flows to the west, towards the LDW (The Riley Group, Inc. 2000).

4.3.1 Current Operations

Duwamish Marine Center operates at 16 S Michigan Street. The company repairs, stores and maintains equipment used for construction in Alaska. The primary activities performed include welding, sandblasting, and painting. Other companies operating in the Aleutian Island chain also store equipment at the property (Ecology 1994e).

Samson Tug and Barge currently operates at 6365 1st Avenue S (Parcel 4560) and leases parcels 4545 and 4565 for outdoor storage (SPU 2008c). Samson was founded in 1937 with a single tug providing freight hauling services throughout Southeast Alaska. Samson has operated a storage yard at this location for two years (SPU 2008c) and moved its receiving yard to the Duwamish Marine Center in August 2008 (Samson 2008).

Samson provides shipment of 20-foot and 40-foot dry containers and 20-foot shipping platforms. Samson transports 5,000-gallon International Standards Organization (ISO) tanks and bulk Liquefied Petroleum Gas (LPG) tanks. Samson offers trucking services in Seattle as well as connecting carrier agreements to transport cargo around the world.

Outdoor activities at Samson include fueling operations; forklift washing and cleaning; truck loading/unloading of liquid or solid materials; diesel storage in an AST with secondary containment; outside portable container storage of wastes; forklift and truck maintenance and repair; and painting/finishing of vehicles, boats, buildings or equipment (SPU 2008c).

No additional information regarding Samson’s operations at this facility was available in the files reviewed during preparation of this Data Gaps report.

Duwamish Metal Fabricators and **Annette Island Construction** lease offices in the Duwamish Marine Center warehouse, which is located on parcel 3635 (Environmental Associates 2000). Outdoor activities at Duwamish Metal Fabricators include fueling operations, truck loading/unloading of liquid or solid materials, and vehicle/equipment maintenance and repair. Diesel fuel is stored in an AST (SPU 2008a).

Material and Waste Handling

<u>Duwamish Marine Center</u>: According to a 1994 Ecology facility inspection report, two ASTs were present at the Duwamish Marine Center facility: one 200-gallon AST containing diesel fuel for facility equipment and one 500-gallon AST containing waste oil that was generated at the facility (Ecology 1994e). A 1999 Environmental Audit indicates that the ASTs were located on government owned land (Environmental Associates 2000). The 200- and 500-gallon ASTs identified in 1994 were not present in 1999; however, two different ASTs were present at the facility. These ASTs were reportedly removed from the Satsop nuclear power plant. The ASTs had not been used at the power plant (Environmental Associates 2000). No additional

information regarding the storage or use of hazardous materials at the Duwamish Marine Center property was available for review.

Current waste streams generated at the Duwamish Marine Center are unknown. Previous wastes generated at the property include spent solvent, sandblast grit, paint wastes, waste oil, and wastes transferred from ships (Ecology 1994e). Employees of the Duwamish Marine Center did not know if the wastes were hazardous or not and indicated that all wastes were managed by a facility tenant, South Coast, Inc. (Duwamish Marine Center 1994). In 1994, a petroleum barge maintained by South Coast, Inc. was the primary source of hazardous waste generated at the facility. The barge was relocated to Japan during 1994 (Duwamish Marine Center 1994).

Samson Tug and Barge: Process wastes generated by Samson include antifreeze (100 gallons per year), batteries (6 per year), petroleum/oils (250 gallons per month), and sludges and residues (100 gallons per month). Wastes are containerized and removed from the property by an outside contractor (SPU 2008c).

Duwamish Metal Fabricators: Stock metal is stored in a paved, outdoor area (SPU 2008a). Process wastes generated by Duwamish Metal Fabricators include batteries (5 per year), petroleum/oils (50 gallons per year) and metal. The batteries and petroleum/oils are containerized and removed from the property by an outside contractor (SPU 2008a).

Stormwater

Based on information from Ecology and SPU, stormwater is discharged to the LDW via two outfalls owned by James Gilmur (outfalls 2021 and 2022, Figure 2). Based on a review of available records, it appears that these outfalls are not permitted. Maps showing pipes or catch basins connected to these outfalls were not found in the files reviewed during preparation of this Data Gaps report.

Duwamish Marine Center: Plans to install storm drains lines on the Duwamish Marine Center property were prepared in August 1985 (Environmental Associates 2000). As of 2002, the stormwater system had apparently not been installed (Farallon Consulting 2002d). A 2007 sampling plan mentions that stormwater is discharged to the LDW; however the accompanying figure (Figure 9) does not indicate the discharge point(s) (Pacific Crest Environmental 2007a).

Samson Tug and Barge: There are three catch basins on the portion of the property leased by Samson. Two of the catch basins are connected to storm drains. The third catch basin, located in the “wash area” (parcel 4560) is connected to the sanitary sewer (SPU 2008c).

Duwamish Metal Fabricators: There are three catch basins on the portion of the property leased by Duwamish Metal Fabricators (SPU 2008a).

4.3.2 Regulatory History

Duwamish Marine Center: Duwamish Marine Center first sent a Notification of Dangerous Waste Activities to Ecology in March 1992, identifying the facility as a generator of hazardous waste. The waste stream is described as gas and water with benzene (Ecology 1992a).

Ecology inspected the Duwamish Marine Center in February 1994 after receiving a complaint that hazardous wastes were being transported from Canadian ships to Oregon through the facility. The facility general manager stated that non-hazardous waste was transferred from a Canadian ship at the Duwamish Marine Center to Waste Management's facility in Arlington, Oregon via railway, and that the waste was not accumulated at the Duwamish Marine Center (Ecology 1994e). Waste Management provided documentation to Ecology, which stated that the wastes in question were non-hazardous (Duwamish Marine Center 1994).

During the February 1994 inspection, Ecology determined that general housekeeping at the facility was inadequate; Ecology inspectors observed empty containers and spent sandblast grit that were not properly stored or disposed of, and an oil spill or leak was observed on the ground (Ecology 1994e). Following the Ecology inspection, Duwamish Marine Center cleaned the facility and stopped receiving wastes transferred from ships (Duwamish Marine Center 1994).

In August 1999, METRO reported to Ecology that two "very large" transformers were stored at the Duwamish Marine Center, along with other questionable items including a burned-out house. Ecology referred the PCB complaint to the EPA in October (Ecology 1999c). In 1999 Environmental Associates reported that these transformers were actually electric generator motors (Environmental Associates 2000).

According to an Ecology Environmental Report Tracking System (ERTS) report from November 2000, petroleum hydrocarbons, metals, PCBs, and PAHs were present in soil and groundwater beneath Duwamish Marine Center due to illegal dumping. A facility inspection was performed by Ecology in January 2001. The Ecology inspector described the facility housekeeping as generally good and noted two storm drains near the work building. No drains were present within the building. At the time of the inspection the facility was mostly unpaved (Ecology 2001d).

Duwamish Marine Center was placed on the CSCSL in May 2001 due to metals and PCB contamination in soil and petroleum products, VOC, SVOC, and PAH contamination in soil and groundwater (Ecology 2001e). Duwamish Marine Center is under the voluntary cleanup program, ID Nos. NW0892 and NW1646 (Ecology 2006l). Environmental investigations and cleanups at this property are described in Section 4.3.4.

In July 2006, Ecology determined that the remedial actions taken at the property were not sufficient to meet the requirements of MTCA and recommended completion of further remedial actions, including sediment sampling and potential cleanup of the underwater portions of the property (Ecology 2006o). Ecology recently approved a sampling plan for the Duwamish Marine Center (Adams 2008b). The sampling plan includes a 72-hour tidal study, catch basin solids sampling, and groundwater sampling (Pacific Crest Environmental 2007a). Prior to approving the sampling plan, Ecology requested that the scope of work also include river bank sampling and installation of at least three deep groundwater monitoring wells along the edge of the property and adjacent to the LDW (Adams 2008a).

<u>Samson Tug and Barge</u>: Samson was inspected by SPU and Ecology on July 28, 2008. Samson is operating without an Industrial Stormwater General Permit (Jeffers 2008c). SPU directed Samson to obtain an NPDES permit for discharge, improve or create spill response procedures, clean the facility's storm drains and catch basins, properly dispose of waste sludge in a parts

washer, and properly label containers (Schmoyer 2008a and SPU 2008d). Additionally, Samson is not registered as a dangerous waste transfer facility (Jeffers 2008c). Housekeeping at the facility was rated as “good” (SPU 2008c).

In July 2008, EPA sent General Notice 107(e) and Request for Information 104(e) letters to Samson Tug and Barge.

Duwamish Metal Fabricators: The facility was inspected by SPU and Ecology on July 23, 2008. The company is operating without an Industrial Stormwater General Permit (Jeffers 2008c). SPU directed Duwamish Metal Fabricators to obtain an NPDES permit for discharge, create spill response procedures, improve spill response materials, properly educate employees, and clean the facility’s catch basins (SPU 2008b). SPU re-inspected the facility on October 23, 2008 and found that Duwamish Metal Fabricators had completed the corrective actions (SPU 2008e). However, the status of the facility’s NPDES permit is not known.

4.3.3 Historical Operations

Parcels 3415, 3447, and 4565 have been used for industrial purposes since the late 1930s (Figure 4). The types of companies operating at these parcels have included a marine shipyard and railyard, a junk dealer, and various construction services companies. A marine railway was located adjacent to the southwestern shoreline of parcel 4565 from 1940 until the mid-1970s. The railway measured 120 feet by 40 feet. There were two small stove-heated buildings associated with the railway (Farallon Consulting 2002d). Little information regarding previous operations and companies was available. Companies that have operated on the Duwamish Marine Center property are listed in Appendix E-3.

The Gilmur and Hale families began purchasing lots on parcels 4565, 3415, and 3447 in the 1970s. Since that time, the facility has supported the following operations:

- Construction material loading terminal (1975-1978),
- Barge loading terminal and cargo container manufacturing (1979-1984),
- Aggregate loading terminal (1985-1989),
- Construction assembly yard and barge shipping terminal (1990-1994), and
- Construction and marine-related material storage yard (1994-present).

From 1990 to 1994, cargo temporarily stored at the Duwamish Marine Center included waste generated under EPA ID No. WAD988504999. The waste was transferred from barges in closed containers and stored at the facility until transfer to an approved disposal facility (Farallon Consulting 2002d).

Approximately six major buildings have occupied portions of parcel 4565 from the 1940s through the 1960s. None of these buildings were heated with heating oil furnaces (Environmental Associates 2000).

Burgess Enterprises

Burgess Enterprises operated at 6361 1st Avenue S. The former Burgess facilities are now occupied by Samson Tug and Barge. Operations at this facility apparently included cleaning and maintenance of air cleaning systems (Ecology 2003i), marketing Smokeeter® products (systems to control airborne contaminants such as dust and smoke), and designing and manufacturing espresso machines and food-vending kiosks (Environmental Associates 2000). Burgess moved to Renton, Washington, in June 2006 (Burgess 2008).

In June 1992, Burgess Enterprises obtained an EPA ID for disposal of 410 pounds of flammable liquid containing toluene and ethyl acetate, 190 pounds of flammable liquid methyl ethyl ketone (MEK, also known as 2-butanone), 290 pounds of waste liquid containing lead, and 450 pounds of solid waste. This was a one-time disposal of waste in advance of UST removal activities (Environmental Associates 2000).

In May 2003, Ecology inspected the Burgess facility in response to a complaint of discharge to the LDW. A tank containing cleaning solution was plumbed to discharge to the LDW and rinse water from washed air cleaning systems was discharging to the LDW. The pH of the rinse water was over 10. Material safety data sheets for the cleaning solution indicated that it should not be discharged to the environment. The facility operator indicated that the cleaning solution tank was drained approximately every 3 months. Ecology explained to the facility operator that the cleaning solution and rinse water were wastewaters that could not be discharged to the LDW. Burgess took actions to legally dispose of the wastewaters and Ecology recommended that the drain line from the tank be cut and capped (Ecology 2003i).

No additional information on historical operations at this location was identified.

4.3.4 Environmental Investigations and Cleanups

Several environmental investigations have been conducted at the Duwamish Marine Center. Chemical data and figures from these investigations are included in Appendix E.

UST Closure (1991)

Burgess Enterprises had one 4,000-gallon leaded-gasoline UST decommissioned at their facility in March 1991. The UST was 20 years old when it was removed (Ecology 1991b). Sidewall and bottom samples were collected from the tank excavation. The samples were analyzed for petroleum hydrocarbons and BTEX; no analytes were detected in the samples (Environmental Associates 2000).

Phase 1 Environmental Audit (1999)

A Phase 1 Environmental Audit was performed at parcels 3415, 3447, and 4565 in 1999 for the Duwamish Marine Center by Environmental Associates, Inc. The environmental audit did not include the portion of parcel 4565 that is submerged (Slip 2) (Environmental Associates 2000). Environmental Associates identified the following potential environmental concerns:

- Fill material on the property was from unknown sources and had not been assessed for potential COCs or composition. The fill material was possibly from Slip 2 or other “suspect” sources. PCB-contaminated dredge material from the LDW was stored at the property in the 1980s.
- Environmental impacts to soil and groundwater from historical operations at the property had not been assessed.

Items present at the facility during the environmental audit included:

- Three empty ASTs intended to store diesel fuel (two removed from the ground at Satsop nuclear power plant), and two empty ASTs for propane storage;
- Diesel engines, trucks, trailers, and electric turbines;
- Various machinery (e.g. forklifts) and small equipment;
- Building materials (e.g. metal and lumber);
- Metal debris; and
- Eight 55-gallon drums of fresh 30-weight lubricating oil.

Preliminary Phase II Subsurface Investigation (2000)

The Riley Group, Inc. excavated four test pits and advanced four soil borings at parcels 4565, 3415, and 3446. Soil samples were collected from the test pits and borings and grab groundwater samples were collected from two of the borings. The soil samples were analyzed for TPH, PCBs, PAHs, priority pollutant and leachable metals, and pentachlorophenol. The groundwater samples were analyzed for TPH, BTEX, and dissolved metals. Diesel- and heavy oil-range hydrocarbons, antimony, cadmium, chromium, copper, lead, mercury, zinc, PCBs, and PAHs were detected above MTCA Method A cleanup levels in soil. Diesel- and heavy oil-range hydrocarbons and BTEX were detected above MTCA Method A cleanup levels in groundwater (The Riley Group, Inc. 2000).

Soil and Groundwater Assessment (2002)

A soil and groundwater investigation was performed at the property to determine the vertical and lateral extent of contaminants identified in the Phase II Subsurface Investigation. Nineteen soil borings were advanced to depths between 4 and 12 feet bgs and four groundwater monitoring wells were installed at the property. Soil and groundwater samples were analyzed for diesel- and heavy oil-range hydrocarbons, priority pollutant metals, PCBs, PAHs, and pentachlorophenol. One upgradient groundwater sample was also analyzed for gasoline-range hydrocarbons.

Diesel- and heavy oil-range hydrocarbons, metals, PCBs, and PAHs were detected below MTCA Method A industrial cleanup levels in soil, except for one PCB concentration which was above the MTCA Method A industrial cleanup level. Pentachlorophenol was not detected in soil. Arsenic, cadmium, chromium lead, and mercury were detected above MTCA Method A cleanup levels in groundwater. Petroleum hydrocarbons, PAHs, PCBs and pentachlorophenol were detected below cleanup levels in groundwater.

Four test pits were excavated and samples collected from the test pits were analyzed for volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), and fractional organic carbon. These analyses were selected for use in risk assessment modeling. The risk assessment identified indicator hazardous substances at the facility, which included diesel- and heavy oil-range hydrocarbons, antimony, cadmium, chromium III, copper, lead, nickel, silver, zinc, acenaphthene and PCBs in soil and diesel- and heavy-oil range hydrocarbons, chromium, mercury, nickel, selenium, zinc, carcinogenic PAHs (cPAHs), and PCBs in groundwater.

Farallon prepared a Site Closure Report documenting the soil and groundwater assessment results (Farallon Consulting 2002d). Farallon recommended capping the site with an impervious surface, which would include a stormwater conveyance system, and placing deed restrictions on the property to reduce and/or eliminate risks to human health and the environment. In an addendum to the Site Closure Report, Farallon requested a No Further Action (NFA) determination for the facility following the installation of the impervious cap, and recording of a deed restriction prohibiting use of groundwater beneath the facility as a potable resource (Farallon Consulting 2003a, 2003b). Ecology did not grant this request due to the presence of contaminant concentrations exceeding MTCA Method A cleanup levels in groundwater (Ecology 2003f).

Approximately 50 cubic yards of soil containing Toxicity Characteristic Leaching Procedure (TCLP)-lead concentrations greater than 5 milligrams per liter (mg/L), the dangerous waste criterion for lead, was excavated and removed from the Duwamish Marine Center, in the area of the former junk shop. Confirmation samples collected from the bottom and sidewalls of the samples indicated that all soil containing TCLP-lead above the dangerous waste criterion was removed from the property (Farallon Consulting 2002d).

Groundwater Monitoring (2003-2004)

Farallon monitored and sampled groundwater at well MW-3 (Figure 9 and Appendix E, Figure 2) at the Duwamish Marine Center in November 2003 and February, May, and August 2004. Groundwater samples were analyzed for PCBs, dissolved copper, total mercury, and diesel- and heavy oil-range hydrocarbons. Total mercury and diesel- and heavy-range hydrocarbons were detected in groundwater. PCBs and dissolved copper were not detected in the groundwater samples (Farallon Consulting 2004).

4.3.5 Potential for Sediment Recontamination

Chemical concentrations[13] exceed the SQS in sediments near the Duwamish Marine Center (Figure 3, Tables 2 and 3). The potential for sediment contamination associated with this property is summarized below by transport pathway.

Stormwater

Stormwater from the Duwamish Marine Center discharges to the LDW (Pacific Crest Environmental 2007a). The discharge point(s) were not indicated on the maps available during

[13] Sediment COCs in the vicinity of the Duwamish Marine Center include copper, lead, zinc, PCBs, PAHs, BEHP, butyl benzyl phthalate, benzoic acid, and dibenzofuran (Figure 3).

preparation of this Data Gaps report. There are two private outfalls (2021 and 2022) located on the Duwamish Marine Center property. It is not known if the Duwamish Marine Center uses these outfalls. The potential for sediment recontamination via this pathway has not been determined. Data to be collected during compliance sampling will aide in determining the potential for sediment recontamination via this pathway.

Surface Runoff

Based on aerial photographs, most of the Duwamish Marine Center appears to be paved, except for the strip of property along the shoreline owned by the Port of Seattle. Insufficient information is available to determine whether the property has a stormwater collection system. Therefore, due to the property's proximity to the LDW, contaminants (if any) suspended in surface runoff have the potential to reach sediments associated with the Slip 2 to Slip 3 source control area.

Spills/Direct Discharge

Historical operations at the Duwamish Marine Center have included loading and offloading of construction equipment and waste from ships and barges. Samson engages in ship loading and unloading activities. Boat moorage is located along the shoreline on the southern portion of the property. Spills to the LDW may occur at the Duwamish Marine Center; therefore, there is a potential for sediment recontamination via this pathway.

Soil and Groundwater

Soil and groundwater contamination is present beneath the Duwamish Marine Center. PCBs, PAHs, metals, and petroleum hydrocarbons are present in soil and groundwater. Appendices E-1 and E-2 present sampling results for all chemicals detected in soil and groundwater at this property. Table 8 provides a list of chemicals detected in soil samples at concentrations above MTCA Method A or B cleanup levels or soil-to-sediment screening levels[14].

The following chemicals were detected in soil at concentrations above soil-to-sediment screening levels:

[14] These screening levels were developed to assist in the identification of upland properties which 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 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's unlikely that they will lead to exceedance of marine sediment CSLs. However, upland concentrations that exceed these screening levels *may or may not* pose a threat to sediments; additional site-specific information must be considered in order to make such an assessment.

Metals	cadmium, copper, lead, mercury, silver, zinc
PAHs	2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene
PCBs	Aroclor 1254, Aroclor 1260, total PCBs

In addition, antimony, arsenic, chromium, total PAHs, Aroclor 1242, diesel-range hydrocarbons, and heavy oil-range hydrocarbons exceeded MTCA soil cleanup levels.

The highest soil-to-sediment exceedance factors were observed for zinc (816), lead (179), and total PCBs (151); highest MTCA exceedance factor was for chromium (142).

Table 9 provides a list of chemicals detected in groundwater samples at concentrations above MTCA Method A or B cleanup levels or groundwater-to-sediment screening levels. The following chemicals were detected in groundwater at concentrations above groundwater-to-sediment screening levels:

Metals	Cadmium, copper, lead, mercury, zinc
PAHs	acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene

In addition, antimony, arsenic, chromium, 1-methylnaphthalene, pentachlorophenol, Aroclor 1242, Aroclor 1254, Aroclor 1260, total PCBs, benzene, tetrachloroethene, diesel-range hydrocarbons, and heavy oil-range hydrocarbons exceeded MTCA groundwater cleanup levels.

The highest groundwater-to-sediment exceedance factors were observed for benzo(k)fluoranthene (448), mercury (270), benzo(g,h,i)perylene (241), indeno(1,2,3-cd)pyrene, and lead (162). The highest MTCA exceedance factors were observed for arsenic (3,793) and benzo(a)pyrene (1,083).

Metals, PAHs, and PCBs have been detected in soil and/or groundwater above soil-to-sediment and/or groundwater-to-sediment screening levels. Therefore, there is a potential for sediment recontamination via groundwater discharge from this property.

Bank Erosion/Leaching

Soil is present along the banks of the LDW in this area, and contaminants have been detected in soil samples located near the shoreline. Contaminants in bank soils (if any) could be released directly to sediments via erosion.

4.3.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at the Duwamish Marine Center property is listed below.

Stormwater Discharge and Surface Runoff/Spills

- A business inspection of the Duwamish Marine Center is needed to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. The following information is needed:
    - Assessment of the adequacy of current facility housekeeping practices to prevent discharge of contaminants to the LDW;
    - Current use and storage of hazardous materials or potentially harmful chemicals/wastes;
    - Adequacy of containment systems;
    - Location of drainage features, such as catch basins, floor drains, and storm drain lines;
    - Information on direct discharges (if any) to the LDW; and
    - Current facility operations and tenants.
- A follow-up business inspection of the Samson Tug and Barge facility is needed to verify compliance with corrective actions requested by SPU in July 2008. In addition, the following information is needed:
    - Verification that the cleaning solution tank belonging to Burgess Enterprises has been removed, since the company no longer operates at this location.
- Information on the status of outfalls 2021 and 2022 is needed. If these outfalls and storm drain lines are currently in use, the area drained by the outfalls needs to be determined and an assessment made of the potential for COCs to reach the LDW via this pathway.
- Information is needed on the status of NPDES permits for Samson Tug and Barge and Duwamish Metal Fabricators.
- Information is needed on the types of activities associated with the boathouses/moorage located on the southern portion of the property.

Groundwater Discharge

- Additional soil and groundwater data are needed to evaluate the potential for sediment recontamination via the groundwater discharge pathway. In April 2008, Ecology approved, with conditions, a sampling plan for the Duwamish Marine Center. The data collected during this investigation may be used to evaluate potential pathways for sediment COCs to reach the LDW.

Bank Erosion/Leaching

- Additional data on concentrations of chemical contaminants in bank soils is needed to assess the potential for sediment recontamination via this pathway.

4.4 Seattle Department of Transportation Parcel

Facility Summary: Seattle Department of Transportation Parcel	
Tax Parcel No.	5367202410
Address	6501 1st Avenue S
Property Owner	Seattle Department of Transportation
Parcel Size	0.19 acre (8,438 sq ft)
Facility/Site ID	None
SIC Code(s)	Unknown
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

The Seattle DOT parcel is located at 6501 1st Avenue S. The parcel is bordered on the west by the Duwamish Marine Center, on the north and east by 1st Avenue S and the 1st Avenue S Bridge, and on the south by the LDW (Figure 2).

4.4.1 Current Operations

This property is immediately adjacent to the LDW. It consists of an unpaved, vegetated area, partially covered by the 1st Avenue S Bridge, which serves as a biofiltration swale for stormwater discharged from outfall 2503 (Figure 6). A biofiltration swale is a vegetated stormwater treatment system that removes pollutants by means of sedimentation, filtration, soil sorption, and/or plant uptake. The swale is partially located on the SDOT parcel. Areas under the bridge are reportedly used by transients and truckers to park vehicles. SPU has been working with the adjacent property owner (Seattle Truck Repair) to prevent employees from parking and maintaining vehicles on the Seattle DOT property (Schmoyer 2008b).

4.4.2 Potential for Sediment Recontamination

Concentrations of PCBs exceed the SQS in sediments near the SDOT parcel (Figure 3, Tables 2 and 3). The potential for sediment contamination associated with this property is summarized below by transport pathway.

Stormwater

Based on SPU maps, stormwater from outfall 2503 is discharged to this parcel for treatment (biofiltration) prior to discharge to the LDW. The potential for sediment recontamination via this pathway is therefore low.

Surface Runoff/Spills

SPU reports that some vehicle maintenance takes place at this property. The types and quantities of equipment and materials used at the property are unknown. Spills from these activities would likely infiltrate into the ground surface; the potential for transport of contaminants to the LDW via surface runoff is therefore low.

Soil and Groundwater

There is no information available to determine if soil or groundwater contamination is present at this property. Contaminants in stormwater draining to the swale from Outfall 2503 or spills from other activities (such as vehicle maintenance) could accumulate in soils and infiltrate to groundwater. These contaminants (if present) could subsequently be discharged to the LDW.

Bank Erosion/Leaching

This property is unpaved. Contaminants in soils (if any) along the banks could be released directly to sediments via erosion. The potential for sediment recontamination via this pathway is unknown.

4.4.3 Data Gaps

Stormwater

- No information was available regarding the effectiveness of the biofiltration swale in treating stormwater discharged from Outfall 2503.

Surface Runoff/Spills

- Continued discussions with the adjacent property owner are needed to prevent parking and vehicle maintenance on the property.

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5.0 Potential for Sediment Recontamination from Upland Properties

Upland properties that could potentially affect sediments associated with the Slip 2 to Slip 3 source control area include:

- Former Frank's Used Cars,
- Former Consolidated Freightways,
- Seattle Truck Repair/Evergreen Tractor,
- WSDOT parcel,
- Bank and Office Interiors,
- Fittings, Inc., and
- Former Taco Time.

With exception of former Frank's Used Cars and former Consolidated Freightways, very little information was available for review regarding the upland properties.

Because these properties are not adjacent to the LDW, surface runoff or spills directly to the waterway and bank erosion are not potential sediment recontamination pathways and therefore are not discussed further in this section. Contaminants from upland properties could be transported to the LDW via stormwater and groundwater pathways.

Stormwater from these properties drains to the LDW from the Slip 2 to Slip 3 source control area via two pathways (Figure 6):

- Via catch basins and drainage ditches discharging to outfall 2503, located near the 1st Avenue S Bridge (Former Frank's Used Cars, Seattle Truck Repair/Evergreen Tractor, former Taco Time, and WSDOT parcel);
- Via the storm drain line connected to outfall 2019, which is located at the head of Slip 2 (Bank and Office Interiors, Fittings, Inc., and a small portion of the former Consolidated Freightways property).

Soil and/or groundwater contamination has been confirmed at the former Frank's Used Cars property and at the former Consolidated Freightways property. Additional information regarding the contamination is included in the facility-specific sections below.

5.1 Former Frank's Used Cars

Facility Summary: Former Frank's Used Cars	
Tax Parcel No.	5367203745
Address	6309 East Marginal Way S
Property Owner	AK Media
Parcel Size	0.19 acre (8,400 sq ft)

Facility Summary: Former Frank's Used Cars	
Facility/Site ID	2337
SIC Code(s)	5015 Motor Vehicle Parts, Used
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

Frank's Used Cars previously operated on this small, triangular-shaped parcel that is located immediately east of the northbound lanes of the 1st Avenue S Bridge. The parcel is bordered by S Front Street to the southeast and East Marginal Way S to the northeast (Figure 10).

5.1.1 Current Operations

This location is currently a vacant lot with a large AK Media advertising billboard located in the center of the property. A reconnaissance visit performed by SAIC in April 2008 determined that the parcel is unpaved, with brush and various weeds growing on the property. No additional information regarding AK Media was available during preparation of this Data Gaps report.

As-built plans from the 2001 1st Avenue S bridge crossing project show a drainage ditch running along the east side of this property which connects to the 1st Avenue S Bridge storm drain system and discharges to outfall 2503 (Figure 6; SPU 2001 as cited in Schmoyer 2008b). Runoff from this parcel most likely enters that ditch. There are no catch basins on the property and no connections to the combined sewer system (Schmoyer 2008b).

5.1.2 Historical Operations

Historically, this site has been occupied by a transmission repair, automobile wrecking, or automotive services business since at least 1950, and possibly earlier (Environmental Associates 1993). Frank's Used Cars most recently operated at this parcel, but went out of business in early 1991. Remaining scrap metal and several containers of waste oil and grease were removed in 1991. The last existing structure was demolished prior to January 1993.

In April 1990, a concerned individual notified Ecology of the likelihood of improperly handled hazardous waste and other conditions of concern regarding the Frank's Used Car property (Ecology 1990a). An initial investigation inspection performed in February 1991 revealed that surface water drained from the site through either a storm drain, a combined sewer system, or possibly by overland flow to the LDW (Ecology 1991d). According to owner/operator site information from Ecology, in August of 1991, halogenated organic compounds and non-chlorinated solvents were suspected and priority pollutant metals, PCBs, and petroleum products were confirmed to be present at this location (Ecology 1991m).

5.1.3 Regulatory History

Ecology's Facility/Site Database lists the facility address as 6305 East Marginal Way S. Frank's Used Cars is on the CSCSL for confirmed contamination of surface water and soil, and suspected contamination of groundwater, air, and sediments. Contaminants include halogenated organic compounds, petroleum products, and non-halogenated solvents in all media, EPA priority pollutant metals in surface water, soil, groundwater, and sediment, and PCBs in surface water, soil, and groundwater. According to Ecology's ISIS database, as of December 5, 2007, the facility is awaiting a Site Hazard Assessment (SHA).

An initial site inspection was conducted in February 1991 (after the business closed). Oil was noted "all over property and in puddles on property" (Ecology 1991d). The owner of the property at that time was listed as Frank Lenci (Ecology 1991g). A preliminary environmental study conducted in January 1993 determined that the shallow soils (0 to 3 feet bgs) on the southern portion of the site were contaminated with heavy oil, cadmium, and lead.

Site stabilization was presented by the property owner as a proposed solution for remediation (Environmental Associates 1993). However, because of the site's proximity to the LDW, Ecology did not deem this an acceptable method of cleanup (Bardy 1993b). Information reviewed during preparation of this Data Gaps report did not indicate whether a cleanup was performed at this site.

5.1.4 Environmental Investigations and Cleanups

Two environmental investigations have been performed at the former Frank's Used Cars property. Chemical data from these investigations are included in Appendix F.

Initial Environmental Investigation (1991)

During the February 1991 site inspection, the inspector collected a composite soil sample and a water sample from an unidentified location on the property. The sample contained cadmium, chromium, lead, zinc, PCBs, ethylbenzene, toluene, xylenes, and total volatile petroleum hydrocarbons at concentrations above current MTCA soil cleanup levels (Table 10). Trace amounts of copper, lead, and zinc were detected in the laboratory procedural blanks associated with this sample (Ecology 1991i).

Preliminary Environmental Study (1993)

In October – December 1992, soil from nine shallow holes were composited into three soil samples for analysis. In addition, nine test pits were excavated and subsurface soils were composited into three samples for analysis. Samples were analyzed for petroleum hydrocarbons, priority pollutant metals, and PCBs (surface samples only). Arsenic, cadmium, chromium, lead, and PCBs were detected in surface samples at concentrations above current MTCA cleanup levels (Table 10). Contaminant concentrations decreased significantly or were nondetectable at depths greater than approximately 3 feet. An existing groundwater monitoring well of unknown origin and ownership (MW-15) was discovered on the mid-eastern portion of the property and was used to sample groundwater (Figure 10). Petroleum hydrocarbons and EPA priority pollutant metals were not detected in the groundwater sample.

5.1.5 Potential for Sediment Recontamination

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

Stormwater

Site visits in 1991-1992 indicated the presence of an oily sheen on puddles and on the surface soil. Surface contamination (if present) could be transported via stormwater to the 1st Avenue S Bridge storm drain system during large storm events. The property is currently a vacant lot, therefore the potential for sediment recontamination via stormwater is believed to be low.

Soil and Groundwater

Soil contamination exists at shallow depths on this property. Zinc was detected in 1992 at a concentration above the soil-to-sediment screening level (Table 10). Arsenic, cadmium, chromium, lead, and PCBs exceeded MTCA cleanup levels but did not exceed soil-to-sediment screening levels. A groundwater sample collected in 1992 did not detect petroleum hydrocarbons or priority pollutant metals. It is not known if residual contamination has leached or migrated to deeper soil and groundwater, however the potential for sediment recontamination via groundwater discharge from this property is believed to be low.

5.1.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at the former Frank's Used Cars is listed below.

Stormwater

- The most recent information on site conditions is over 15 years old. Additional information on current site conditions is needed to determine whether stormwater from this property is a potential source of sediment recontamination.

Soil and Groundwater

- No information was available on the current status of cleanup activities at this site, or whether residual soil contamination poses a risk of sediment recontamination.

5.2 Former Consolidated Freightways

Facility Summary: Former Consolidated Freightways	
Tax Parcel No.	5367204646
Address	6050 East Marginal Way S
Property Owner	Shippers Transport Express
Parcel Size	13.58 acres (591,591 sq ft)
Facility/Site ID	54757868 (Consolidated Freightways Seattle)
SIC Code(s)	4231 Terminal and Joint Terminal Maintenance Facilities for Motor Freight Transportation 4213 Trucking, except Local 4212 Trucking without Storage
EPA ID No.	WAD041918897 (inactive)

Facility Summary: Former Consolidated Freightways	
NPDES Permit No.	None
UST/LUST ID No.	11012

The property, located at 6050 East Marginal Way S, is currently owned and operated by Shippers Transport Express. The 13.6-acre parcel is located east of the Glacier Northwest facility, on the east side of 1st Avenue S and East Marginal Way S. The property is bordered on the north by the properties comprising Bank and Office Interiors and CleanScapes/CDL Recycle. Fourth Avenue Investment LLC, Fittings, Inc., Les Schwab, U.S. Bearings and Drives, and Winters Investment LLP properties border the east side of the former Consolidated Freightways parcel. The parcel is bordered on the south by the former Taco Time parcel (Figure 2). No buildings are currently present on the property.

Consolidated Freightways Seattle participated in Ecology's Voluntary Cleanup Program (VCP; ID No. NW410), with site cleanup identified in Ecology's ISIS database as completed in February 2000. The site is listed on Ecology's CSCSL, with confirmed soil and groundwater contamination with petroleum products, and suspected contamination of groundwater with non-halogenated solvents and PAHs. Consolidated Freightways is listed as awaiting a Site Hazard Assessment. CF Motorfreight is an alternative name for Consolidated Freightways.

Groundwater is encountered between 7 and 8.5 feet bgs and is tidally influenced. Groundwater flow direction varies, but is generally to the west towards Slip 2 (Blymyer Engineers, Inc. 1988).

5.2.1 Current Operations

Shippers Transport Express provides container storage and trucking services at this facility.

No documentation regarding waste streams generated at the Shippers Transport Express facility was identified in the files reviewed during preparation of this Data Gaps report.

Based on SPU maps, it appears that stormwater from the western portion of the facility is conveyed to outfall 2019, which is located at the head of Slip 2 (Figure 6). Stormwater from the remainder of the property is conveyed to the combined sewer. The facility is within the Michigan Street CSO basin. During CSO events, stormwater and wastewater may be discharged to the Michigan Street CSO.

5.2.2 Historical Operations

Consolidated Freightways operated on this property from at approximately 1985 through 2005. No other information on previous industrial activities at this location was available in the files reviewed during preparation of this Data Gaps report.

5.2.3 Regulatory History

Consolidated Freightways submitted a First Notification of Dangerous Waste Activities to Ecology in April 1985. The company identified itself as a generator and transporter of hazardous wastes and as a transporter of hazardous waste for hire. Waste streams were not identified on the form (Ecology 1985b).

A facility inspection was performed in 1996 by Ecology. The inspector noted that drums containing waste antifreeze were not properly labeled and that Consolidated Freightways had not submitted an annual report for 1995 for its hazardous waste activities (Ecology 1996c).

Two 20,000-gallon diesel USTs were installed at the property in 1981. The USTs passed tank tightness tests performed from 1991 to 1997 (Ecology 1991n, 1994a, 1997k, Blymyer Engineers, Inc. 1995, 1996, 1997a, and 1997b]).

A 1988 letter to Ecology indicates that five USTs were in use at the property, which included a 1,000-gallon heating oil tank, two 3,000-gallon waste oil tanks, and the two 20,000-gallon diesel tanks mentioned above. Leak detection testing in 1988 indicated that one of the waste oil tanks and the piping associated with one of the diesel tanks were leaking (Blymyer & Sons Engineers, Inc. 1988c).

In February 1988, Consolidated Freightways reported a leaking UST to Ecology. A 500-gallon motor oil tank on the property failed UST tightness testing. Further investigation revealed that groundwater was flowing into the UST (Cashion 1988a). In May 1988, Ecology directed Consolidated Freightways to perform a site assessment and begin soil remediation (Ecology 1988d).

In March 1997, Consolidated Freightways reported a leak from one of the 20,000-gallon diesel USTs to Ecology and indicated that soil was contaminated (Ecology 1997k).

One 20,000-gallon diesel UST was installed at the facility in March 1998. It passed leak detection testing in 1998 and 2002 (Ecology 1998s, Associated Environmental Services 1998, Blymyer Engineers, Inc. 2002). The UST was connected to two dispensers inside a maintenance shop (Golder Associates 1998a). The UST was temporarily closed in July 2003 (Ecology 2003k). In 2005, Emway South LLC notified Ecology that it purchased the property and took ownership of the UST (MWK 2005).

5.2.4 Environmental Investigations and Cleanups

Several environmental assessments have been performed at the property. Sampling results and sample locations are provided in Appendix G.

UST Removal (1988)

Three diesel USTs were removed from the property in April 1988. The USTs included the 500-gallon motor oil UST (reporting leaking in February 1988), 8,000-gallon and 10,000-gallon diesel USTs, both out of service (Blymyer Engineers, Inc. 1988). Records do not indicate when these three USTs were installed at the property or when the USTs were taken out of service. Soil and groundwater contamination were present in the excavation. Gasoline- and diesel-range hydrocarbons were detected in soil and groundwater above MTCA cleanup levels (Tables 11 and 12). Benzene and xylenes were also detected in groundwater above MTCA cleanup levels (Table 12) (Blymyer & Sons Engineers, Inc. 1988a, Ecology 1988a, Blymyer Engineers, Inc. 1988).

Phase I Contamination Investigation (1988)

This investigation was performed to determine the extent of soil and groundwater contamination associated with the diesel USTs that were removed from the property in April 1988. Soil and groundwater samples were collected from the excavated area and five groundwater monitoring wells were installed. Additionally, two waste oil USTs were removed from the property. Diesel-range hydrocarbons and TPH concentrations in soil exceeded MTCA cleanup levels. In groundwater, diesel- and heavy oil-range hydrocarbon, chromium, and lead concentrations exceeded MTCA cleanup levels (Table 12). Soil contamination appeared to be limited to the vadose zone (Blymyer Engineers, Inc. 1988).

Groundwater Monitoring and Well Abandonment (1989 to 1990)

Groundwater monitoring and sampling was performed in August and December 1989. Samples were analyzed for TPH, which was not detected in any of the groundwater samples (Blymyer Engineers, Inc. 1989).

The well abandonment report indicates that wells were monitored on a quarterly basis for one year and that TPH was not detected in any of the groundwater samples collected during the four quarters of sampling. In January 1990, all five monitoring wells were abandoned-in-place using pressure grouting techniques (GTI 1990).

Initial Site Investigation (1997)

Ten soil borings were advanced around the two 20,000-gallon diesel USTs to evaluate soil and groundwater conditions in the UST area. Two soil samples and one groundwater sample were collected from each boring. Diesel-range hydrocarbon concentrations exceeded MTCA cleanup levels in soil and groundwater (Tables 11 and 12) (Shannon & Wilson 1997).

Site Investigation/Risk Assessment (1998)

In April 1998, soil samples were collected along UST piping, and two product recovery wells and three groundwater monitoring wells were installed in order to characterize the extent of diesel-range hydrocarbon contamination in soil and groundwater at the property. Diesel-range hydrocarbons, ethylbenzene, xylenes, 2-methylnaphthalene, acenaphthene, anthracene, fluorene, naphthalene, and phenanthrene concentrations were detected in soil (Appendix G-1). In groundwater, diesel- and heavy oil-range hydrocarbons, benzene, 2-methylnaphthalene, acenaphthene, anthracene, fluorene, naphthalene, phenanthrene, and pyrene were detected (Appendix G-2). It was not determined if petroleum hydrocarbons or other contaminants had migrated off the property (Golder Associates 1998a).

UST Removal (1998)

In July 1998, two 20,000-gallon diesel USTs were removed from the property. Contamination was encountered during the tank excavation and removal (Ecology 1998l). Product recovery well RW-1 was destroyed during the UST removal activities (Golder Associates 2000b).

Twelve soil samples and one groundwater sample were collected from the UST excavation and stockpiled soils. Samples were analyzed for diesel-range hydrocarbons. Diesel concentrations exceeded MTCA cleanup levels in soil and groundwater. Contaminated soil was left in place (Golder Associates 2000b).

Comprehensive Groundwater Investigation (1999)

Groundwater samples were collected from the three existing groundwater monitoring wells, one product recovery well and from 13 direct-push boring locations. Diesel- and heavy oil-range hydrocarbons and benzene concentrations exceeded MTCA cleanup levels (Table 12). The results of the investigation indicated that the groundwater contaminant plume extended west and southwest across the property, but did not go beyond the property boundaries. Contaminant concentrations in groundwater samples collected near the property boundaries did not exceed MTCA Method A cleanup levels (Golder Associates 2000b). Ecology requested Consolidated Freightways to confirm that the groundwater contaminant plume did not extend off-property (Ecology 2000d).

5.2.5 Potential for Sediment Recontamination

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

Stormwater

According to SPU maps, stormwater along the western edge of this property drains to Outfall 2019 (Figure 6). No information about activities in this area were available during preparation of this Data Gaps report, therefore the potential for sediment recontamination via the stormwater pathway is unknown.

Soil and Groundwater

Historical operations at this property have resulted in contamination of soil and groundwater beneath the facility. The lateral extent of groundwater contamination has not been defined by previous environmental investigations.

Table 11 provides a list of chemicals detected in soil samples at concentrations above MTCA Method A or B cleanup levels or soil-to-sediment screening levels. The following chemicals were detected in soil at concentrations above soil-to-sediment screening levels:

PAHs	2-methylnaphthalene, acenaphthene, anthracene, fluorene, naphthalene, phenanthrene

In addition, ethylbenzene, xylenes, diesel-range hydrocarbons, gasoline-range hydrocarbons, and heavy oil-range hydrocarbons exceeded MTCA soil cleanup levels.

The highest soil-to-sediment exceedance factors were observed for 2-methylnaphthalene (219).

Table 12 provides a list of chemicals detected in groundwater samples at concentrations above MTCA Method A or B cleanup levels or groundwater-to-sediment screening levels. The following chemicals were detected in groundwater at concentrations above groundwater-to-sediment screening levels:

Metals	Chromium, lead
PAHs	2-methylnaphthalene, acenaphthene, anthracene, fluorene, naphthalene, phenanthrene, pyrene

In addition, benzene, xylenes, diesel-range hydrocarbons, gasoline-range hydrocarbons, and heavy oil-range hydrocarbons exceeded MTCA groundwater cleanup levels.

The highest groundwater-to-sediment exceedance factors were observed for 2-methylnaphthalene (1,258), naphthalene (467), fluorene (414), lead (146), acenaphthene (140), and phenanthrene (109).

Metals and PAHs have been detected in soil and/or groundwater above soil-to-sediment and/or groundwater-to-sediment screening levels. Therefore, there is a risk of sediment recontamination via groundwater discharge associated with this property. However, the distance between this property and the sediments associated with the Slip 2 to Slip 3 source control area serves to mitigate this risk.

5.2.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at the former Consolidated Freightways property is listed below.

Stormwater

- Stormwater along the western edge of this property drains to outfall 2019. No information was available regarding activities along the western portion of the former Consolidated Freightways property or the potential that contaminants could be transported to the storm drain system.

Groundwater Discharge

- The most recent groundwater samples at this site were collected in 1999. Additional groundwater data are needed to evaluate the potential for sediment recontamination via this pathway.
- In 1999, Ecology directed Consolidated Freightways to determine if contaminated groundwater extended off the property. Additional information is needed to determine if the groundwater plume has been laterally characterized as requested by Ecology.

5.3 Seattle Truck Repair/Evergreen Tractor

Facility Summary: Seattle Truck Repair/Evergreen Tractor	
Tax Parcel No.	5367200025 5367200050 5367200160
Address	0025: 6401 Occidental Avenue S 0050: None 0160: 164 S Michigan Street
Property Owner	0025: Evergreen Properties LLC 0050: Evergreen Properties LLC 0160: Petersen and Hildahl LLC
Parcel Size	0025: 0.60 acre (26,132 sq ft) 0050: 0.19 acre (8,400 sq ft) 0160: 0.37 acre (16,200 sq ft)
Facility/Site ID	24471658 (Seattle Truck Repair, Inc.)
SIC Code(s)	Unknown
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	1984 (Seattle Truck Repair, Inc.)

Seattle Truck Repair and Evergreen Tractor occupy three parcels between the S Front Street on-ramp and the 1st Avenue S northbound off-ramp for the 1st Avenue S Bridge. A vacant parcel owned by WSDOT is immediately west of Seattle Truck Repair and Evergreen Tractor. East Marginal Way S is located to the east of the facility (Figure 2).

King County tax records indicate the following information regarding each parcel:

- 0025: The parcel is divided into three parts. A 6,733 sq. ft. service repair garage, built in 1966, is present on the property. The parcel and taxpayer names are Seattle Truck Repair.
- 0050: No buildings are present on the parcel. The parcel was formerly owned by Seattle Truck Repair and Petersen and Hildahl LLC.
- 0160: The property name is Cascade Pacific. A 3,300 sq. ft., service repair garage, built in 1937, is present on the property.

5.3.1 Current Operations

Seattle Truck Repair currently operates at 6401 Occidental Avenue S. **Evergreen Tractor** is a heavy construction equipment sales and rental company currently operating at 164 S Michigan Street. No additional information regarding current operations at Seattle Truck Repair or Evergreen Tractor was available in the files reviewed by SAIC.

5.3.2 Historical Operations

Two USTs were removed from the Seattle Truck Repair facility in October 1989. The 8,000-gallon USTs were used to store gasoline and diesel fuel. The USTs were in good condition, with no signs of leaks, when removed (Seattle Truck Repair 1990).

No other information on historical operations at this location was available.

5.3.3 Environmental Investigations and Cleanups

Records from the UST removal in October 1989 indicate that a site assessment was performed and the soil beneath the tanks was free from contamination (Seattle Truck Repair 1990). Since collecting soil samples for laboratory analysis from UST excavations did not become an enforceable requirement until 1991 (Wietfeld 2008), it is assumed that the assessment for contamination within these UST excavations was limited to visual and field screening (e.g., screening for VOCs using a photoionization detector [PID]) inspections of the soil.

5.3.4 Potential for Sediment Recontamination

Based on SPU maps, stormwater from this property appears to drain to the 1st Avenue S Bridge storm drain (outfall 2503). Very little information regarding current activities at these parcels was available. Therefore, the potential for sediment recontamination associated with Seattle Truck Repair/Evergreen Tractor is unknown.

5.3.5 Data Gaps

Stormwater

- Information on current activities is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).

5.4 WSDOT Parcel

Facility Summary: WSDOT Parcel	
Tax Parcel No.	5367200029
Address	None
Property Owner	Washington State Department of Transportation
Parcel Size	0.17 acre (7,374 sq ft)
Facility/Site ID	None
SIC Code(s)	None
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

WSDOT owns this vacant parcel in the Slip 2 to Slip 3 source control area. The parcel is bordered by the 1st Avenue S Bridge on-ramps and off-ramps to the west and north, by Seattle Truck Repair/Evergreen Tractor to the east and by S Michigan Street to the south (Figure 2). Very little information regarding WSDOT's use of the parcel was available for review; however, based on aerial photographs, it appears the parcel is, at times, used for truck and equipment storage. No data gaps have been identified for this parcel.

5.5 Bank and Office Interiors

Facility Summary: Bank and Office Interiors	
Tax Parcel No.	2024049067: BOI and other facilities 2024049075: BOI (9075b on Figure 4) 2024049076: Parking for BOI 2024049077: Easement to parcels 9075 and 9076
Address	9067: 5960 1st Avenue S 9075: 5990 1st Avenue S 9076: No address 9077: East Marginal Way S
Property Owner	9067, 9076, and 9077: Michigan Properties 9075: Dahava Financial LP
Parcel Size	9067: 7.24 acres (315,365 sq ft) 9075: 1.72 acres (74,763 sq ft) 9076: 0.56 acre (24,274 sq ft) 9077: 0.37 acre (15,914 sq ft)
Facility/Site ID	63217123 (BOI) 7307167 (Ener-G Foods, Inc.)
SIC Code(s)	1721: Paper and Painting Hanging (BOI)
EPA ID No.	WAD988522074 (Bank & Office Interiors) CRK000061000 (Ener-G Foods, Inc.)
NPDES Permit No.	None
UST/LUST ID No.	None

Bank and Office Interiors (BOI) operates on four parcels located upland of Glacier Northwest and Slip 2. The BOI property is bordered on the north by Beckwith & Kuffel, Inc. and Mobile Crane Company, on the east by Pacific Lamp & Supply and CleanScapes/CDL Recycle, on the south by the former Consolidated Freightways parcel, and on the west by East Marginal Way S (Figure 2).

King County tax records indicate the following information regarding each parcel:

- 9067: Multi-tenant warehouse built in 1967, 206,669 sq ft
- 9075: Warehouse built in 1976, 72,039 sq ft
- 9076: No buildings
- 9077: No buildings

5.5.1 Current Operations

BOI began operations in Seattle in 1934. In 1986, BKM Enterprises, which was founded in 1933, purchased the company. Workspace Development LLC, a local owner-operator team, purchased BOI in 2000. BOI is the largest office furnishings dealer in the Northwest. BOI provides moving assistance, refurbishes and refinishes office furniture (BOI 2009).

BOI occupies two large warehouses: one located on the east side of parcel 9067, and the second is on parcel 9075. Loading docks for the warehouse on parcel 9075 are accessed through a parking area located to the south on parcel 9076.

Acme Food Sales, Bake Mark, Ener-G Foods, Inc., and Select Fish also operate in the warehouse on parcel 9067. No additional information regarding these companies was available in the files reviewed by SAIC during preparation of this Data Gaps report.

Based on SPU maps, stormwater from this property is conveyed to outfall 2019, which is located at the head of Slip 2.

5.5.2 Regulatory History

BOI completed a notice of Dangerous Waste Activities application in April 1993. According to this submission, their wastes included acetone, paint, and methylene chloride (Ecology 1993b). No other documentation about waste handling at BOI was available.

Ecology records indicate that BOI failed to submit a Dangerous Waste Annual Report for calendar year 1995/1996 (Ecology 1998b). In April of 1998, an Ecology representative visited the facility to provide support for delinquent annual reporters. The Ecology representative was unable to speak with anyone directly, but delivered the necessary forms to be completed.

In July 2008, EPA sent a Request for Information 104(e) letter to Ener-G Foods, Inc., one of the tenants in the BOI warehouse.

5.5.3 Historical Operations

Although BOI began operations in 1934, files reviewed by SAIC did not indicate when BOI first occupied these parcels or identify any previous facilities that may have operated at this location.

5.5.4 Environmental Investigations and Cleanups

No environmental investigations or cleanups have been conducted at this property, based on the files reviewed during preparation of this Data Gaps report.

5.5.5 Potential for Sediment Recontamination

Based on SPU maps, stormwater from this property is conveyed to outfall 2019, which is located at the head of Slip 2. Therefore, contaminants present in stormwater (if any) could be conveyed to the sediments associated with the Slip 2 to Slip 3 source control area via stormwater.

5.5.6 Data Gaps

Stormwater

- Information on current activities at BOI is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).
- Information about industrial activities of other businesses operating at this property (such as Ener-G Foods) is needed to assess the potential for sediment recontamination.

5.6 Fittings, Inc.

Facility Summary: Fittings, Inc.	
Tax Parcel No.	5367204685
Address	5979 4th Avenue S
Property Owner	Richard M. Hackett
Parcel Size	0.49 acre (21,325 sq ft)
Facility/Site ID	None
SIC Code(s)	Unknown
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

Fittings, Inc. occupies a small parcel within the Slip 2 to Slip 3 source control area. It is bordered by the former Consolidated Freightways parcel on the west, the Fourth Avenue Investment parcel on the north, 4th Avenue South on the east, on South Front Street on the south (Figure 2).

King County tax records indicate that there is one building on the property, a 15,098 sq ft warehouse built in 1965.

This facility is not listed in Ecology's Facility/Site Database. Based on SPU maps, stormwater from this property is conveyed to outfall 2019, which is located at the head of Slip 2. Fittings, Inc. is included in this Data Gaps Report because stormwater runoff discharges to Slip 2 via outfall 2019. Therefore, contaminants present in stormwater (if any) could be conveyed to the sediments associated with the Slip 2 to Slip 3 source control area via stormwater.

SPU and Ecology inspected Fittings, Inc. on July 17, 2008. SPU directed Fittings, Inc. to improve or create spill response procedures, improve or purchase adequate spill response materials, properly educate employees, clean the facility storm drains, and properly dispose of waste (Schmoyer 2008a). The full inspection report was not ready for review at the time this Data Gaps report was prepared.

5.6.1 Data Gaps

Stormwater

- A follow-up inspection is needed to verify compliance with the corrective actions identified by SPU in July 2008.

5.7 Former Taco Time

Facility Summary: Former Taco Time	
Tax Parcel No.	5367200300
Address	6442 East Marginal Way S
Property Owner	Tacton, Inc.
Parcel Size	0.42 acre (18,300 sq ft)
Facility/Site ID	None
SIC Code(s)	None
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	None

The former Taco Time occupied a small parcel within the Slip 2 to Slip 3 source control area. It is bordered by East Marginal Way S on the west, the former Consolidated Freightways parcel on the north, 3rd Avenue S on the east, and S Michigan Street on the south (Figure 2). King County tax records indicate that there is one building on the property, a 2,369 sq ft restaurant built in 1964.

This facility is not listed in Ecology's Facility/Site Database. Based on SPU maps, stormwater from this property is conveyed to outfall 2503, which is located at the head of Slip 2. Therefore, contaminants present in stormwater (if any) could be conveyed to the sediments associated with the Slip 2 to Slip 3 source control area via stormwater.

No information on the current use of this parcel was available.

5.7.1 Data Gaps

Stormwater

- Information on current activities at this property is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).

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6.0 Potential for Sediment Recontamination from Properties within the Michigan Street CSO Basin

Industrial and commercial facilities within the Michigan Street CSO basin have been identified as follows:

- 206 facilities within the Michigan Street CSO basin have been assigned Ecology Facility/Site ID numbers (Table 6);
- 22 of these facilities are listed on Ecology's CSCSL;
- 40 of these facilities have active EPA ID numbers;
- 22 of the facilities hold NPDES permits;
- 14 of these facilities have KCIW discharge authorizations or permits, allowing them to discharge industrial wastes to the sanitary sewer;
- 77 of these facilities are listed on Ecology's Underground Storage Tank (UST)/Leaking Underground Storage Tank (LUST) lists.

These facilities are listed by category in Appendix C-2. Two of the facilities with KCIW discharge authorizations or permits are also listed on the CSCSL. As discussed in Section 3.0, facilities listed on the CSCSL and facilities discharging industrial wastes to the sanitary/combined sewer represent potential sources which may recontaminate sediment associated with the Slip 2 to Slip 3 source control area from the Michigan Street CSO.

Data gaps and source control actions have been identified previously for all but seven CSCSL facilities and one facility with a KCIW discharge permit within the Michigan Street CSO basin (data gaps for Duwamish Marine Center and former Consolidated Freightways were identified in Sections 4.0 and 5.0, respectively, of this report). These eight facilities are:

- Philips Services Corporation (PSC; CSCSL and KCIW discharge authorization),
- Emerald Tool, Inc. (CSCSL),
- Kelly Moore Paint Company (CSCSL),
- Pioneer Porcelain Enamel Company (CSCSL and KCIW discharge permit),
- Scougal Rubber Corporation (CSCSL),
- Former Sonn Property (CSCSL),
- Former Unocal Service Station 0907 (CSCSL), and
- VIOX Corporation (KCIW discharge permit).

Additionally, Winters Investment LP/Riveretz's Auto Care is within the Michigan Street CSO and on the same city block as the upland properties within the Slip 2 to Slip 3 source control area described in Section 5.0.

Information regarding current and historical operations, regulatory history, and environmental investigations at these facilities is included in this section of the Data Gaps report. Because these facilities are not adjacent to the LDW, surface runoff directly to the waterway, bank erosion, and spills directly to the waterway are not potential sediment recontamination pathways and therefore are not discussed further in this section. The location of these facilities is shown on Figure 11.

The Michigan Street CSO serves an area of approximately 1,900 acres. During periods of heavy rainfall, when the combined wastewater and stormwater flow exceeds the system capacity, the excess flow is discharged to the Michigan Street CSO structure. CSO discharges contain a mixture of wastewater and stormwater, with stormwater generally comprising the majority of the flow. Wastewater may carry concentrations of sediment COCs, particularly from those facilities that are permitted to discharge industrial wastes to the sanitary sewer (Pioneer Porcelain and VIOX Corporation). Chemical residues present in catch basins on these properties or on adjacent roadways may become dissolved and suspended in stormwater. Contaminants suspended in the combined sewer discharge (if any) may be conveyed to the Slip 2 to Slip 3 source control area during a CSO event.

Due to the distance between these facilities and the LDW, the potential for sediment recontamination via soil and groundwater is very low. Soil and/or groundwater contamination has been confirmed at PSC, Emerald Tool, Inc., Kelly Moore, Pioneer Porcelain Enamel Company, Scougal Rubber Corporation, the former Sonn Property, and former Unocal Service Station 0907. Contaminated groundwater may infiltrate to the combined sewer system, contributing to potential contaminant loads in the combined sewer discharge. Additional information regarding contamination at these facilities is included in the facility-specific sections below.

Chemical concentrations in the combined sewer discharge are likely to be heavily diluted prior to discharge to the LDW. Therefore, the potential for sediment recontamination via this pathway is likely to be lower than for direct discharges from adjacent facilities and the stormwater drainage basin. However, given the frequency of discharge from the Michigan Street CSO (approximately 11 times per year with an average discharge of 17.6 mgy; Table 4) the cumulative effects of CSO discharges could contribute to recontamination of sediments associated with the Slip 2 to Slip 3 source control area.

6.1 Data Gaps Common to All Michigan Street CSO Basin Properties

Information needed to assess the potential for sediment recontamination associated with current or historical operations at each of these facilities is listed below. This information can be obtained during a site inspection.

- Information regarding any historical and/or ongoing industrial activities is needed to verify that these facilities are in compliance with all applicable regulations and BMPs.
- Information on how and where any hazardous materials, chemicals, or hazardous wastes are stored or used at these facilities is needed to evaluate the potential for spills to commingle with wastewater and stormwater.
- Facility plans showing the locations of floor drains, catch basins, sewer connections and storm drains (if any) are needed to evaluate the potential for contaminants

suspended in wastewater and stormwater (if any) to be transported to the LDW via combined sewer discharges

- Information regarding any containment systems at these properties to evaluate the adequacy of the systems and determine the potential for spills to commingle with wastewater and stormwater.

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

Facility-specific data gaps are provided at the end of each facility section below.

6.2 Philips Services Corporation

Facility Summary: Philips Services Corporation	
Tax Parcel No.	1722800206 5084400124 5084400090
Address	0206 and 0124: 734 S Lucile Street 0090: 5000 Denver Avenue S
Property Owner	0206 and 0124: Philips Environmental, Inc. 0090: Burlington Environmental, Inc.
Parcel Size	0206: 1.62 acres (70,553 sq ft) 0124: 0.33 acre (14,480 sq ft) 0090: 0.20 acre (8,500 sq ft)
Facility/Site ID	47779679
SIC Code(s)	4953 Refuse Systems
EPA ID No.	WAD000812909
NPDES Permit No.	None
UST/LUST ID No.	7401

PSC owns three parcels adjacent to the Union Pacific Railroad in the Georgetown neighborhood of Seattle. Historically PSC stored, transferred and treated hazardous wastes at this facility. PSC was a permitted Resource Conservation and Recovery Act (RCRA) hazardous waste treatment, storage, or disposal facility (TSDF) under 40 CFR 260-299 until December 2002. In December 2002, PSC stopped accepting waste at this facility and began the above-ground closure process. On August 15, 2003, Ecology approved PSC's July 2003 certification of RCRA above-ground closure for the PSC Burlington Georgetown facility (PTC 2003).

According to King County tax records, there are no buildings on these properties. Between 1991 and 1993, the entire facility was capped with concrete and a stormwater management system was installed to ensure complete containment of any future release. A groundwater extraction and treatment system is operating at the property (Geomatrix 2006).

PSC does business in Washington as Burlington Environmental Inc. Alternative names for this facility include Chemical Processors LLC, Chempro, PSC, and Burlington Environmental.

6.2.1 Historical Operations

Historical operations at this property have been primarily industrial since about 1915. Historical records indicate that a wide variety of thinners, solvents, mineral spirits, painting products, cyanide wastes (including a variety of chlorinated solvents), and PCBs have been released at the facility. A portion of the property was used for staining wood shakes and shingles and storing stains, solvents, and wastes (Geomatrix 2006).

Former USTs at the facility were used by Chempro to store materials such as thinners, solvents, and mineral spirits prior to 1970. Burlington Environmental stored solvents, cyanide wastes, and other materials between 1970 and 1987. All USTs have been removed from the facility (Geomatrix 2006).

Oils containing PCBs were also used at the facility and transformers containing PCB oils were temporarily stored on the western portion of the facility from 1970 to 1989 (Geomatrix 2006).

6.2.2 Environmental Investigations and Cleanups

Soil and groundwater contamination is present beneath the facility. Benzene and solvent contamination in groundwater migrated to an aquifer which discharges to the LDW. Extensive environmental investigation activities and remediation activities of the facility are ongoing and are overseen by EPA and Ecology (USEPA 2002a). A barrier wall has been installed to prevent the spread of contamination through groundwater flow (Ecology 2007l). Groundwater behind the treatment wall is extracted, treated, and then discharged to the combined sewer system (Geomatrix 2006). Soil beneath the facility has been contaminated by 1,4-diozane, PCBs, VOCs, SVOCs, metals, and petroleum hydrocarbons. Groundwater has been contaminated with VOCs, SVOCs, PCBs, metals, cyanide, and TPH. Relevant pages from historical documents related to Philips Services Corporation are presented in Appendix C-3.

Groundwater discharge is a sediment recontamination pathway for the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area. A comprehensive summary of the environmental investigations and cleanup activities performed to date are included in the Data Gaps report for the RM 1.2-1.7 East source control area.

6.2.3 Potential for Sediment Recontamination

PSC is included in this data gaps report because contaminated groundwater associated with the PSC facility may become part of combined sewer discharge to the Michigan Street CSO in two ways:

- PSC extracts contaminated groundwater from the subsurface, which is treated and then discharged to the sanitary sewer under KCIW discharge authorization 769. A treatment system failure may result in the release of contaminated groundwater to the combined sewer system.
- Contaminated groundwater may infiltrate the combined sewer system.

Therefore there is a potential for sediment recontamination associated with combined sewer discharges from this property. However, because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from this property will impact sediments associated with the Slip 2 to Slip 3 source control area is very low.

6.2.4 Data Gaps

Additional environmental investigation and cleanup activities are currently being performed at PSC under the direction of EPA and Ecology. For this reason, no facility-specific data gaps regarding soil and groundwater contamination and the potential for contaminated groundwater to infiltrate the combined sewer system have been identified.

6.3 Emerald Tool, Inc.

Facility Summary: Emerald Tool, Inc.	
Tax Parcel No.	5367201445
Address	6332 6th Avenue S
Property Owner	Blaine S. Anderson
Parcel Size	0.37 acre (16,384 sq ft)
Facility/Site ID	2084
SIC Code(s)	3425 Saw Blades and Handsaws
EPA ID No.	WAD042476788
NPDES Permit No.	None
UST/LUST ID No.	None

Emerald Tool, Inc. manufactures, services, and distributes cutting tools for woodworking and related industries. The company has been in operation since 1982 (Emerald Tool 2009).

One 16,384 sq ft building, which is used for light industrial manufacturing and was built in 1957, is located on this property. According to Ecology's ISIS database, Emerald Tool, Inc. and And-all Electrochrome have the same facility ID number; it is therefore assumed that And-all Electrochrome is an alternative name for this facility.

6.3.1 Regulatory History

In 1982, And-All Electrochrome was issued an EPA ID number.

Ecology determined on June 27, 1991, that Emerald Tool was operating as a non-permitted storage facility (Ecology 1991k, 1991l). In a phone call to the company president it was determined that the company had been there for the past five years and had been generating hazardous waste for the last year and a half. Since generation began, 550 gallons of hazardous waste had collected on site with no waste removal. Based on this information, Ecology made the effective date of the Notification of Dangerous Waste Activities form retroactive to January 1, 1990 (Ecology 1991j, 1991l). It was noted that Emerald Tool had generated approximately 300 pounds of alkaline liquid and 1,200 pounds of a hazardous waste liquid containing cadmium, chromium, and silver (Ecology 1991j).

In 1996, the King County Health Department conducted a Site Hazard Assessment for this facility (the facility operator was listed as And-all Electrochrome). The hazard ranking was determined to be a 5, where 1 represents the highest relative risk and 5 the lowest (Ecology 1996d, SKCPH 1997).

No additional information regarding Emerald Tool, Inc. or And-all Electrochrome was available in the files reviewed by SAIC.

6.3.2 Environmental Investigations and Cleanups

A Site Hazard Assessment conducted in 1996 confirmed the presence of contamination in soils and catch basins on the property. Halogenated compounds (solvents), non-halogenated compounds (solvents without halogens), EPA priority pollutant metals and cyanide, corrosive wastes, and non-metallic inorganics concentrations exceeded MTCA cleanup levels (Ecology 1997f).

No additional information regarding environmental investigations or cleanups was available in the files reviewed by SAIC.

6.3.3 Potential for Sediment Recontamination

Contaminants present in catch basins may become suspended in wastewater or stormwater and transported to the Slip 2 to Slip 3 source control area during a CSO event via the Michigan Street CSO. Soil contamination beneath the property has been confirmed. No information regarding groundwater contamination (if any) was available in the files reviewed. Contaminants in the soil (if present) may leach into groundwater and infiltrate the combined sewer system.

Therefore there is a potential for sediment recontamination associated with combined sewer discharges from this property. However, because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from this property will impact sediments associated with the Slip 2 to Slip 3 source control area is very low.

6.3.4 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Emerald Tool, Inc. via the combined sewer discharge pathway is listed below.

- Information regarding concentrations of sediment COCs present in soil and catch basins at this facility is needed to evaluate the potential for sediment recontamination.

6.4 Kelly Moore Paint Company

Facility Summary: Kelly Moore Paint Company	
Tax Parcel No.	3868400270
Address	5410 Airport Way S
Property Owner	Kelly Moore Paint Company Inc.

Facility Summary: Kelly Moore Paint Company	
Parcel Size	2.97 acres (129,445 sq ft)
Facility/Site ID	2163
SIC Code(s)	28 Chemicals and Allied Products
EPA ID No.	WAD059315069
NPDES Permit No.	None
UST/LUST ID No.	1945

Kelly Moore Paint Company manufactures and sells paint for residential and industrial uses, industrial coatings, and specialty paints. According to King County tax assessor records, there are four buildings on the property:

- 13,100 sq ft retail store and factory built in 1908,
- 8,975 sq ft warehouse built in 1923,
- 19,775 sq ft warehouse built in 1945 (the warehouse is subdivided into four buildings according to tax records), and
- 33,580 sq ft paint storage warehouse built in 1998.

The facility is bordered on the north and northeast by railroad lines (SECOR 1997a). The facility was previously known as the Preservative Paint Company.

6.4.1 Current Operations

According to Ecology's ISIS database there are nine operational USTs at the facility. Five of these USTs have two compartments, three USTs have a single compartment, and one UST has three compartments. All compartments are used to store hazardous substances.

Stormwater runoff from this site enters the combined sewer system on Airport Way S.

According to a February 1997 Determination of No Significance, the facility consisted of 90 percent impervious surfaces due to the presence of buildings and parking areas (City of Seattle 1997). The large amount of impervious surfaces located at this facility could contribute to the collection of a large volume of stormwater in low-lying areas.

6.4.2 Regulatory History

According to a December 12, 1988, EPA letter, Preservative Paint was given a status of No Further Action under the CERCLIS program (SECOR 1997a).

Kelly Moore conducted required annual tank testing from 2006 to 2008. All tank lines passed inspection each year (Northwest Tank & Environmental Services 2006, 2007, Northwest Tank 2008). Kelly Moore prepared weekly progress reports regarding UST upgrades for Ecology from April 14, 2006 to June 26, 2006 (Kelly-Moore 2006a, 2006e, 2006f, 2006g, 2006h, 2006j). These reports outlined efforts to address items including: tank tightness test frequency; release detection test frequency; pressure line automatic leak detector tests; verification of corrosion resistant lines at product fill area; overfill alarm settings; and applicability, exemption, and referrals applying to owners and operators of USTs (Kelly-Moore 2006h).

Preservative Paint/Kelly Moore has a long history of environmental inspections. Violations have included improper labeling of hazardous or dangerous waste, tanks holding dangerous waste which did not meet the tank requirements, inadequate secondary containment, and open/unlabeled containers of waste. Preservative Paint/Kelly Moore has refuted various accusations of non-compliance and/or addressed problems to comply with regulations (Kelly-Moore 2001). The most recent facility inspection was conducted in November 2007 and the following violations were noted (Ecology 2007k):

- waste accumulation area standards were not met;
- personal training logs were not maintained;
- drum storage distances relative to each other were inadequate; and
- containers of dangerous waste were not marked with the accumulation date.

The violations were addressed by Kelly Moore in a January 2008 report (Kelly-Moore 2008).

6.4.3 Historical Operations

This location was initially considered two separate parcels, but was merged into one parcel at an unknown time (SECOR 1997a). The northern portion of the facility was first developed in approximately 1908 (SECOR 1997a) and used as a coal storage yard (SCS Engineers 1988). Adjacent properties were developed between the early 1900s and 1950s (SECOR 1997a). A brick and wood frame building was constructed in 1930 and underwent extensive remodeling in 1945 and again in 1980 (SCS Engineers 1988). Preservative Paint began operating at this location in 1950. The property included an office and storage building which served as a union hall from at least 1940 to 1987. Preservative Paint utilized the building as offices and a storage building from 1987, when they purchased the site, until July 1997 when it was reportedly demolished (SECOR 1997a). Property boundaries changed slightly with the realignment of the S Lucile Street overpass (SCS Engineers 1988).

The southern portion of the property was an auto garage, auto wrecking yard, and/or gasoline service station (SECOR 1997a). As a result, there is a possibility of soil contamination associated with fuel and oil spills, lead/acid batteries, lead paint residue, and cleaning solvents (SCS Engineers 1988). No historical records were found indicating that USTs were located on this portion of the site, however they may have been present and simply undocumented (SECOR 1997a).

Preservative Paint acquired the southern portion of the facility in approximately 1988 (Cairncross & Hempelmann 1997). Preservative Paint manufactured paints and paint-associated products, and was a retail outlet for these products. In 1985 they generated approximately 24 tons per year of spent non-halogenated solvents (Ecology 1985c), current waste information is not available in the files reviewed by SAIC.

A 1977 memo between METRO and Preservative Paint documents the agreement for Preservative Paint to discontinue discharging latex and solvent paint wastes to the combined sewer system. The company also planned to construct a barrier with a catch basin (no outlet) to retain any spillage from solvent tank cleaning (METRO 1977). According to EPA site inspections conducted prior to 1988, Preservative Paint appears to have disposed of hazardous wastes during the course of its operation in a responsible manner and was not considered an evident threat to the environment (SCS Engineers 1988).

Kelly Moore acquired the entire facility in 1994 (Cairncross & Hempelmann 1997). Facilities have historically included a warehouse utilized for the storage of finished paint products, a number of areas which contain mixing and formulating operations, a recovery and recirculation area for bad batches of paint, and an outside storage area which contained both raw materials and drums for waste disposal (USEPA 1986).

In February, 1997, Preservative Paint/Kelly Moore applied for a master use permit (Permit No: 9603162). The project included construction of a 43,657 sq ft warehouse building to store cans of paint and bags of dry paint tint. The warehouse included an 11,000 sq ft liquid storage room and 23,000 sq ft warehouse with associated secondary containment, a shipping and receiving room, lunch room, and restrooms. The project included demolition of a 9,700 sq ft office building, and 600 cubic yards of grading, 500 cubic yards of cut and 100 cubic yards of fill (City of Seattle 1997 and Harader Architects 1997).

A March 2003 inspection of the facility noted that Preservative Pain/Kelly Moore was in compliance with the stormwater pollutant source control requirements under the City code for discharge to the METRO sanitary sewer. The report also mentioned that roof drains on the very northernmost building discharge to the Diagonal Drainage Basin (SPU 2003) rather than to the Michigan CSO drainage basin as the rest of the facility does.

Ecology issued a notice of penalty to Kelly Moore on April 10, 2006. Violations included operating a UST without a valid license and/or permit, failure to provide required overfill and/or spill protection, and failure to comply with release detection requirements (Ecology 2006g).

6.4.4 Environmental Investigations and Cleanups

Several UST removals and environmental investigations have been performed at this facility. Figures and data tables from these investigations are presented in Appendix C-4.

UST Removals (1985, 1987, and 1989)

In April 1985, METRO responded to an anonymous complaint of a spill at this location. A facility visit by METRO employees did not find a spill, but rather construction activities, which included installation of six new USTs. The facility was in the process of replacing 10 USTs. An oily sheen was present on groundwater in the excavations; however, it did not have any other characteristics associated with an illegal discharge of waste oil. Cleanup measures were underway including the rerouting of water from the excavation through an oil/grit separator prior to discharge to the sanitary sewer line and the use of absorbent pads to collect oil and/or solvent (METRO 1985a). Groundwater from a UST pit was collected and laboratory analysis revealed violations of copper, lead, and zinc. METRO stated that groundwater levels at these concentrations suggest a serious contamination problem for this facility. METRO also refused to accept any groundwater discharge from Preservative Paint unless the water was continuously tested prior to discharge (METRO 1985b).

A Preservative Paint employee stated that a 1,000-gallon UST was removed from an unknown location in approximately 1987. Additional documentation indicated one 3,000-gallon UST was removed in 1989 (SECOR 1997a).

Leaking UST Investigation (1994)

In 1994, tightness tests of 10 USTs were performed and all USTs passed with the exception of one 4,000-gallon UST containing toluol. As a result of the failed tank test, Preservative Paint/Kelly Moore was placed on the LUST list. Subsurface soil samples collected at the facility indicated the presence of toluene at levels exceeding MTCA Method A Cleanup Levels. Subsequently, results from further investigation surrounding the leaking tank indicated that vapors rather than product were leaking. Appropriate repairs were made as indicated by the successful passing of a subsequent tightness test. In April 1997, Preservative Paint requested to be removed from the LUST list (SECOR 1997a).

UST Discovery and Removal (1997)

A letter from Ecology dated August 1997, identifies the discovery of a UST during foundation removal processes (Bardy 1997h). A Site Assessment for the Closure of a UST was completed by SECOR in August 1997. A mild hydrocarbon-like odor was detected within the UST excavation; however, there was no evidence of soil staining. Analytical results indicated that contamination did not exceed MTCA Method A cleanup levels for soil or groundwater (SECOR 1997a).

UST Removal (1997)

In November 1997, five 5,000-gallon USTs were removed. The USTs stored product which contained toluene, as well as other solvents, as part of the chemical composition for use in the manufacturing of paint. Six additional USTs were scheduled to be removed at an unknown date. Stockpile samples associated with the UST removal were classified as hazardous material rather than dangerous waste (SECOR 1997b).

Phase 1 Environmental Assessment (1997)

An August 1997 Phase 1 Environmental Assessment evaluated the previous ownership and uses of the facility to determine and analyze the risks associated with the existence of hazardous materials, petroleum products, toxic chemicals in the soil, groundwater, or air. At the time of the investigation, subsurface soil and groundwater evaluations were on-going at the property and it was believed that contaminated groundwater could migrate off the property.

Floor Waste Designation Study (2003)

In 2003, a Rainbow trout bioassay was conducted on samples of floor sweepings and floor wash water. Results indicated only one mortality. Therefore, water samples were not designated as dangerous or extremely hazardous wastes based on bioassay data (Kelly-Moore 2003).

6.4.5 Potential for Sediment Recontamination

Because this site is mostly paved, any spills or discharges of chemicals from the facility could be transported to the combined sewer during a storm event.

An extensive historical groundwater study conducted at Chempro, located approximately one tenth mile west of Preservative Paint, has shown that groundwater in the vicinity contains concentrations of heavy metals, as well as other compounds, which exceeded METRO discharge limits (USEPA 1986).

Groundwater from a UST pit revealed high levels of copper, lead, and zinc. METRO stated that groundwater concentrations at these levels suggest a serious contamination problem for this facility (METRO 1985b). Subsurface soil samples collected at the facility indicated the presence of toluene at levels exceeding MTCA Method A Cleanup Levels (SECOR 1997a).

Therefore there is a potential for sediment recontamination associated with combined sewer discharges from this property. However, because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from this property will impact sediments associated with the Slip 2 to Slip 3 source control area is very low.

6.4.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Kelly Moore is listed below.

- An evaluation of the current nature and extent of soil and groundwater contamination associated with this facility is needed to determine the potential for contaminated groundwater to infiltrate the combined sewer system.
- Information on the current status of cleanup efforts is needed to evaluate whether appropriate actions have been taken or if additional remedial activities are required.

6.5 Pioneer Porcelain Enamel Company

Facility Summary: Pioneer Porcelain Enamel Company	
Tax Parcel No.	3868400190
Address	5531 Airport Way S
Property Owner	David Combs and Tamara Heath
Parcel Size	0.30 acre (13,00 sq ft)
Facility/Site ID	2161
SIC Code(s)	28 Chemicals and Allied Products
EPA ID No.	WAD009277518
NPDES Permit No.	SO3-000658
UST/LUST ID No.	None

Pioneer Porcelain Enamel Co. is listed in King County tax records as Pioneer Industries, and is referred to as either Pioneer Porcelain Enamel Co. Inc or Pioneer Enamel Manufacturing in the files reviewed during preparation of this Data Gaps report. There is one building on the property: a 13,000 sq ft warehouse built in 1928.

6.5.1 Current Operations

The enamel products produced by this company have historically contained heavy metals including cadmium and lead. Materials used include porcelain pigments containing lead, borax, and soda ash (used in steep preparation and cleanup). As of 1990, there was a sludge discharge sump at this property, and various tanks were present (Ecology 1990d). The company now uses non-hazardous materials in their processes, but the long-term effect and contamination of the property from historical operations is not completely known (Ecology 1991a). An Ecology document indicates that historically this facility has had improper waste management practices (Ecology 1990f). An Environmental Tracking Report indicates spilled wastewater and visible signs of staining on the ground at the facility (Ecology 1989b).

6.5.2 Regulatory History

This facility has received complaints from METRO (currently, King County) in the past for exceeding permitted levels of cadmium in its discharge into the sanitary sewer (Ecology Undated; Ecology 1991a). The company currently holds KCIW discharge permit number 7723, allowing the facility to discharge industrial wastewater to the sanitary sewer.

Pioneer Porcelain Enamel filed a notice of intent for coverage under the Storm Water Baseline General Permit, listing METRO as the storm sewer system operator[15] (Ecology 1992d). This permit was granted in January 1993 (Ecology 1993a). It appears that in 1995, Pioneer Porcelain allowed their permit to lapse (Ecology 1995a) but filed a renewal and was issued coverage in January 1996 (Ecology 1996a). Based on a review of Ecology's Water Quality Permit Life Cycle System database, the facility is not currently covered under the Industrial Stormwater General permit. Since the facility currently discharges stormwater to the combined sewer system, it is likely that coverage under the Industrial Stormwater General permit is not required.

The facility is listed on Ecology's CSCSL, which indicates confirmed contamination of soil and suspected contamination of groundwater and surface water with priority pollutant metals. A Site Hazard Assessment was conducted in 1992 and a ranking of "2" was assigned, with 1 representing the highest risk and 5 the lowest (Ecology 1990e).

A health investigation conducted by the Washington Department of Health in 1993 concluded that this facility did not present a significant hazard to public health due to the lack of a human exposure pathway (Department of Health 1993). Ecology's ISIS database currently lists the site with a rank of "4".

[15] This appears to be an error on the permit application, because the stormwater drainage system is operated by the city of Seattle.

6.5.3 Historical Operations

Pioneer Porcelain Enamel Co. has been in operation since 1925 (Ecology 1991a). No other information on historical operations at this location was identified.

6.5.4 Environmental Investigations and Cleanups

Water sampled from an unknown source and location associated with a January 1987 sampling event indicates cadmium was detected at 6.2 mg/L (Ecology 1990d). Soil samples collected outside of the Pioneer factory during a 1990 sampling event revealed heavy metal contamination including cadmium (20 mg/kg), lead (346 mg/kg), and zinc (901 mg/kg). However, the lab report also indicates that lead, nickel, and zinc contamination is consistent with levels found in other areas proximate to railway lines and much higher concentrations could be expected where dumping has occurred (B & P Laboratories 1990a).

No other information on environmental investigations or cleanups at this site was identified in the files reviewed during preparation of this Data Gaps report.

6.5.5 Potential for Sediment Recontamination

The facility has received warnings about exceeding discharge limits of effluent into local sewers (Ecology 1991a). During a CSO event, contaminants from this site may be discharged to the LDW via the Michigan Street CSO.

The surface soil at this facility is known to be contaminated with heavy metals. No available documentation has provided location, depth, or extent of soil contamination and it is unknown whether contamination (if any) extends into groundwater. Contaminants in surface soil could be transported to the combined sewer via erosion and surface runoff, or could leach to groundwater which may then infiltrate into the sewer system and ultimately be discharged to the LDW during a CSO event.

Therefore there is a potential for sediment recontamination associated with combined sewer discharges from this property. However, because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from this property will impact sediments associated with the Slip 2 to Slip 3 source control area is very low.

6.5.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Pioneer Porcelain is listed below.

- Information about current operations at the site, as described in Section 6.1.
- Information regarding the nature and extent of soil contamination at the site is needed to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.

6.6 Scougal Rubber Corporation

Facility Summary: Scougal Rubber Corporation	
Tax Parcel No.	2024049044
Address	6239 Corson Avenue S
Property Owner	Corson Foley LLC
Parcel Size	1.33 acres (57,895 sq ft)
Facility/Site ID	93637295
SIC Code(s)	3061 Mechanical Rubber Goods
EPA ID No.	WAD067159442
NPDES Permit No.	None
UST/LUST ID No.	11320

Scougal Rubber Corporation began operations in 1916 and provides rubber products for industrial services, including automotive, aerospace, construction, manufacturing, and printing/pulp and paper industries (Scougal Rubber 2009). According to the company website, Scougal Rubber molds a variety of elastomers, including natural rubber, neoprene, EPDM, nitrile, urethane, viton, and styrene butadiene, as well as molding and bonding rubber to metal surfaces. Roughly 60 percent of the business involves making rubber bearing pads for bridges (Ecology 1998f).

According to King County tax records, there are four buildings on the property: a 16,392 sq ft light industrial manufacturing building built in 1961; a 2,400 sq ft storage warehouse built in 1971; a 7,518 sq ft industrial light manufacturing building built in 1942; and a 9,184 sq ft storage warehouse built in 1962.

6.6.1 Current Operations

Painting of adhesives onto steel and Teflon generates wastewater contaminated with MEK, 1,1,1-trichloroethane, and toluene; this is stored in 55-gallon drums and disposed of every four months (Ecology 1985a, 1998g). According to a compliance inspection on July 15, 1998, Scougal Rubber no longer mixes rubber on site, but instead buys a ready-made mix, which they press and cure. In addition, Scougal Rubber conducts sandblasting of steel (Ecology 1998f).

Based on SPU maps, it appears that all stormwater and wastewater from this facility is conveyed to the combined sewer.

6.6.2 Regulatory History

According to the ISIS database, six USTs have been removed from the facility, including five 300-gallon tanks removed in April 1990 (Ecology 1990b).

On July 16, 1998, Ecology conducted a dangerous waste compliance inspection of the Scougal Rubber facility and identified a number of violations at the facility. Ecology directed Scougal to complete corrective actions to remedy the violations (Ecology 1998g). Among the violations were the following: dangerous waste was not properly labeled, containers of waste rags and waste paint/adhesive were left open, and no annual reports and only a few copies of signed manifests were available. While some of these are violations were not applicable to a small quantity generator like Scougal, Ecology considered them to be in violation of BMPs (Ecology 1998h). Other recommendations made in the facility inspection report included providing better coverage or secondary containment for hazardous chemicals stored outside, sweeping outside detritus such as small pieces of rubber, and installing traps on storm drains to collect detritus.

In a letter to Ecology dated September 23, 1998, Scougal Rubber reported compliance with all the regulations noted in the dangerous waste compliance inspection checklist (Scougal Rubber 1998, Ecology 1998n).

Ecology performed an inspection of Scougal Rubber on March 27, 2008. During a previous inspection, Ecology had noted several deficiencies, including open containers, lack of container labeling, inadequate waste designation, and improper counting of solvent still wastes. The Ecology inspector confirmed that Scougal Rubber had completed, or was in the process of completing, all corrective actions (Jeffers 2008a). The full inspection report was not available for review at the time this Data Gaps report was prepared.

According to Ecology's ISIS database, Scougal is on the CSCSL due to confirmed contamination of soil and groundwater by solvents, petroleum products, and non-halogenated solvents.

6.6.3 Environmental Investigations and Cleanups

No information regarding environmental investigations or cleanups at the Scougal Rubber site was available in the files reviewed by SAIC.

6.6.4 Potential for Sediment Recontamination

Soil and groundwater contamination is confirmed at this facility; however, no information regarding the specific contaminants, concentrations, or extent of contamination was available for review. Therefore, the potential for sediment recontamination associated with this facility is unknown but is likely to be very low.

6.6.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Scougal Rubber is listed below.

- Information regarding the nature and extent of soil contamination at the site is needed to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.

6.7 Former Sonn Property

Facility Summary: Former Sonn Property	
Tax Parcel No.	5354200045 5544300230
Address	950 S Nebraska Street
Property Owner	Jules Maes Building LLC
Parcel Size	0045: 0.09 acre (3,850 sq ft) 0230: 0.05 acre (2,296 sq ft)
Facility/Site ID	745462
SIC Code(s)	3531 Construction Machinery and Equipment 7699 Repair Shops and Related Services, Not Elsewhere Classified 7538 General Automotive Repair Shops
EPA ID No.	WAD988490496
NPDES Permit No.	None
UST/LUST ID No.	None

6.7.1 Current Operations

Thomas Sonn sold these parcels to Jules Maes Building LLC in December 2006. Current operations at this property are unknown. Both parcels are vacant lots according to King County tax records.

6.7.2 Historical Operations

The former owner of this property, Thomas Sonn, leased the property to Sam Perkins for at least 20 years. Mr. Perkins collected old appliances, auto parts, construction equipment, furniture, empty barrels, and other miscellaneous items for resale. It was not determined if the current property owner continues to lease the property to Mr. Perkins.

No additional information regarding operations at the former Sonn Property was available in the files reviewed by SAIC.

6.7.3 Regulatory History

Ecology conducted an initial investigation of the former Sonn Property on August 12, 2004, in response to a complaint by the owner of the property across the street. The caller stated that a bootleg auto wrecking operation was being conducted on the property; he mentioned oil stains covering the property and street and expressed concern about potential groundwater contamination (Ecology 2005i). The inspection did not identify any visible soil contamination or staining. Site investigators recommended a No Further Action determination (Ecology 2004e).

The site is listed on Ecology’s CSCSL with suspected contamination of soil and surface water with metals, petroleum products, and PAHs, and suspected contamination of groundwater with metals and petroleum products. According to the ISIS database, an initial investigation was conducted on October 2005, and an early notice letter was sent to the property owner/operator in November 2005. No other information was available.

6.7.4 Environmental Investigations and Cleanups

An initial investigation was reportedly conducted at this site in October 2005, however no information on environmental investigations or cleanups was available in the files reviewed during preparation of this Data Gaps report.

6.7.5 Potential for Sediment Recontamination

The extent of soil and groundwater contamination (if any) is unknown. Therefore, the potential for sediment recontamination via this pathway is unknown, but is likely to be very low.

6.7.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at the former Sonn Property is listed below.

- Information regarding the nature and extent of soil contamination at the site is needed to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.

6.8 Former Unocal Service Station 0907

Facility Summary: Former Unocal Service Station 0907	
Tax Parcel No.	2734101265
Address	Facility: 1121 S Bailey Street Parcel: 6201 Ellis Avenue S
Property Owner	Niesz Georgetown Properties LLC
Parcel Size	0.48 acre (21,009 sq ft)
Facility/Site ID	2825755 (Unocal SS 0907 ENSR INTNTL)
SIC Code(s)	None
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	619093

The facility has operated under two addresses: 1121 South Bailey Street and 6201 Ellis Avenue S (Ecology 2005c). There is one masonry building on the property built in 1979, an 11,661 sq ft warehouse and retail store. The facility is currently occupied by Tacoma Screw Products.

6.8.1 Current Operations

Tacoma Screw Products, Inc., a distributor of fasteners, tools, maintenance and shop supplies for manufacturing, construction, transportation, aerospace, maritime, and agricultural agencies, currently operates at this property. No additional information regarding current operations at this property was available in the files reviewed by SAIC.

6.8.2 Regulatory History

This facility is currently enrolled in the VCP (VCP ID No. NW1374). It is listed on Ecology's CSCSL with confirmed contamination of groundwater with petroleum products and non-halogenated solvents, and suspected contamination of groundwater with halogenated organic compounds. Cleanup status is listed as "complete" as of April 2005.

6.8.3 Historical Operations

According to a Kroll Atlas dated 1920, it appears that the north end of the subject property was a wood and coal yard. Initially, the property appears to have been divided into four separate tax lots and combined into the current facility at an unknown time. A gasoline station was present as early as 1930 and located in the northeastern parcel. The pump islands were located in the northeast corner of the parcel, the service station located to the south, and USTs were likely located to the west. The southernmost parcels were initially residential. The fourth parcel remained undeveloped until the current masonry building was erected in 1978 (Environmental Associates 1997). Unocal owned the site from 1935 to 1960 (ENSR International 2005d). The service station operated until 1978 and included a station building with garage, two pump islands, and a kiosk. The garage contained two hydraulic lifts (MFA 2002).

6.8.4 Environmental Investigations and Cleanups

Several environmental investigations have been performed at this property. Maps and data tables related to these investigations are provided in Appendix C-5.

Phase 1 Environmental Audit (1997)

A Phase 1 Environmental Audit was conducted in June 1997. Potential environmental concerns in the report addressed (or identified) the potential for the presence of PCBs in light ballasts, asbestos in floor tile, and unassessed impacts (if any) from the former gasoline service station on the northern portion of the property. It appears that no samples were collected and this report reviewed and/or summarized existing documentation (Environmental Associates 1997).

Subsurface Investigation (2000)

A subsurface investigation was conducted in 2000 by Geo Engineers which concluded that soil between approximately 9.5 to 11.5 feet bgs was contaminated. BTEX and TPH concentrations exceeded MTCA Method A cleanup levels (MFA 2002).

Subsurface Investigation (2001)

In June 2001, Maul Foster Alongi (MFA) conducted a subsurface investigation to delineate the lateral extent of petroleum hydrocarbon-impacted soil and groundwater beneath the northern portion of the site. Soil analytical results showed that gasoline-range hydrocarbon concentrations exceeded MTCA Method A cleanup levels between approximately 2.7 to 7.5 feet bgs. MFA conducted additional subsurface investigations in March 2002 to evaluate the extent of upgradient and downgradient petroleum hydrocarbon-impacted groundwater beneath the property. Petroleum hydrocarbon constituents were not detected in offsite wells.

Soil Remediation (2002 to 2003)

In July 2002, MFA requested approval for the construction, installation, and operation of a soil vapor extraction (SVE) system at this facility. The request references several previous investigations (MFA 2002). This system operated from December 2002 through May 2003, and from July to September 2003. In May 2003, oxygen-releasing compounds were injected into the soil (MFA 2003b).

Additional Remedial Action and Investigation Activities (2003)

Additional Remedial Action and Investigation Activities are discussed in a December 2003 report. The objective of this event was to better evaluate the effectiveness of the SVE system and to delineate the downgradient (western) extent of the hydrocarbon-impacted groundwater at this facility. This event took place in November 2003. To further enhance the natural biodegradation of petroleum hydrocarbons concentrated beneath the northern part of the property, a second round of oxygen-releasing compounds was injected into the soil at depths ranging from 7 to 13 feet bgs. Five soil borings were completed in areas of previously detected hydrocarbon-impacted soil. Benzene, total xylenes, and gasoline-range hydrocarbon concentrations in soil exceeded MTCA Method A cleanup levels. A groundwater monitoring well installed; however, no groundwater samples were collected from that location during this event (MFA 2003b).

Groundwater Sampling (2003 to 2005, 2007 to Present)

Groundwater samples were collected in June 2003 from eight groundwater monitoring wells. Gasoline-range hydrocarbons (two wells), and kerosene (three wells) concentrations exceeded MTCA Method A cleanup levels in water samples collected from wells located along the northern edge of the property.

Groundwater monitoring wells were gauged and sampled on a quarterly basis from January 2004 to April 2005. The following chemicals exceeded MTCA Method A cleanup levels in groundwater: gasoline-range hydrocarbons, kerosene, total arsenic, and benzene (ENSR International 2004b, 2004c, 2006, Gettler-Ryan Inc. 2008).

The groundwater monitoring program at the facility was restarted as early as the second quarter of 2007 and appears to be ongoing (Gettler-Ryan Inc. 2007b, 2008).

Voluntary Cleanup Action Review (2005)

Ecology issued a response to a VCP cleanup action review dated March 21, 2005. Ecology stated that a UST discovered in a previous site investigation should be removed and appropriately disposed of if it remained on site. Ecology also stated that soil and groundwater sampling conducted in 2003 and 2004 demonstrated that contamination still exceeded MTCA Method A cleanup levels and suggested that groundwater sampling at this facility be continuously performed (Ecology 2005f).

Supplemental Soil Investigation (2005)

A Supplemental Soil Investigation Summary Report was completed by ENSR in December 2005. Nine soil borings were drilled on April 9, 2005, to a depth ranging from 2.5 to 11 feet bgs. BTEX and gasoline-range hydrocarbon concentrations in soil exceeded MTCA Method A cleanup levels. Petroleum-impacted soils exceeding MTCA Method A cleanup levels appeared to be limited to the northern side of the property. Analytical results indicated that contamination had not migrated off site (ENSR International 2005c).

Soil Vapor Extraction System Expansion (2005)

A December 31, 2005, Notice of Construction to the Department of Clean Air documents ENSR's application for SVE system expansion. Five additional vapor extraction wells would be installed and incorporated into the existing SVE system (ENSR International 2005d). Additional information regarding the proposed expansion was not available for review.

6.8.5 Potential for Sediment Recontamination

Current operations at Tacoma Screw are unknown. If the facility discharges industrial wastes to the sanitary sewer, these wastes may be discharged to the LDW during a CSO event via the Michigan Street CSO.

Historical activities at the facility have resulted in soil and groundwater contamination beneath the property. Soil and groundwater have been contaminated by gasoline range hydrocarbon constituents; these contaminated media may infiltrate the combined sewer system and be discharged to the LDW via the combined sewer discharge pathway.

Therefore there is a potential for sediment recontamination associated with combined sewer discharges from this property. However, because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from this property will impact sediments associated with the Slip 2 to Slip 3 source control area is very low.

6.8.6 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at the former Unocal via the combined sewer discharge pathway is listed below.

- Information on current operations at this property, as identified in Section 6.1.
- Information regarding the nature and extent of soil contamination at the site is needed to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.

6.9 VIOX Corporation

Facility Summary: VIOX Corporation	
Tax Parcel No.	5367203965 5367203975 5367203991
Address	3965 and 3975: 6701 6th Avenue S (alternative address is 601 S River Street) 3991: 551 S River Street
Property Owner	3965: Nuclear Pacific, Inc. 3975 and 3991: VIOX Properties, LLC
Parcel Size	3965: 0.37 acre (15,913 sq ft) 3975: 0.58 acre (25,090 sq ft) 3991: 0.76 acre (33,068 sq ft)
Facility/Site ID	3856995 (VIOX Corporation) 62732399 (VIOX Corporation, 6th & River) 2260 (VIOX McDowell Site)
SIC Code(s)	3999 Manufacturing Industries 3211 Flat Glass 3841 Surgical and Medical Instruments and Apparatus
EPA ID No.	WAD053814091 (VIOX Corporation) WAD988513164 (VIOX McDowell Site)
NPDES Permit No.	None
UST/LUST ID No.	852 (VIOX Corporation 6th & River)

VIOX specializes in the production and sale of electronic and specialty glass materials. There is one building on parcel 3975: a 21,948 sq ft warehouse built in 1958. On parcel 3991, there are two buildings, a 4,939 sq ft office built in 1967 and a 16,524 sq ft warehouse built in 2001. Parcel 3965 is used for parking; there are no buildings on the parcel.

Alternative names for the VIOX facilities include Nuclear Pacific, McDowell Property, and Penberthy Instrument Company.

6.9.1 Current Operations

The VIOX Corporation holds KCIW discharge permit number 7507, which will expire in February 2011.

VIOX exported lead-bearing wastes to a recovery facility in Canada from 1991 to 1998 (VIOX 1993 and 1999). Beginning in 1994, cadmium-bearing wastes were also sent to the recovery facility (VIOX 1994).

Following a dangerous waste compliance inspection in November 2000, VIOX coated all floor surfaces, trench drains, and sumps with an epoxy floor coating material in order to reduce release of potential environmental contaminants. VIOX also cleaned and coated its WWTP with epoxy. (VIOX 2003). The coating process took two years to complete.

VIOX operates four glass furnaces. VIOX has implemented the use of a water recycling unit to cool the main furnace and plans to install similar units on the three other furnaces. This has reduced the amount of wastewater produced by its operations. VIOX has also decreased the heavy metal content, particularly cadmium, in its products (Ecology 2007a).

6.9.2 Regulatory History

Two USTs on the VIOX Corporation 6th & River property (Facility/Site ID 62732399) were closed-in-place in August 1996. One UST contained leaded gasoline; the contents of the second UST were not listed in Ecology's ISIS database.

Ecology performed a dangerous waste compliance inspection at the 6th & River facility in January 1997. No violations were noted. The report indicates that wastes at the facility included lead-bearing sludge, quenching water, and glass debris (Ecology 1997a).

A dangerous waste compliance inspection was performed at the 6th & River facility on November 14, 2000. Ecology inspectors noted that most of the flooring was not sealed and "considerable" orange lead was present around the furnaces. Flooring around the furnaces was cracked. VIOX washed the floors to clean up the contamination. Slot drains and trenches used to convey floor wash water were not lined. Ecology determined that these conditions and practices were cause for environmental concern. Ecology directed VIOX to prepare plans to meet the performance standards of its permit-by-rule WWTP [WAC 173-303-283] (Ecology 2000f). Additionally, Ecology directed VIOX to provide secondary containment to an outdoor wastewater holding tank (Ecology 2000h).

In August 2001, Ecology granted an NFA under the VCP to the VIOX Corporation (Facility/Site ID 3856995) following completion of actions to remediate petroleum contaminated soils (ISIS; Ecology 2001g).

In May 2002, Ecology granted an NFA under the VCP to the VIOX McDowell Site (Facility Site ID 2260) following completion of actions to remediate soil contaminated with metals (ISIS; Ecology 2002f).

In November 2003, Ecology determined that VIOX had achieved compliance with the requirements of the November 14, 2000 dangerous waste compliance inspection at the 6th & River facility (Ecology 2003r).

On March 8, 2007, Ecology performed another Dangerous Waste inspection of the 6th & River facility. Ecology inspectors noted that a white powder was tracked through an alley between the production building and storage building; this white powder could potentially reach drains located in the alley. The plant environmental manager indicated that although the tracking should not occur, the powder was not a hazardous material (Ecology 2007a).Corrective actions were required to properly label dangerous and universal waste containers, update the dangerous waste employee training plan and create an adequate spill prevention control and countermeasures plan, and post emergency information. VIOX completed all corrective actions by March 28, 2007 (VIOX 2007).

6.9.3 Environmental Investigations and Cleanups

Several environmental investigations have been performed at the VIOX/McDowell property between 1994 and 2001. Relevant pages from these documents are presented in Appendix C-6.

Environmental Assessment/Site Investigation (1989-1990)

From April to June 1989, 17 surface soil samples from the upper two inches of the VIOX/McDowell property and three background soil samples were collected and analyzed for lead. Total lead concentrations exceeded the MTCA Method A soil cleanup level in the majority of the surface soil samples (Hart Crowser 2001a).

In October 1989, six subsurface soil samples were collected and one storm drain solids sample was collected and analyzed for lead. Soil samples collected between 2 and 3 feet bgs contained high lead concentrations and contained lead leachate concentrations of 0.8 to 14 mg/L. Three groundwater monitoring wells were installed. Groundwater samples were analyzed for dissolved lead, which was not detected in any of the samples (Hart Crowser 2001a).

In January 1990, additional soil samples were collected between 4 and 5.5 feet bgs from native soil. The soil samples were again analyzed for lead. Concentrations of lead in these samples were below MTCA Method A cleanup levels (Hart Crowser 2001a).

Soil Investigation (1994)

Three test pits were excavated in the areas where elevated lead concentrations were detected during the 1989 to 1990 environmental investigations. Samples were collected from the fill and underlying sand. Lead concentrations exceeding MTCA Method A cleanup levels were present in the fill material, but were below the cleanup level in the sand (Hart Crowser 2001a).

Groundwater Sampling (1997)

Two groundwater monitoring wells were sampled and analyzed for total lead. Total lead was present in groundwater up to 20 ug/L. Sampling sheets indicate the sample was turbid; which may account for the presence of lead in the groundwater samples (Hart Crowser 2001a).

North Wall Investigation (1999)

In April 1999, a leak was detected from a plastic drain line running outside the northern wall of the production building (6^{th} and River facility). Surface soil immediately surrounding the breach was coated with a reddish white material. Soil surrounding the broken pipe was removed. Confirmation soil sampling indicated lead concentrations between 1,800 and 3,100 mg/kg.

Additional soil samples were collected in the area in July 1999. Six hand auger borings were completed and soil samples were analyzed for lead. Lead concentrations exceeding MTCA Method A cleanup levels were present in the first foot of surface soil (Hart Crowser 1999).

VIOX removed the contaminated soil (VIOX 2001).

Soil Investigation (2000)

Prior to construction of a new warehouse on the VIOX/McDowell property, 16 soil samples were collected and analyzed for lead. Lead concentrations in five samples exceeded the MTCA Method A cleanup level for lead. Nine soil samples were collected from three test pits. Lead concentrations in the test pit soil samples did not exceed MTCA Method A cleanup levels (Hart Crowser 2001a).

Soil Sampling and Analysis (2000-2001)

During construction activities at the VIOX/McDowell site, approximately 2,600 tons of lead impacted soil was removed. The majority of the property was paved or covered with building foundations following the soil removal. Unpaved areas were covered with at least two feet of clean soil and landscaping. Soil samples collected during the construction activities indicated that lead concentrations in the surface soil was below MTCA Method A criteria except in the northeastern portion of the property (Hart Crowser 2001a).

Post-Construction Groundwater Monitoring (2001)

Two replacement groundwater monitoring wells and two rounds of groundwater monitoring were performed at the VIOX/McDowell property following construction of the new warehouse in 2001. Groundwater samples were analyzed for dissolved arsenic and lead. Lead was not detected. Arsenic concentrations ranged from 1.1 to 8.9 ug/L (Hart Crowser 2001a, 2001b)

6.9.4 Potential for Sediment Recontamination

Ecology has granted “No Further Action” status to VIOX with regard to environmental contamination. Additionally, it appears that all soil contamination occurred within the vadose zone; therefore, the potential for transport of contaminants to the LDW during CSO events is believed to be very low.

A white powder was observed in the alley between the production and storage facilities. Drains are present in the alley. The white powder may enter the drain, especially during periods of rain. The VIOX’s environmental manager has stated that the white powder is not hazardous. The facility has a King County discharge permit. While the chemical content of the white powder is unknown, it is not likely to represent a potential source of contamination to the sediments associated with the Slip 2 to Slip 3 source control area.

6.9.5 Data Gaps

No facility-specific data gaps were identified for this property.

6.10 Winters Investment LP/Riveretz's Auto Care/Former Georgetown Gasco/Tesoro

Facility Summary: Winters Investment LP/Riveretz's Auto Care	
Tax Parcel No.	5367200445 5367200446
Address	0445: 6169 4th Avenue S 0446: 6185 4th Avenue S
Property Owner	Winters Investment LP
Parcel Size	0445: 2.22 acres (96,900 sq ft) 0446: 0.38 acre (16,341 sq ft)
Facility/Site ID	55698119 (Riveretz's Auto Care)
SIC Code(s)	None
EPA ID No.	None
NPDES Permit No.	None
UST/LUST ID No.	100530 (Riveretz's Auto Care)

The Winters Investment LP property is composed of two parcels, 0445 and 0446. According to King County tax assessor records there are four buildings on parcel 0045:

- A 9, 500 sq ft discount store built in 1937,
- A 18,900 sq ft warehouse built in 1941,
- A 1,680 sq ft warehouse built in 1945, and
- A 4,025 sq ft McDonald's restaurant built in 1980.

There is a 1,612 sq ft service station on parcel 0446. The station was built in 1960.

6.10.1 Current Operations

Businesses operating on the property include McDonalds, Nate's Paintball, International Prospect and Supply, Stalk Market Seattle, Farmers Insurance, a bead shop, and Riveretz's Auto Care, which is also known as Georgetown Gasco/Tesoro. No additional information regarding Winters Investment LP was available in the files reviewed by SAIC.

Two 6,000-gallon and one 8,000-gallon USTs passed inspections performed by Ecology in September 2006 (Ecology 2006q). The facility name at time of inspection was Georgetown Gasco.

6.10.2 Regulatory History

In 2003, Georgetown Gasco was cited by Ecology for failure to implement leak detection checks for three USTs and failure to perform periodic corrosion checks at the property (Ecology 2003d).

6.10.3 Environmental Investigations and Cleanups

Ecology directed Darleen Riveretz of Georgetown Gasco/Riveretz's Auto Care to cap and secure a waste oil UST that was no longer in use and to complete UST removal activities and site assessment by October 2007 (Ecology 2006r). In April 2007, Georgetown Gasco's contractor sent Ecology a 30-day notice of UST removal for one 500-gallon waste oil UST and one 500-gallon heating oil UST (Ecology 2007d). The USTs were removed in May 2007 and soil contamination was discovered during the UST removal activities (Ecology 2007g, 2007h). A second excavation was performed to remove contaminated soils. Gasoline-range hydrocarbons and benzene concentrations in one sample and diesel- and heavy oil-range hydrocarbons in another sample exceeded MTCA Method A cleanup levels. Groundwater was not encountered in the excavation (Earth Consulting Incorporated 2007) (Appendix C-7).

6.10.4 Potential for Sediment Recontamination

Historical activities at the facility have resulted in soil and groundwater contamination beneath the property. Soil and groundwater have been contaminated by gasoline range hydrocarbon constituents; these contaminated media may infiltrate the combined sewer system and be discharged to the LDW via the combined sewer discharge pathway.

Therefore there is a potential for sediment recontamination associated with combined sewer discharges from this property. However, because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from this property will impact sediments associated with the Slip 2 to Slip 3 source control area is very low.

6.10.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at the Winters Investment LP/Riveretz's Auto Care property is listed below.

- Information regarding the nature and extent of soil contamination at the site is needed to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system..

7.0 Summary of Data Gaps

Data gaps have been identified for outfalls, adjacent and upland properties, and facilities within the Michigan Street CSO basin in Sections 3 through 6. These data gaps are summarized by facility and pathway on Table 13, listed by potential sediment recontamination pathway.

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FIGURES

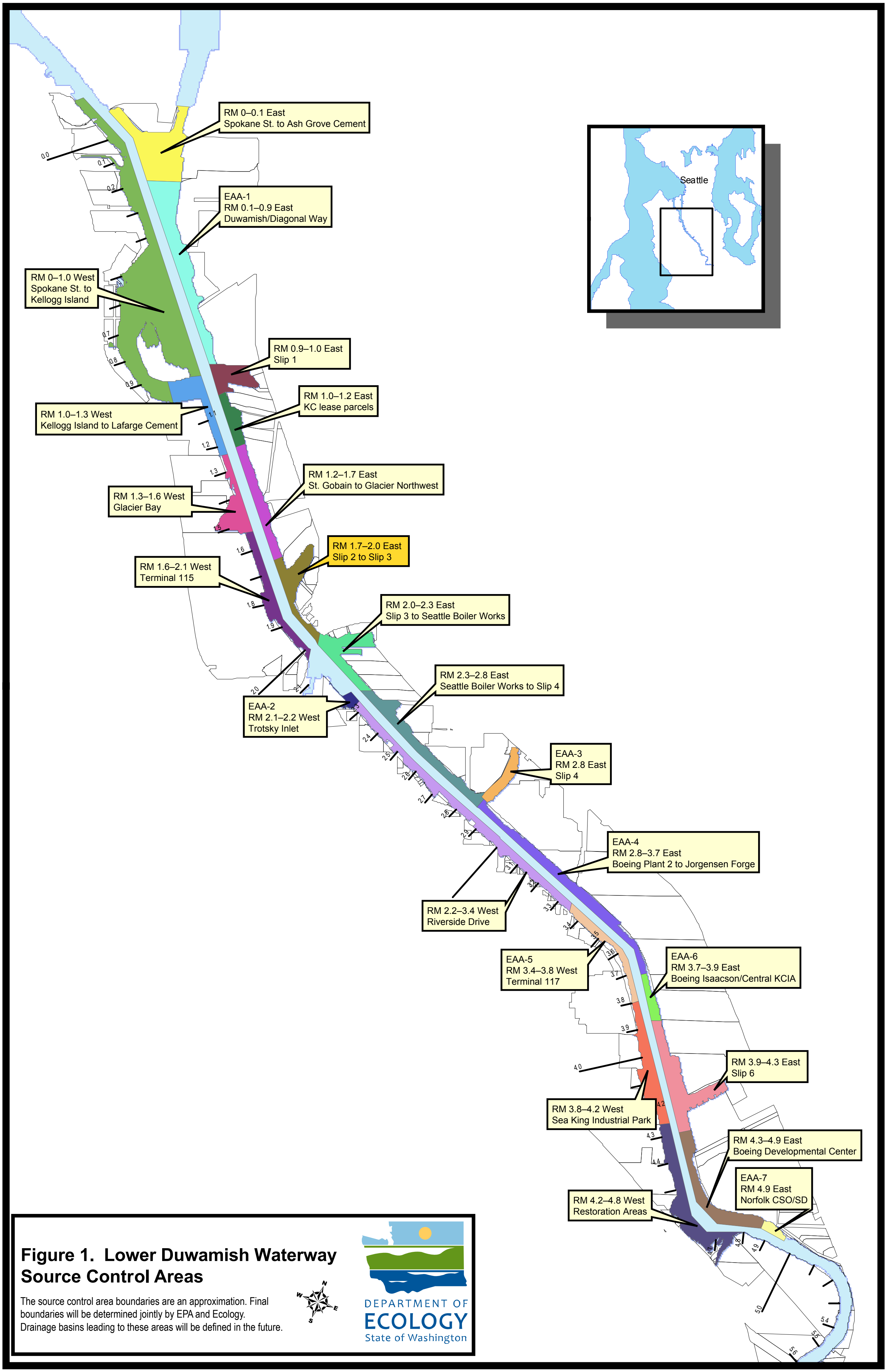

Figure 1. Lower Duwamish Waterway Source Control Areas

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

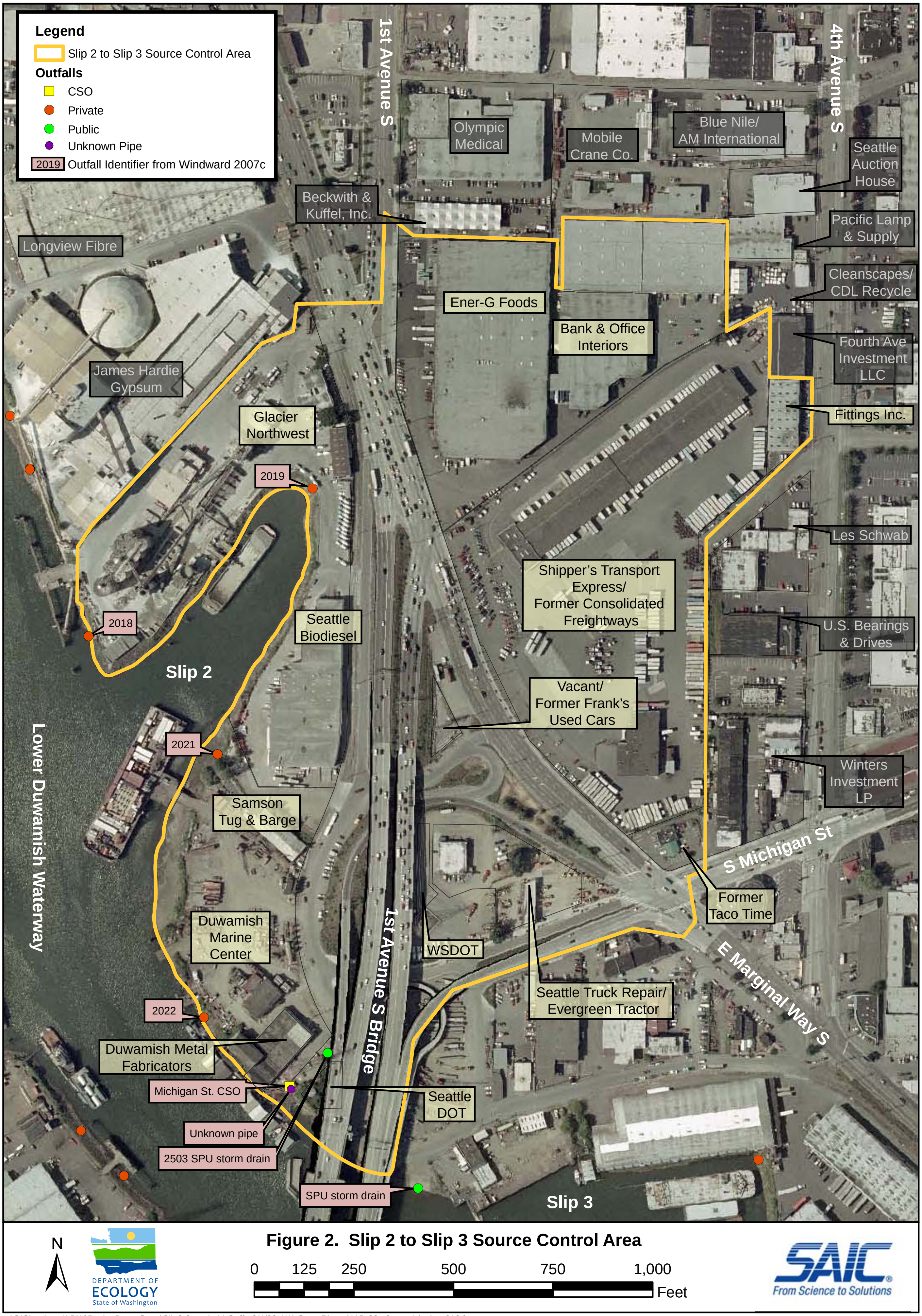

Figure 2. Slip 2 to Slip 3 Source Control Area

...\GIS\projects\LDW\Basin_Data_Gaps\Slip2-3.mxd M.Goff 8/4/08 WA State Plane NAD 83 - feet 1 inch ~ 210 feet

N

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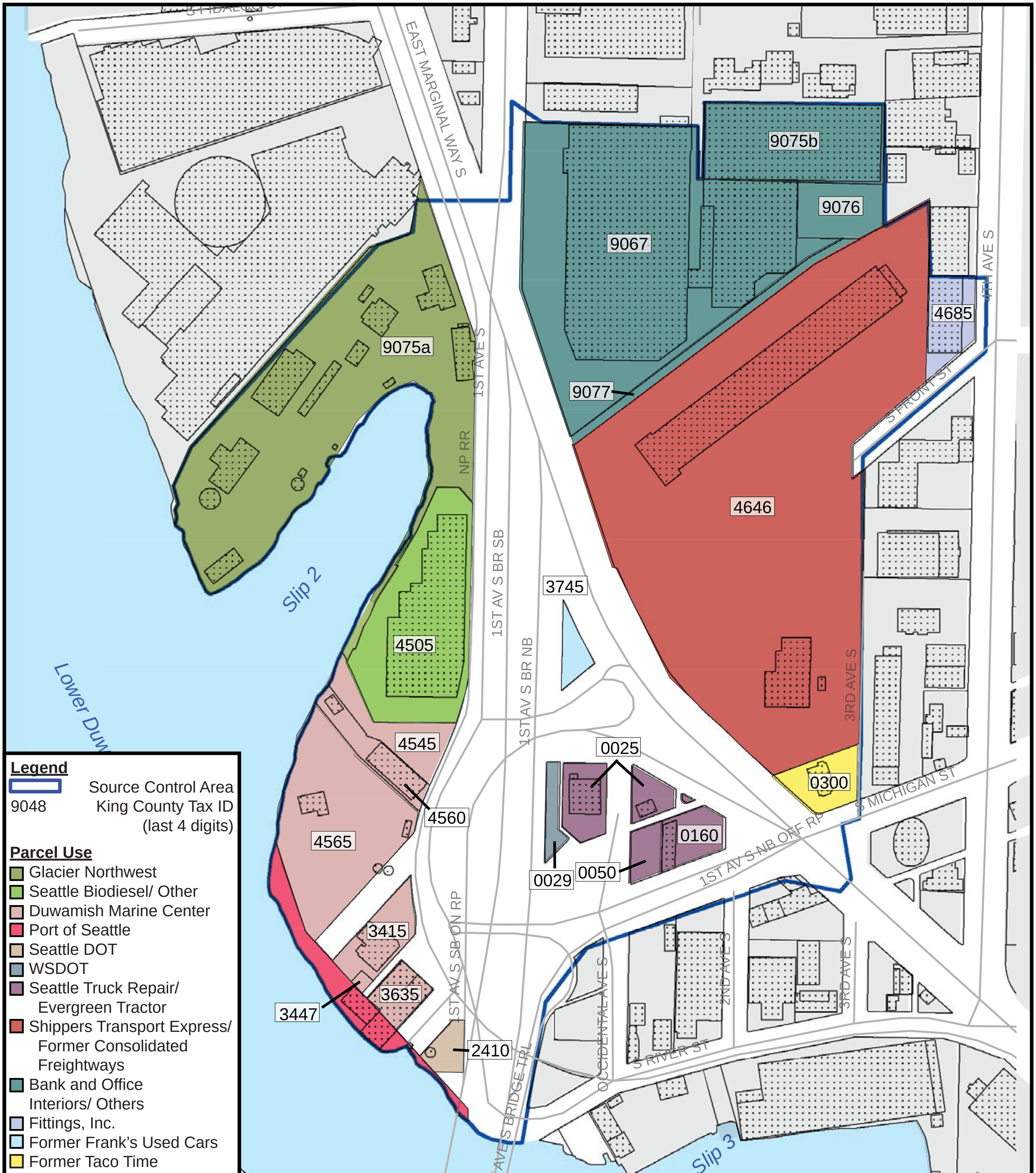
State of Washington

Figure 3. Sediment and Seep Sample Locations Associated with the Slip 2 to Slip 3 Source Control Area

0 50 100 200 300 400 Feet

Scale: 1:1,600
WA State Plane North
NAD83

SAIC
From Science to Solutions



Note: Parcel ownership is listed in Table 7.

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Not to Scale

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Figure 4. Tax Parcels in the Slip 2 to Slip 3 Source Control Area

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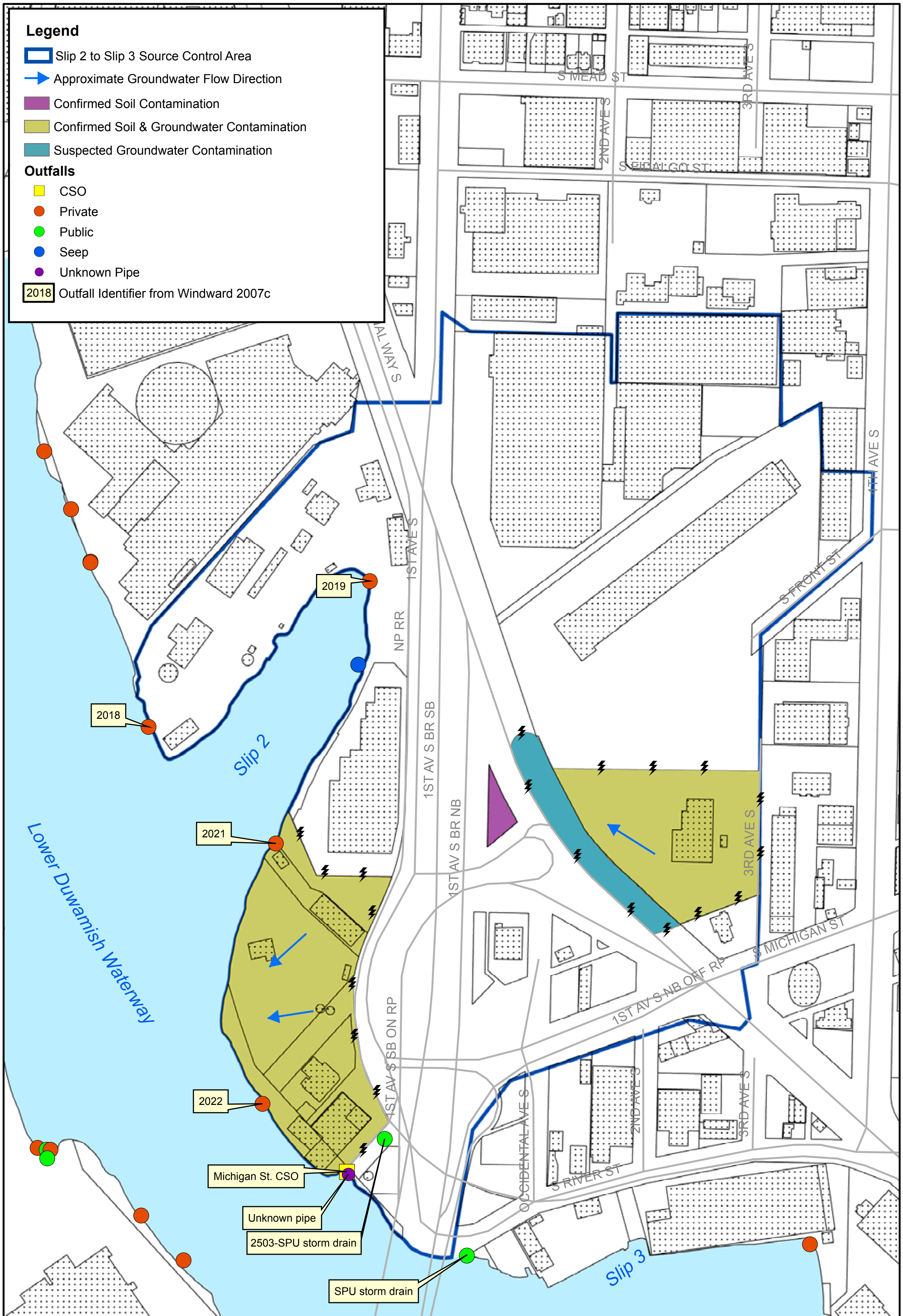

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Figure 5. Confirmed or Suspected Areas of Soil and Groundwater Contamination

0 125 250 500 750 1,000 Feet

SAIC From Science to Solutions

...\GIS\projects\LDW\Basin_Data_Gaps\Slip2-3soil&GWcontamination.mxd R.Otteman 12/31/08 WA State Plane NAD 83 - feet

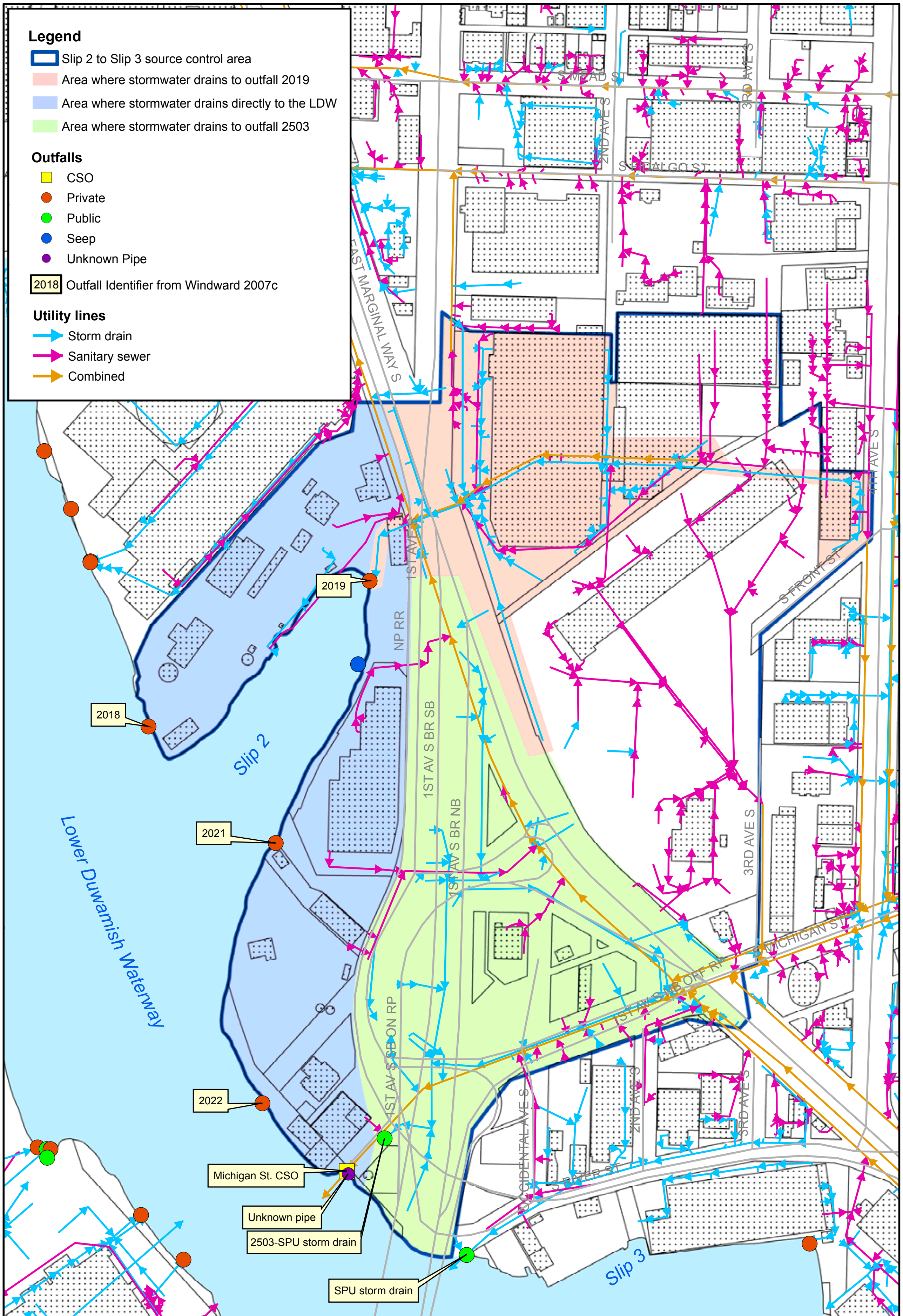

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Figure 6. Utility Lines in the Slip 2 to Slip 3 Source Control Area

0 125 250 500 750 1,000 Feet

SAIC From Science to Solutions

...\GIS\projects\LDW\Basin_Data_Gaps\Slip2-3drainage.mxd R.Otteman 1/13/09 WA State Plane NAD 83 - feet

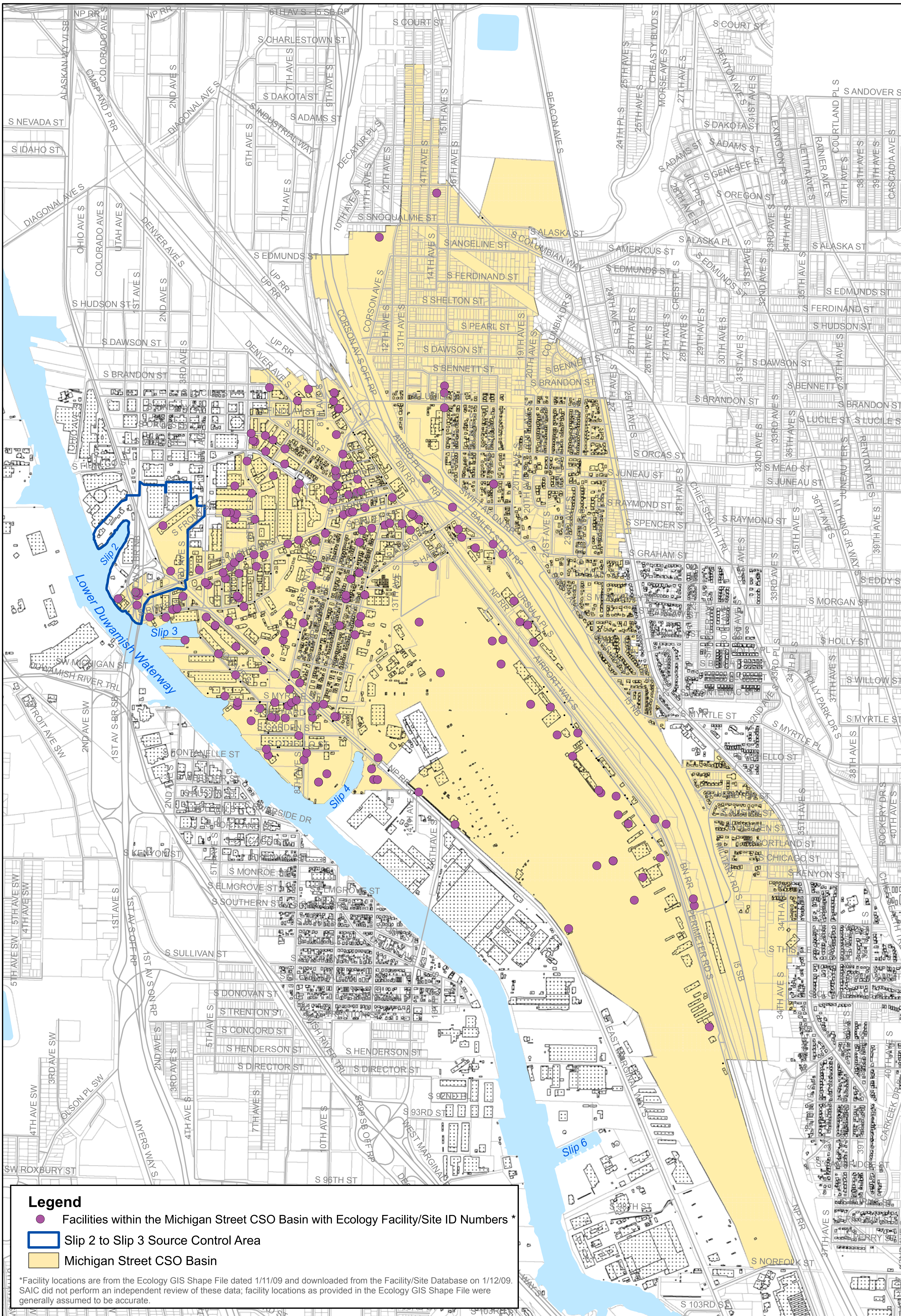

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Figure 7. Michigan Street CSO Basin

0 1,000 2,000 4,000 Feet

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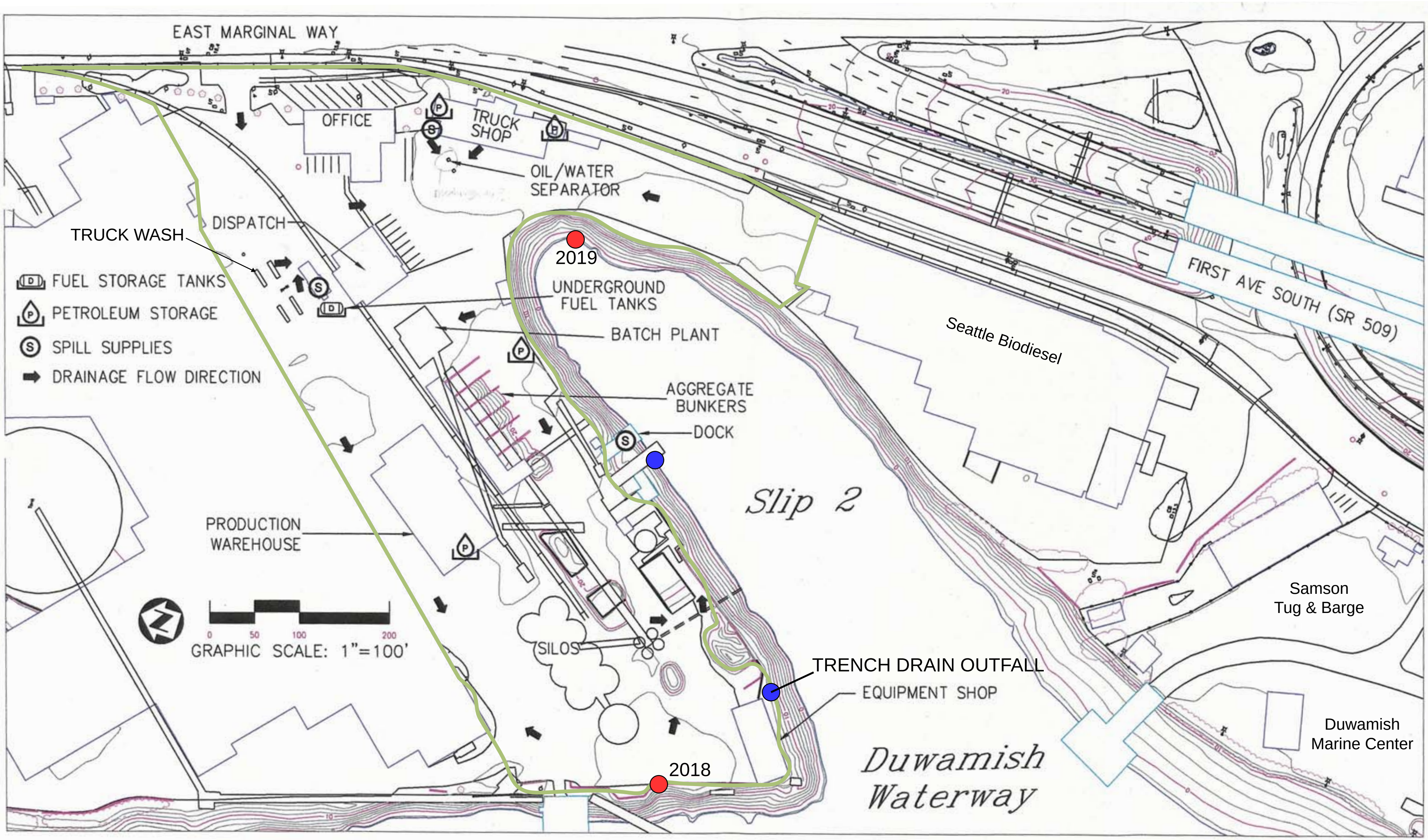

Source: SPU 2006b

Glacier Northwest Facility Boundary (approximate)

Private Outfall

Possible Outfall Location (approximate)

Figure 8. Glacier Northwest Facility Plot Plan

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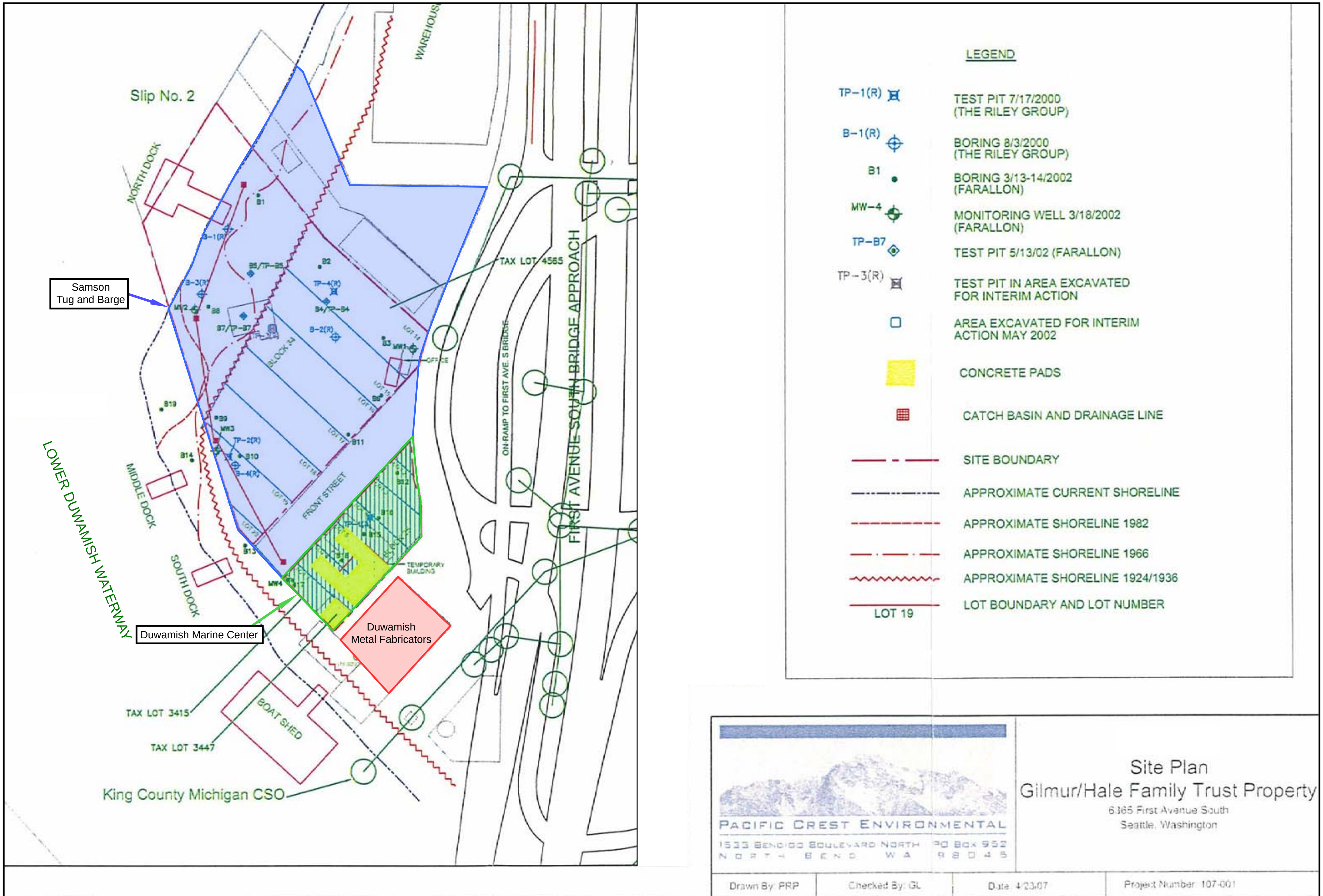

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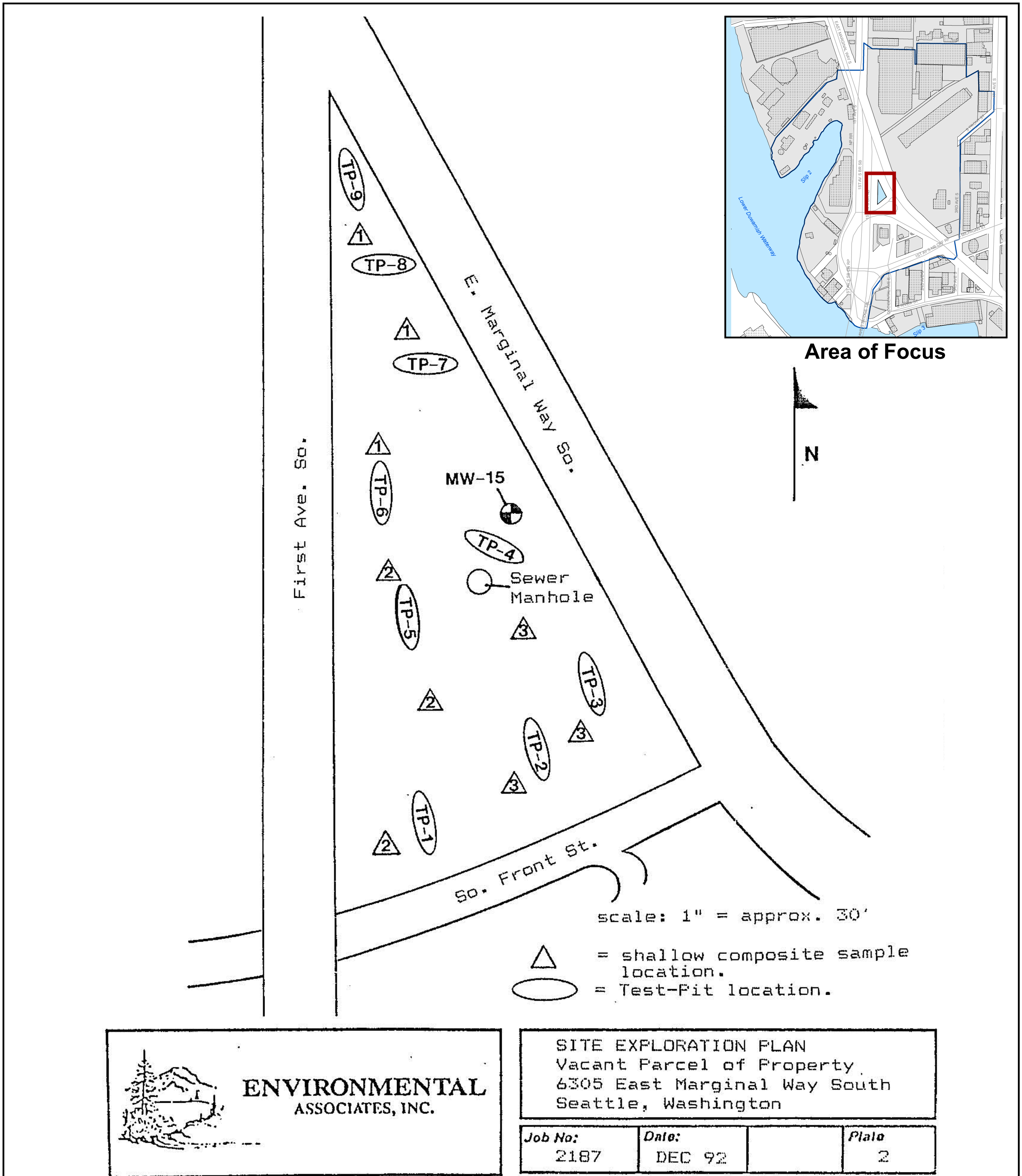
Figure 9. Duwamish Marine Center Facility Plan



Source: Environmental Associates Preliminary Environmental Study. January 1993.

Figure 10. Former Frank's Used Cars Property Exploration Plan

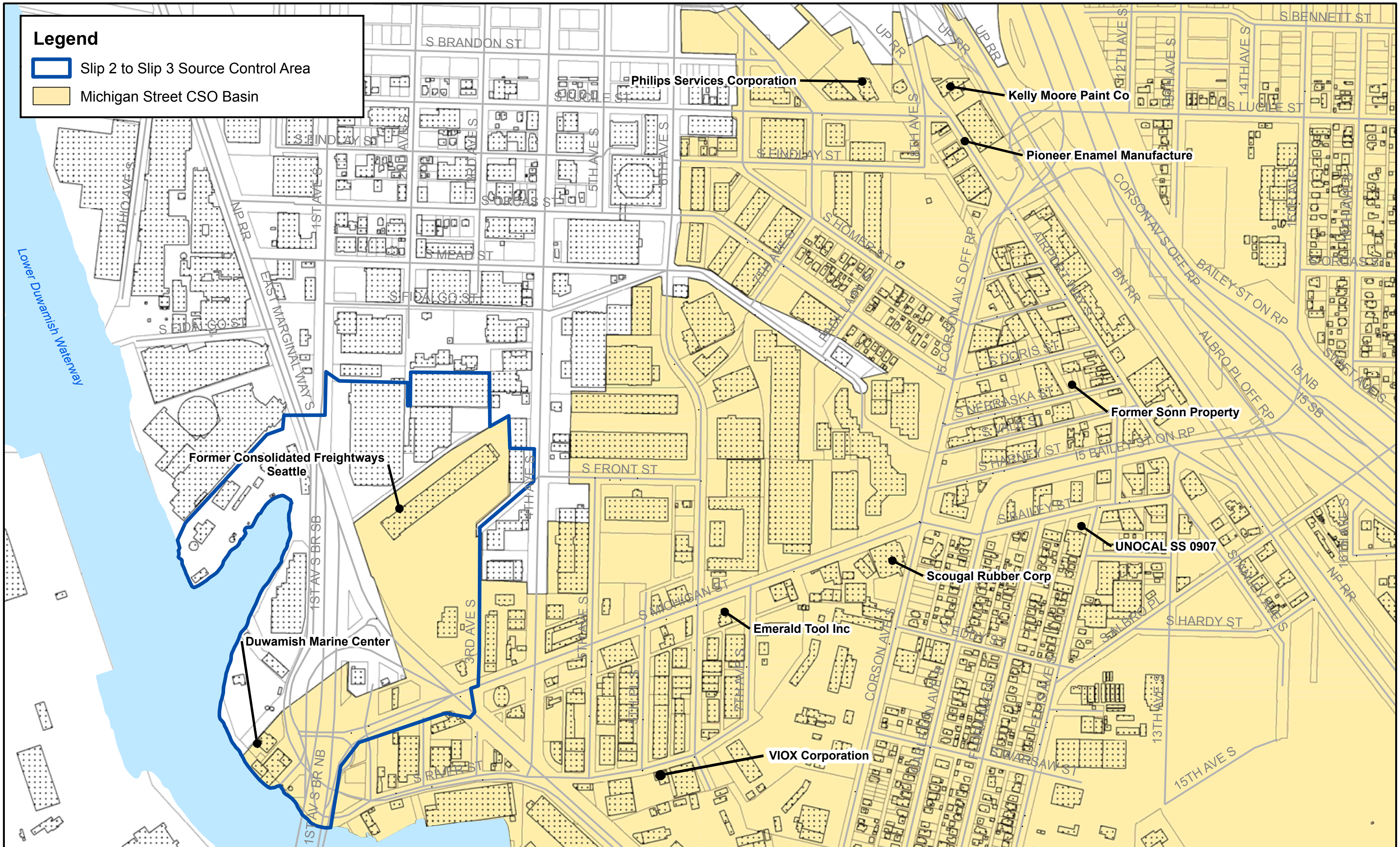


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Figure 11. Facilities of Concern Within the Michigan Street CSO Basin

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

SAIC From Science to Solutions

X:\LDW_drainage_GIS\projects\LDW\Basin_Data_Gaps\Michigan CSO CSCSL sites.mxd R.Otteman 1/13/09 WA State Plane NAD 83 - feet

TABLES

Table 1
Sediment Samples Collected Near the Slip 2 to Slip 3 Source Control Area

Location Name	Date Collected	Collection Depth (feet)	Event Name	Source
c-1	6/23/1995	0 to 4	Lone Star Northwest and Hardie Gypsum	Hartman 1995
c-2		0 to 5		
EST200	10/6/1997	Surface	Duwamish Waterway Sediment Characterization Study	NOAA 1998
EST197	10/7/1997			
EST199				
EST195	10/14/1997			
CH0028	10/16/1997			
CH0029				
EIT081	10/17/1997			
EST196	10/22/1997			
EIT079	11/4/1997			
EST198	11/13/1997			
205	6/23/1998	Surface	Puget Sound Sediment Sampling	Ecology 2000a
DR165	8/13/1998	Surface	EPA Site Inspection	Weston 1999
DR166				
DR103	8/18/1998			
DR104				
DR146	8/19/1998			
DR094	8/20/1998			
DR095				
DR097				
DR098				
DR099				
DR100				
DR101				
DR102				
DR096	9/2/1998			
DR147				
DR101	9/21/1998	0 to 2		
DR101		2 to 4		
3	11/28/1998	0 to 4	Hardie Gypsum Round 1	Spearman 1999
4				
5				
3	7/15/1999	0 to 3	Hardie Gypsum Round 2	Spearman 1999
4				
5.2				
C				
D				
E				
B1	8/26/1999	4 to 8	PSDDA Sediment Characterization	SEA 2000a, 2000b
S10		0 to 4		
S12				
S6				
S8				
JHGSA-SD1-COMP27-00	7/3/2000	Surface	James Hardie Outfall and Nearshore Sediment Sampling	Weston 2000
C5	8/27/2004	Surface	LDW RI Phase 2 Round 1	Windward 2005a
LDW-SS63	1/21/2005			
LDW-SS67	1/21/2005			

Table 1
Sediment Samples Collected Near the Slip 2 to Slip 3 Source Control Area

Location Name	Date Collected	Collection Depth (feet)	Event Name	Source
LDW-SS65	3/8/2005	Surface	LDW RI Phase 2 Round 2	Windward 2005b
LDW-SS71	3/15/2005			
LDW-SS69b	3/16/2005			
LDW-SS327	10/2/2006	Surface	LDW RI Phase 2 Round 3	Windward 2007b
LDW-SS328				
LDW-SS329				
LDW-SC201	2/10/2006	0 to 1.5	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC201		1.5 to 4		
LDW-SC201		4 to 6		
LDW-SC201		8 to 10		
LDW-SC32		0 to 1		
LDW-SC32		1 to 2		
LDW-SC32		2 to 4		
LDW-SC32		5 to 8		
LDW-SC33		0 to 0.5		
LDW-SC33		0.5 to 1		
LDW-SC33		0 to 2		
LDW-SC33		1 to 1.5		
LDW-SC33		1.5 to 2		
LDW-SC33		2 to 2.5		
LDW-SC33		2 to 4		
LDW-SC33		2.5 to 3		
LDW-SC33		4 to 6		
LDW-SC33		8 to 10		
LDW-SC31	2/16/2006	0 to 1		
LDW-SC31		1 to 3		
LDW-SC31		3 to 4		

Table 2
Chemicals Detected Above Screening Levels in Surface Sediment Samples Associated with the Slip 2 to Slip 3 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
PAHs											
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(g,h,i)perylene	0.59	1.33	44	31	78	mg/kg OC	1.4	<1
Puget Sound Sediment Sampling	205	6/23/1998	Chrysene	1.5	1.33	111	100	460	mg/kg OC	1.1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Indeno(1,2,3-cd)pyrene	0.62	1.33	47	34	88	mg/kg OC	1.4	<1
Phthalates											
Puget Sound Sediment Sampling	205	6/23/1998	Butyl benzyl phthalate	0.086	1.33	6.5	4.9	64	mg/kg OC	1.3	<1
Other SVOCs											
Puget Sound Sediment Sampling	205	6/23/1998	Benzoic acid	5.9 J	1.33	446	650	650	ug/kg DW	9.1	9.1
PCBs											
Puget Sound Sediment Sampling	205	6/23/1998	PCBs (total calc'd)	0.67 J	1.33	50	12	65	mg/kg OC	4.2	<1
EPA Site Inspection	DR147	9/2/1998		0.46	2.02	23	12	65	mg/kg OC	1.9	<1
EPA Site Inspection	DR099	8/20/1998		0.39 J	1.02	38	12	65	mg/kg OC	3.2	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005		0.35	2.71	13	12	65	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006		0.34	2.61	13	12	65	mg/kg OC	1.1	<1
EPA Site Inspection	DR147	9/2/1998		0.30	2.04	15	12	65	mg/kg OC	1.2	<1
EPA Site Inspection	DR103	8/18/1998		0.26	1.78	15	12	65	mg/kg OC	1.2	<1
EPA Site Inspection	DR100	8/20/1998		0.24	1.50	16	12	65	mg/kg OC	1.3	<1
EPA Site Inspection	DR100	8/20/1998		0.18	1.47	12	12	65	mg/kg OC	1.0	<1
EPA Site Inspection	DR098	8/20/1998		0.12	0.972	13	12	65	mg/kg OC	1.1	<1

mg/kg - Milligram per kilogram
ug/kg - Microgram per kilogram
DW - Dry weight
TOC - Total Organic Carbon
OC - Organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level
PAH - Polycyclic aromatic hydrocarbon
SVOC - Semivolatile organic compound
PCB - Polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

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 3
Chemicals Detected Above Screening Levels in Subsurface Sediment Samples
Associated with the Slip 2 to Slip 3 Source Control Area

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Metals												
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	0 - 1.5	Lead	772	1.88		450	530	mg/kg DW	1.7	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Mercury	0.43	1.8		0.41	0.59	mg/kg DW	1.0	<1
PAHs												
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2	Acenaphthene	1.4	1.16	121	16	57	mg/kg OC	7.5	2.1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	4 - 6		1.0	2.1	48	16	57	mg/kg OC	3.0	<1
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	4 - 6		0.71	2.13	33	16	57	mg/kg OC	2.1	<1
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	2 - 4		0.30	1.47	20	16	57	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	4 - 6	Fluoranthene	5.0	2.13	235	160	1200	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2		2.5	1.16	216	160	1200	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2	Fluorene	1.9	1.16	164	23	79	mg/kg OC	7.1	2.1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	4 - 6		0.63	2.1	30	23	79	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	4 - 6		0.51	2.13	24	23	79	mg/kg OC	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2	Phenanthrene	3.7	1.16	319	100	480	mg/kg OC	3.2	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3		2.2	1.9	116	100	480	mg/kg OC	1.2	<1
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2	Total LPAH (calc'd)	7.5	1.16	647	370	780	mg/kg OC	1.7	<1
Phthalates												
EPA Site Inspection	DR101	9/21/1998	2 - 4	Bis(2-ethylhexyl)phthalate	1.4	2.34	60	47	78	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2		0.65	1.16	56	47	78	mg/kg OC	1.2	<1
Other SVOCs												
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	1 - 2	Dibenzofuran	1.2	1.16	103	15	58	mg/kg OC	6.9	1.8
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	4 - 6		0.38	2.1	18	15	58	mg/kg OC	1.2	<1
Hardie Gypsum Round 1	4	7/15/1999	0 - 4	Hexachlorobenzene	0.013	2.0	0.65	0.38	2.3	mg/kg OC	1.7	<1
PCBs												
LDW RI Phase 2 Subsurface	**LDW-SC33**	**2/10/2006**	**1 - 1.5**	PCBs (total calc'd)	**4.7**	**2.53**	**186**	**12**	**65**	**mg/kg OC**	**15**	2.9
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	0 - 2		3.1	3.34	93	12	65	mg/kg OC	7.7	1.4
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	1.5 - 2		2.5 J	2.42	103	12	65	mg/kg OC	8.6	1.6
LDW RI Phase 2 Subsurface	**LDW-SC32**	**2/10/2006**	**2 - 4**		**2.5**	**1.47**	**167**	**12**	**65**	**mg/kg OC**	**14**	2.6
LDW RI Phase 2 Subsurface	**LDW-SC32**	**2/10/2006**	**1 - 2**		**1.7**	**1.16**	**148**	**12**	**65**	**mg/kg OC**	**12**	2.3
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	0 - 1.5		1.5	1.88	77	12	65	mg/kg OC	6.4	1.2
LDW RI Phase 2 Subsurface	LDW-SC32	2/10/2006	0 - 1		1.0	1.81	56	12	65	mg/kg OC	4.7	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3		1.0	1.8	56	12	65	mg/kg OC	4.7	<1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	2.5 - 3		0.94	1.98	47	12	65	mg/kg OC	4.0	<1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	0.5 - 1		0.79	2.14	37	12	65	mg/kg OC	3.1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4		0.68	2.4	28	12	65	mg/kg OC	2.4	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3		0.59	1.5	39	12	65	mg/kg OC	3.3	<1
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	1.5 - 4		0.53 J	1.33	40	12	65	mg/kg OC	3.3	<1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	0 - 0.5		0.49	1.76	28	12	65	mg/kg OC	2.3	<1

Table 3
Chemicals Detected Above Screening Levels in Subsurface Sediment Samples
Associated with the Slip 2 to Slip 3 Source Control Area

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	2 - 4		0.42	1.62	26	12	65	mg/kg OC	2.2	<1
LDW RI Phase 2 Subsurface	LDW-SC31	2/10/2006	0 - 1		0.37	2.52	15	12	65	mg/kg OC	1.2	<1
LDW RI Phase 2 Subsurface	LDW-SC201	2/10/2006	4 - 6		0.34	2.13	16	12	65	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC31	2/10/2006	1 - 2.8		0.33	2.18	15	12	65	mg/kg OC	1.3	<1
Hardie Gypsum Round 1	4	7/15/1999	0 - 4		0.30	2.0	15	12	65	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	4 - 6		0.28	2.1	13	12	65	mg/kg OC	1.1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8		0.22	1.5	15	12	65	mg/kg OC	1.2	<1
LDW RI Phase 2 Subsurface	LDW-SC33	2/10/2006	2 - 2.5		0.21	1.35	16	12	65	mg/kg OC	1.3	<1

DW - Dry weight
TOC - Total Organic Carbon
OC - Organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level

PAH - Polycyclic aromatic hydrocarbon
SVOC - Semivolatile organic compound
PCB - Polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

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.
For illustrative purposes, chemicals with concentrations that exceed screening levels by more than an order of magnitude (i.e., exceedance factors greater than 10) are show in **Bold**.
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

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

SOURCE: Tiffany 2008a

Table 5
Chemicals Detected Above Screening Levels in Seep Samples
Associated with the Slip 2 to Slip 3 Source Control Area

Source	Sample Location	Date Collected	Chemical	Conc'n (ug/L)	Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	GW-to-Sediment Screening Level (Based on CSL)[a]	GW-to-Sediment Screening Level Exceedance Factor
Filtered Samples									
Windward 2004	SP-82 (Dup)	7/1/2004	Copper	8.3 J	3.1	4.8	2.7	120	<1
Windward 2004	SP-82	7/1/2004	Copper	8.2 J	3.1	4.8	2.7	120	<1
Windward 2004	SP-82	7/1/2004	Zinc	164	81	90	2.0	76	2.2
Windward 2004	SP-82 (Dup)	7/1/2004	Zinc	158	81	90	2.0	76	2.1
Unfiltered Samples									
Windward 2004	SP-82 (Dup)	7/1/2004	Copper	13 J	3.1	4.8	4.3	120	<1
Windward 2004	SP-82	7/1/2004	Copper	11 J	3.1	4.8	3.5	120	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Lead	8.3	8.1	210	1.0	13	<1
Windward 2004	SP-82	7/1/2004	Mercury	0.017	0.03	1.8	<1	0.0074	2.3
Windward 2004	SP-82 (Dup)	7/1/2004	Mercury	0.012	0.03	1.8	<1	0.0074	1.6
Windward 2004	SP-82 (Dup)	7/1/2004	Zinc	201	81	90	2.5	76	2.6
Windward 2004	SP-82	7/1/2004	Zinc	186	81	90	2.3	76	2.4

ug/L - Microgram per Liter
WQS - Water Quality Standards, November 2006
CSL - SMS Cleanup Screening Level
Dup - Laboratory Duplicate Sample
J - Estimated value between the method detection limit and the laboratory reporting limit
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).
Table presents detected chemicals only.
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.

Table 6
Facilities within the Michigan Street CSO Basin that are Listed in Ecology's Facility/Site Database

Ecology Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report	Active EPA ID No.	NPDES Permit	Ecology UST/ LUST List	Ecology CSCSL	Ecology NFA Deter-mination	KCIW Discharge Authorization or Permit
11634416	1st Ave Bridge BBC2	NE Corner of S Michigan Street & 1st Avenue S	□						
44977427	1st Avenue South and South Michigan Street	NW Corner of 1st Avenue S & S Michigan Street	□						
9169543	6249 Airport Way S	6249 Airport Way S							
4784534	88 Construction	5338 15th Avenue S				●			
7723743	ABX Air Inc., Seattle	8075 Perimeter Road S	■		●				
75472189	AC Propeller Service Inc	925 S Nebraska		●					
1078998	Aero Copters, Inc.	8013 Perimeter Road S	■		●				
7318944	Aeroflight National Charter Network	8535 Permieter Road S	■			●			
59377658	Air National	7277 Perimeter Road S and 215 Main Street	■				●		
63123962	Alaska Logistics LLC	7400 8th Avenue S	■				●		
58266151	Alki Auto Body Inc	5958 Corson Avenue S							
6368989	All Alaskan Seafoods Inc	501 S Myrtle Street	■						
61468944	All City Grinders	9401 Carleton Avenue S							
5274463	All Metal Company	5610 Airport Way S							
39659753	American Avionics King County Airport	7023 Perimeter Road S	■					●	
29782814	American Dry Ice Corporation Repair Division	745 S Myrtle Street	■						
47512364	American Dry Ice Orcas	672 S Orcas Street		●					
6346940	American Motor Freight LLC	5700 6th Avenue S, Suite 203		●					
8137128	Ameriflight Inc. Hangar 5	7585 Perimeter Road S	■		●				
63713485	Arco 5218	7200 East Marginal Way S	■			●			
69693852	Arrow Transportation	6737 Corson Avenue S	■			●			
64987158	AT&T Pump	6525 Ellis Avenue S				●			
9970306	AT&T Wireless Boeing Field	8300 Military Road							
7411374	AT&T Wireless Georgetown	945 A S Doris Street		●					
6254510	AT&T Wireless Tempress	701 S Orchard Street	■						
51878272	Atwood Adhesives, Inc.	945 S Doris Street		●					
44648718	Aviation Fuel Storage, Shultz Distributing	1495 S Hardy Street	■		●	●			
47726656	B & G Machine Inc	6400 Corson Avenue S							
4738343	Baxter Rutherford	911 S Homer Street				●			
74169521	Bens Truck Parts Inc Seattle	6655 Corson Avenue S	■			●		●	
52822581	Benz Friendz Inc	6249 Flora Avenue S							
44383713	Big Johns Truck Repair Inc	6533 3rd Avenue S	■				●		
73142589	Boeing A&M Electronic Mfg Facility	7355 Perimeter Road S	■	●		●	●		
76249648	Boeing Air Traffic Control Tower	8200 East Marginal Way S	■						
63879778	Boeing Electronic Manufacturing	7300 Perimeter Road S	■				●		
2050	Boeing-North Boeing Field	7370 East Marginal Way S	■				●		
2753918	Boeing-North Boeing Field	7500 East Marginal Way S	■	●		●			●
2053	Boeing-North Boeing Field, JP4 Tanks	Ellis Avenuenue & East Marginal Way S	■				●		
72432377	Breese Jones Refinishers	5626 Airport Way S							
57331171	Bunge Foods Corporation	6901 Fox Avenue S	■	●					●
33269789	Burlington Resource Aviation	7777 Perimeter Road Hangar B	■						
95419266	Business Card Express	6510 5th Avenue S							
18182664	Caliber Inspection	7500 Perimeter Road Boeing Field	■	●					●
12872193	Carrier Corp Buildings System & Svcs	655 S Orcas Street Ste 100							
3338163	Cedar Grove Compost, Webster Yard	7343 East Marginal Way S	■		●				●
99747798	Cenveo Graphic Arts Center	832 S Fidalgo Street							

Table 6
Facilities within the Michigan Street CSO Basin that are Listed in Ecology's Facility/Site Database

Ecology Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report	Active EPA ID No.	NPDES Permit	Ecology UST/ LUST List	Ecology CSCSL	Ecology NFA Deter-mination	KCIW Discharge Authorization or Permit
83494216	Clough Equipment Co S Front S	515 S Front Street							
67744521	Coastal Alaska Marine Lines	745 S Orchard Street	■						
26167272	Collins Aviation	6660 Perimeter Road S							
56476471	Commercial Welding & Fabrication Inc	711 S Myrtle Street	■						
85969894	Contour Laminates LPA Wash Ltd Part	5910 Corson Avenue S							
39361526	Contract Applications Inc Seattle	7600 Perimeter Road	■						
1940187	Crowley Marine Services	7400 8th Avenue S	■				●		
60563321	Crown Delta Environmental	792 S Michigan Street							
343781	Denco Sales Co	711 Fidalgo Street							
43327381	DHL Express	707 S Orcas Street							
76518153	Dinol US Inc Seattle	650 S Othello Street	■						
71371939	Duwamish Marine Center	16 S Michigan Street	□	●					
21945598	Duwamish Marine Center	6365 1st Avenue S	□				●		
3856442	Ecolights Northwest Seattle	1915 S Corgiat Drive							
78563473	Emerald City Freight Distribut	6003 6th Avenue S							
89553582	Emerald Services Inc	7343 East Marginal Way S	■						●
2084	Emerald Tool Inc	6332 6th Avenue S	□	●			●		
23176116	Estate of Gloria Miller	1226 S Bailey Street							
2462	Evergreen Marine Leasing, Parcel E	7343 East Marginal Way S	■			●		●	
94389497	FAMCO Transport, Inc.	6640 Ellis Avenue S							
75575157	Federal Express Perimeter Road, Seattle	7607 Perimeter Road	■			●			
54361353	Fedex Bfi Vm	7440 Perimeter Road S	■						
6436627	Flightcraft, Inc., Seattle	8285 Perimeter Road S	■			●		●	
54757868	Former Consolidated Freightways	6050 East Marginal Way S	□			●	●		
2825755	Former UNOCAL Service Station 0907	1121 S Bailey Street	□			●			
48956635	Forrest Taylor	6505 Perimeter Road Boeing Field				●			
95644588	Fosters Service Corporation	934 S Harney Street				●			
2282	Fox Ave Bldg (Former Great Western Chemical)	6900 Fox Avenue S	■	●		●	●		
97897644	Fox Brighton Barrel	Fox Avenue S and S Brighton Street							
74428866	Galvin Flying Center UST 507162	7675 Perimeter Road S	■			●			
71267563	Galvin Flying Service	6987 Perimerter Road S	■						
13168148	Galvin Flying Services, Inc.	7149 Perimeter Road S	■		●				
50426433	Galvin Flying Svc	7205 Perimeter Road S							
64981477	Gas N Wash	551 S Michigan Street				●		●	
95662832	GE Aircraft Engines Front St	540 S Front St							
96679259	Georgetown Center	NW Corner of Corson Avenue S & S Michigan						●	
63485131	Georgetown Steamplant	1131 S Elizabeth Street	■			●			
7465257	Georgetown Yard	6640 Ellis Avenue			●				
2817992	Gibson Company	1900 S Corgiat Drive				●			
68985258	Griffin Fuel Co	1210 S Bailey Street				●			
92551337	Hamilton Building	6007 12th Avenue S							
29651292	Hammer Auto Rebuild & Sales Inc	1209 S Bailey Street							
72811433	Hangar Holdings, Inc.	7675 Perimeter Road S	■			●	●		
38639721	Industrial Magic Homer	927 S Homer Street							
2134	Inland Transporation Company	6737 Corson Avenue S	■					●	
76388258	Julius Rosso Wholesale Nursery Co. UST	6404 Ellis Avenue S				●			

Table 6
Facilities within the Michigan Street CSO Basin that are Listed in Ecology's Facility/Site Database

Ecology Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report	Active EPA ID No.	NPDES Permit	Ecology UST/ LUST List	Ecology CSCSL	Ecology NFA Deter-mination	KCIW Discharge Authorization or Permit
77227688	K&N Meats Seattle	2900 4th Avenue							
2593632	Kelly Moore Paint Airport Way	6101 Airport Way S	□	●					
2163	Kelly Moore Paint Co	5410 Airport Way S	□	●		●	●		
41478228	Kemper Systems, Inc.	5810 Airport Way S		●					
3210980	King County Airport Staging Yard	6640 Ellis Avenue	■		●				
2051	King County International Airport	6518 Ellis Avenue	■		●	●		●	●
2387398	King County International Airport	7299 Perimeter Road S	■						
76197432	Kohl & Madden	1017 S Myrtle Street		●					
89285628	Laucks Testing Laboratories	940 S Harney Street		●					
32245858	Laucks Testing Laboratories Harney St	921 S Harney Street		●					
74836763	Le Tracon Enviromental Inc	7343 East Marginal Way S		●					
71277652	Lockwood Marine Inc	6502 East Marginal Way S							
95841929	Lumber Trucking	943 S Nebraska Avenue							
35945241	MAC Machinery	4239 Corson Avenue S							
95712969	Machinists Inc Plant 1	751 S Michigan Street		●					
13593282	Mail Dispatch, Inc.	917 S Nebraska Avenue				●			
2216	Marine Vacuum Service Inc	1516 S Graham Street	■	●			●		●
24632415	Mastermark	6550 4th Avenue S							
62364372	McCaw Flight Operations	7777 Perimeter Road S							
6924961	Mike's Mobil Service	6235 Airport Way S				●			
97999646	Mill Log Marine Inc Seattle	6345 6th Avenue S							
51945779	Miller Paint Company Corson Ave	5959 Corson Avenue S				●			
38243619	Milwaukee Electric Tool Corp Seattle	5419 Maynard Avenue S							
46977612	Moore Data Management Services Division	725 S Fidalgo Street							
12153465	Myrtle Street Property	606 S Myrtle Street	■					●	
66879333	Nelson Trucking Co Inc	7130 8th Avenue S	■						
19371183	Nivas Bussiness Corp	6100 6th Avenue S							
36699669	Nordstrom Inc	7979 Perimeter Road S	■	●		●			
2117	North Boeing Field	7700 East Marginal Way S	■		●				
2153	North Coast Chemical Company	1615 S Graham Street	■	●	●	●	●		
22653378	Northland Services Inc	6701 Fox Avenue S.	■	●					
22653378	Northland Services Inc Fox Ave	6701 Fox Avenue S.	■	●	●	●			
42824221	Northland Services Inc Transfer Facility	7400 8th Avenue S	■		●				
1565848	Northwest Bottling Co	1136 Albro Place S		●		●			
4524834	Northwest Container Svcs Inc Seattle	600 S Garden Street	■		●				●
96854446	Northwest Nut & Bolt Co	6795 East Marginal Way S							
55473184	Northwest Service, Inc.	6715 Corson Avenue S				●			
29775533	Orcas Business Park LLC	650 S Orcas Street							
12545978	Ostex Intl Inc 5955 Airport Way	5955 Airport Way S							
41689573	Pacific Terminals Limited	660 S Othello Street	■						
43114188	Perkins Lot	719 S Myrtle Street	■			●		●	
47779679	Philips Services Corporation	734 S Lucile Street	■ □	●		●	●		●
26468911	Phils Finishing Touch Inc	7401 8th Avenue S	■						
2161	Pioneer Enamel Manufacture	5531 Airport Way S	□				●		●
27585467	PNB Building	707 S Orcas Street				●			
38171386	PSE Georgetown Base	6500 Ursula Place S		●					

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73263954	PTL Partnership	6314 7th Avenue S				●			
51647545	Puget Sound Energy UST 9864	6349 18th Avenue S				●			
41684823	Puget Sound Trk Lines Sea	7303 8th Avenue S	■		●	●			
4581549	Quick Start Northwest Inc	913 S Doris Street							
65877631	Rainier Ice & Cold Storage Inc	6004 Airport Way S	■		●	●			
65141181	Remarkable Tire	7115 East Marginal Way S				●			
55698119	Riveretz's Auto Care	6185 4th Avenue S	□			●			
65495133	Royal Line Cabinet Co Seattle	700 S Orchard Street	■						
13751941	RS Hughes Co Inc	6530 5th Place S							
93637295	Scougal Rubber Corp	6239 Corson Avenue S	□	●		●	●		
34383748	SCS Industries, Seattle	303 S River Street	■	●	●				
4522442	SEA A AFSS	6526 Ellis Avenue S				●			
14811879	Sea Pac Resources Inc	8465 Perimeter Road S							
17577864	Seattle Boiler Works	500 S Myrtle Street	■		●	●			
7107057	Seattle City DOT Airport Way Argo Bridge	Airport Way S between Summerville Place							
6487827	Seattle City Light, Georgetown Steamplant	6700 13th Avenue S	■				●		
2309	Seattle Commercial Finishing	5700 Corson Avenue S						●	
72625161	Seattle Fire Station 27	1000 S Myrtle Street				●			
94727791	Seattle Iron Metals Corp	601 S Myrtle Street	■	●	●	●			●
55416995	Seattle Jet Services	8013 Perimeter Road S				●			
17819358	Seattle School Dist 1 Cleveland HS	5511 15th Avenue S							
24471658	Seattle Truck Repairs, Inc.	6401 Occidental Avenue S	□			●			
11354986	Shell Station 121450	6200 Corson Avenue S				●			
95498891	Shultz Distributing Inc Marginal Way	6851 East Marginal Way S	■	●	●	●			
94368646	Shultz Distributing, Inc., Falcon Fast Fuel	6760 West Marginal Way		●		●			
745462	Sonn Property	950 S Nebraska Street	□				●		
2563	Sons of Italy Chevron 93189	5337 15th Avenue S				●		●	
11887871	South Seattle Community College	6770 East Marginal Way S	■			●			
84173356	Springs Printing Inc Michigan	151 S Michigan Street							
2057	Sternoff Metals	7201 East Marginal Way S	■				●		
41677496	Sudden Printing	571 S Michigan Street							
19688471	Texaco 121430	600 S Michigan Street				●			
33732426	TEXACO INC	7000 Airport Road S				●			
15318746	THAW Corp	8300 Military Road S							
93184477	Trim Systems	701 S Orchard Street	■	●					
93694734	Tukwila Lucile Intersection Stage 1	MP 158							
48578491	Tyee Industries	765 S Myrtle Street	■						
4151794	United Bldg Svcs	6259 Airport Way S							
59737155	United Couriers, Inc.	7595 Perimeter Road							
58169621	Universal Metal Fabricators Seattle	6553 5th Avenue S							
62411353	Universal Printing	6600 Ursula Place S				●			
15215836	UPS Boeing Field	7575 Perimeter Road S	■	●	●				●
33482323	UPS Seattle Export	500 S Front Street							
16264836	US West Communications W00D04	7679 Perimeter Road S							
64775371	USWCOM Seattle Duwamish Co	7000 E Marginal Way S				●			
68427684	V Van Dyke Inc	150 S River Street	■	●	●	●			

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Facilities within the Michigan Street CSO Basin that are Listed in Ecology's Facility/Site Database

Ecology Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report	Active EPA ID No.	NPDES Permit	Ecology UST/ LUST List	Ecology CSCSL	Ecology NFA Deter-mination	KCIW Discharge Authorization or Permit
9726741	VA PSHCS Seattle Division	1660 S Columbian Way		●		●			
37289288	Vacuum Truck Svc Inc	220 S River Street	■			●			
21468652	Valco Graphics Inc Seattle	674 S Orcas Street							
4256186	Vic Markov Tire Company	7300 East Marginal Way S				●			
3856995	Viox Corporation	6701 6th Avenue S	□	●				●	●
62732399	Viox Corporation 6th & River	6701 6th Avenue S	□			●			●
2260	Viox McDowell Site	551 S River Street	□					●	
3796155	WA Air National Guard, North Boeing Field	7277 Perimeter Road S and 215 Main Street	■	●		●			
61845527	WA DNR Corson Avenue Site Hats and Boots	6800 East Marginal Way S	■			●			
82347852	WA DOT Corson	6431 Corson Avenue S		●		●			
73975933	WA DOT Spokane	I5 S MP 160.1							
5972170	WA DOT Spokane St Storage 1017XG01	Airport Way and Diagonal Avenue S							
11546487	WA DOT State Ferries Airport	6301 Airport Way S							
63579524	WA GA Seattle Motor Pool	6650 Ellis Avenue S				●			
39352815	Western Parcel Express Seattle	525 S Front Street				●		●	
3895194	Western Trailer Repair Inc	707 S Lucile Street							
33942516	Western Union Tel Co. UST 97407	808 S Fildalgo Street				●			
18985948	Western Washington Apprent T	6770 East Marginal Way S Bldg D							
97262395	Western Wood Products of Seattle, Inc.	6520 5th Avenue S							
56533162	Westmar Services Inc	5930 6TH Avenue S				●			
9872313	Whitehead Company Corporation	600 S Myrtle Street	■			●			
17791926	Zellerbach Paper Company	6301 Airport Way S				●			

■ - Facility is included in a previous Data Gaps report
□ - Facility is included in the current (Slip 2 to Slip 3) Data Gaps report
● - Additional information regarding this facility is available in Appendix C.
EPA - U.S. Environmental Protection Agency
UST - Underground Storage Tank
LUST - Leaking Underground Storage Tank
CSCSL - Confirmed or Suspected Contaminated Sites List
NFA - No Further Action
KCIW - King County Industrial Waste

Table 7
Property Ownership Within the Slip 2 to Slip 3 Source Control Area

Tax Parcel No.	Parcel No. Designation on Figure 4	Property Owner (Current Taxpayer)[1]	Property Address[1]	Property Name[1]	Current Parcel Use	Former Parcel Use
1924049075	9075a	Glacier Northwest, Inc.	5975 East Marginal Way S	Glacier Northwest	Glacier Northwest	Kaiser Cement
5367204505	4505	Lone Star Investors LP	6335 1st Avenue S	Glacier Northwest	Seattle Biodiesel, other industrial operations	AR Torrico Sons Shipping
5367204545	4545	Gilmur, James	6351 1st Avenue S	Vacant	Samson Tug and Barge (outdoor storage)	Various
5367204560	4560	Gilmur, James & Jacqueline H.	6361 1st Avenue S	Duwamish Marine Center	Samson Tug and Barge	Burgess Enterprises
5367204565	4565	Gilmur, James D.	6365 1st Avenue S	Hale's Construction	Samson Tug and Barge (outdoor storage)	Various
5367203415	3415	Gilmur, James	6365 1st Avenue S	Hale's Construction	Duwamish Marine Center	Various
5367203447	3447	Gilmur, James	16 S Michigan Street	Duwamish Marine Center	Duwamish Marine Center	Various
5367203635	3635	Gilmur, James	16 S Michigan Street	Duwamish Marine Center	Duwamish Marine Center, Duwamish Metal Fabricators, Annette Island Construction	Various
5367202410	2410	Seattle Dept. of Transportation	6501 1st Avenue S	Vacant	Biofiltration swale for Outfall 2503	Unknown
5367200029	0029	State of Washington - DOT	None Listed	None Listed	Vacant	Unknown
5367200025	0025	Evergreen Properties LLC	6401 Occidental Avenue S	Seattle Truck Repair	Seattle Truck Repair/Evergreen Tractor	Unknown
5367200050	0050	Evergreen Properties LLC	None Listed	Vacant Lot	Seattle Truck Repair/Evergreen Tractor	Unknown
5367200160	0160	Evergreen Properties LLC	164 S Michigan Street	Cascade Pacific	Seattle Truck Repair/Evergreen Tractor	Unknown
5367203745	3745	AK Media NW	6309 East Marginal Way S	Vacant Land	Vacant (billboard)	Frank's Used Cars
2024049067	9067	Michigan Properties	5960 1st Avenue S	Multi Tenant Whse	Bank & Office Interiors	Unknown
2024049075	9075b	Dahava Financial LP	59909 1st Avenue S	B & OI	Bank & Office Interiors	Unknown
2024049076	9076	Michigan Properties	None Listed	Parking Area	Bank & Office Interiors	Unknown
2024049077	9077	Michigan Properties	None Listed	Easement To 9076 & 9075	Bank & Office Interiors	Unknown
5367204646	4646	Shippers Transport Express	None Listed	Consolidated Freightways	Shippers Transport Express (storage/trucking services)	Consolidated Freightways
5367204685	4685	Hackett, Richard M.	5979 4th Avenue S	Fittings Inc.	Fittings, Inc.	Unknown
5367200300	0300	East Marginal TT LLC	6442 East Marginal Way S	Taco Time	Vacant	Taco Time

[1] Source: King County GIS Parcel Viewer

Table 8
Chemicals Detected Above Screening Levels in Soil
Duwamish Marine Center

Source	Sample Location	Sample Date	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Metals								
The Riley Group, Inc. 2000	B-3-3	Aug-00	12.5-14	Antimony	47	32		1.5
Farallon Consulting 2002d	B13-0-3	Mar-02	0-3	Antimony	37	32		1.2
Farallon Consulting 2002d	**B10-1-3**	**Mar-02**	**1-3**	**Arsenic**	**12**	**0.67**	12000	**18**
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Cadmium**	**43**	**2**	**1.7**	**25**
The Riley Group, Inc. 2000	TP-1-1.5'	Jul-00	1.5	Cadmium	7.1	2	34	3.6
The Riley Group, Inc. 2000	TP-3-5.5'	Jul-00	5.5	Cadmium	5.3	2	34	2.7
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Cadmium	2.4	2	34	1.2
Farallon Consulting 2002d	**B4-0-3**	**Mar-02**	**0-3**	**Chromium**	**2700**	**19**	5400	**142**
Farallon Consulting 2002d	**B3-0-3**	**Mar-02**	**0-3**	**Chromium**	**400**	**19**	5400	**21**
Farallon Consulting 2002d	**B7-2-4**	**Mar-02**	**2-4**	**Chromium**	**260**	**19**	5400	**14**
Farallon Consulting 2002d	**B5-3-4**	**Mar-02**	**3-4**	**Chromium**	**230**	**19**	5400	**12**
The Riley Group, Inc. 2000	TP-4-2'	Jul-00	2	Chromium	150	19	5400	7.9
The Riley Group, Inc. 2000	B-2-1	Aug-00	2.5-4.0	Chromium	110	19	5400	5.8
The Riley Group, Inc. 2000	B-3-3	Aug-00	12.5-14	Chromium	80	19	270	4.2
The Riley Group, Inc. 2000	TP-3-5.5'	Jul-00	5.5	Chromium	61	19	5400	3.2
Farallon Consulting 2002d	B2-0-3	Mar-02	0-3	Chromium	40	19	5400	2.1
Farallon Consulting 2002d	B8-2-3	Mar-02	2-3	Chromium	40	19	5400	2.1
Farallon Consulting 2002d	MW2-2-4	Mar-02	2-4	Chromium	38	19	5400	2.0
Farallon Consulting 2002d	B13-0-3	Mar-02	0-3	Chromium	36	19	5400	1.9
Farallon Consulting 2002d	B18-0-3	Mar-02	0-3	Chromium	33	19	5400	1.7
Farallon Consulting 2002d	B16-0-1.5	Mar-02	0-1.5	Chromium	28	19	5400	1.5
Farallon Consulting 2002d	B17-0-3	Mar-02	0-3	Chromium	26	19	5400	1.4
Farallon Consulting 2002d	MW1-5-6.5	Mar-02	5-6.5	Chromium	25	19	5400	1.3
Farallon Consulting 2002d	B12-0-1	Mar-02	0-1	Chromium	24	19	5400	1.3
Farallon Consulting 2002d	B15-0-3	Mar-02	0-3	Chromium	23	19	5400	1.2
The Riley Group, Inc. 2000	TP-2-3.5'	Jul-00	3.5	Chromium	22	19	5400	1.2
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Chromium	21	19	270	1.1
Farallon Consulting 2002d	MW3-3.5-4	Mar-02	3.5-4	Chromium	21	19	5400	1.1
Farallon Consulting 2002d	MW-3-2.5-4	Mar-02	2.5-4	Chromium	21	19	5400	1.1
The Riley Group, Inc. 2000	B-3-3	Aug-00	12.5-14	Copper	7400	3000	780	9.5
Farallon Consulting 2002d	B7-2-4	Mar-02	2-4	Copper	6900	3000	780	8.8
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Copper	91	3000	39	2.3
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Lead**	**12000**	**250**	**67**	**179**
Farallon Consulting 2002d[c]	EX1-11.0-11.5	May-02	11.0-11.5	Lead	1500	250	67	22
Farallon Consulting 2002d	**SP3**	**May-02**		**Lead**	**1300**	**250**	**67**	**19**

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Duwamish Marine Center

Source	Sample Location	Sample Date	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d[c]	EX1-8.5-10.0	May-02	8.5-10.0	Lead	510	250	67	7.6
The Riley Group, Inc. 2000	TP-3-5.5'	Jul-00	5.5	Lead	1400	250	1300	5.6
Farallon Consulting 2002d	B7-2-4	Mar-02	2-4	Lead	850	250	1300	3.4
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Lead	670	250	1300	2.7
Farallon Consulting 2002d	B18-0-3	Mar-02	0-3	Lead	540	250	1300	2.2
Farallon Consulting 2002d	EX1-ESW-4.0	May-02	4.0	Lead	510	250	1300	2.0
The Riley Group, Inc. 2000	TP-1-1.5'	Jul-00	1.5	Lead	430	250	1300	1.7
Farallon Consulting 2002d	B3-0-3	Mar-02	0-3	Lead	360	250	1300	1.4
The Riley Group, Inc. 2000	TP-4-2'	Jul-00	2	Lead	340	250	1300	1.4
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	Lead	340	250	1300	1.4
Farallon Consulting 2002d	B1-0-3	Mar-02	0-3	Lead	330	250	1300	1.3
Farallon Consulting 2002d	B8-2-3	Mar-02	2-3	Lead	310	250	1300	1.2
Farallon Consulting 2002d	EX1-15.0-15.5	May-02	15.0-15.5	Lead	79	250	67	1.2
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Lead	70	250	67	1.0
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Mercury**	**1.5**	2	**0.030**	**50**
Farallon Consulting 2002d	B18-0-3	Mar-02	0-3	Mercury	1.1	2	0.59	1.9
The Riley Group, Inc. 2000	TP-1-1.5'	Jul-00	1.5	Mercury	0.85	2	0.59	1.4
The Riley Group, Inc. 2000	B-3-3	Aug-00	12.5-14	Silver	4.6	400	0.61	7.5
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Zinc**	**31000**	**24000**	**38**	**816**
The Riley Group, Inc. 2000	**B-1-6**	**Aug-00**	**14-14.5**	**Zinc**	**2100**	24000	**38**	**55**
The Riley Group, Inc. 2000	TP-3-5.5'	Jul-00	5.5	Zinc	1700	24000	770	2.2
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	Zinc	1400	24000	770	1.8
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Zinc	860	24000	770	1.1
PAHs								
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	2-Methylnaphthalene	0.21	320	0.073	2.9
The Riley Group, Inc. 2000	**B-1-6**	**Aug-00**	**14-14.5**	**Acenaphthene**	**3**	4800	**0.06**	**50**
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Anthracene	2.4	2400	1.2	2.0
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Benzo(a)anthracene	2.4		0.27	8.9
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Benzo(a)pyrene	0.91	0.1	0.21	9.1
Farallon Consulting 2002d	B1-0-3	Mar-02	0-3	Benzo(a)pyrene	0.38	0.1	4.2	3.8
Farallon Consulting 2002d	B8-2-3	Mar-02	2-3	Benzo(a)pyrene	0.37	0.1	4.2	3.7
Farallon Consulting 2002d	B7-2-4	Mar-02	2-4	Benzo(a)pyrene	0.15	0.1	4.2	1.5
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Benzo(b)fluoranthene	1		0.45	2.2
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Benzo(g,h,j)perylene	0.32		0.078	4.1
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Benzo(k)fluoranthene	0.8		0.45	1.8
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Chrysene	3.4		0.46	7.4
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Dibenzo(a,h)anthracene	0.096		0.033	2.9

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Duwamish Marine Center

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The Riley Group, Inc. 2000	**B-1-6**	**Aug-00**	**14-14.5**	**Fluoranthene**	**12**	3200	**1.2**	**10**
The Riley Group, Inc. 2000	**B-1-6**	**Aug-00**	**14-14.5**	**Fluorene**	**4.3**	3200	**0.081**	**53**
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Indeno(1,2,3-cd)pyrene	0.31		0.088	3.5
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Naphthalene	0.8	5	0.20	4.0
Farallon Consulting 2002d	**B1-0-3**	**Mar-02**	**0-3**	**PAHs (total)**	**2.29**	**0.14**		**16**
Farallon Consulting 2002d	**B8-2-3**	**Mar-02**	**2-3**	**PAHs (total)**	**2.01**	**0.14**		**14**
Farallon Consulting 2002d	B7-2-4	Mar-02	2-4	PAHs (total)	1.02	0.14		7.3
Farallon Consulting 2002d	B19-1.5-3	Mar-02	1.5-3	PAHs (total)	0.3	0.14		2.1
The Riley Group, Inc. 2000	**B-1-6**	**Aug-00**	**14-14.5**	**Phenanthrene**	**14**		**0.49**	**29**
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Pyrene	8.2	2400	1.4	5.9
PCBs								
Farallon Consulting 2002d	**B7-2-4**	**Mar-02**	**2-4**	**Aroclor 1242**	**34**	**0.5**		**68**
Farallon Consulting 2002d	**B3-0-3**	**Mar-02**	**0-3**	**Aroclor 1242**	**6.0**	**0.5**		**12**
Farallon Consulting 2002d	**B5-3-4**	**Mar-02**	**3-4**	**Aroclor 1242**	**5.8**	**0.5**		**12**
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Aroclor 1242**	**5**	**0.5**		**10**
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	Aroclor 1242	3.7	0.5		7.4
The Riley Group, Inc. 2000	TP-3-5.5'	Jul-00	5.5	Aroclor 1242	2.3	0.5		4.6
Farallon Consulting 2002d	B1-0-3	Mar-02	0-3	Aroclor 1242	1.7	0.5		3.4
The Riley Group, Inc. 2000	B-2-1	Aug-00	2.5-4.0	Aroclor 1242	1	0.5		2.0
The Riley Group, Inc. 2000	TP-4-2'	Jul-00	2	Aroclor 1242	0.53	0.5		1.1
Farallon Consulting 2002d	B2-0-3	Mar-02	0-3	Aroclor 1242	0.50	0.5		1.0
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Aroclor 1254**	**3.1**	**0.5**	**0.065**	**48**
Farallon Consulting 2002d	B3-0-3	Mar-02	0-3	Aroclor 1254	2.5	0.5	1.3	5.0
Farallon Consulting 2002d	B1-0-3	Mar-02	0-3	Aroclor 1254	1.8	0.5	1.3	3.6
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	Aroclor 1254	1.7	0.5	1.3	3.4
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Aroclor 1254	1.7	0.5	1.3	3.4
The Riley Group, Inc. 2000	TP-4-2'	Jul-00	2	Aroclor 1254	1.6	0.5	1.3	3.2
Farallon Consulting 2002d	B2-0-3	Mar-02	0-3	Aroclor 1254	0.97	0.5	1.3	1.9
Farallon Consulting 2002d	B7-6-7.5	Mar-02	6-7.5	Aroclor 1254	0.19	1	0.065	2.9
Farallon Consulting 2002d	B1-0-3	Mar-02	0-3	Aroclor 1260	2.4	0.5	1.3	4.8
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Aroclor 1260**	**1.7**	**0.5**	**0.065**	**26**
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Aroclor 1260	0.79	0.5	1.3	1.6
The Riley Group, Inc. 2000	B-1-6	Aug-00	14-14.5	Aroclor 1260	0.15	0.5	0.065	2.3
The Riley Group, Inc. 2000	**B-3-3**	**Jul-00**	**12.5-14**	**PCBs (total)**	**9.8**	**0.5**	**0.065**	**151**
Farallon Consulting 2002d	**B7-2-4**	**Mar-02**	**2-4**	**PCBs (total)**	**34**	**0.5**	**1.3**	**68**
Farallon Consulting 2002d	B3-0-3	Mar-02	0-3	PCBs (total)	8.5	0.5	1.3	17
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	PCBs (total)	8.29	0.5	1.3	17

Table 8
Chemicals Detected Above Screening Levels in Soil
Duwamish Marine Center

Source	Sample Location	Sample Date	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	B1-0-3	Mar-02	0-3	PCBs (total)	5.9	0.5	1.3	12
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	PCBs (total)	5.4	0.5	1.3	11
Farallon Consulting 2002d	B7-6-7.5	Mar-02	6-7.5	PCBs (total)	0.54	0.5	0.065	8.3
The Riley Group, Inc. 2000	TP-3-5.5'	Jul-00	5..5	PCBs (total)	2.3	0.5	1.3	4.6
The Riley Group, Inc. 2000	TP-4-2'	Jul-00	2	PCBs (total)	2.13	0.5	1.3	4.3
Farallon Consulting 2002d	B2-0-3	Mar-02	0-3	PCBs (total)	1.86	0.5	1.3	3.7
The Riley Group, Inc. 2000	B-2-1	Jul-00	2.5-4.0	PCBs (total)	1.49	0.5	1.3	3.0
The Riley Group, Inc. 2000	B-1-6	Jul-00	14-14.5	PCBs (total)	0.15	0.5	0.065	2.3
Petroleum Hydrocarbons								
The Riley Group, Inc. 2000	B-3-3	Aug-00	12.5-14	Diesel-Range Hydrocarbons	5100	2000		2.6
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Diesel-Range Hydrocarbons	4800	2000		2.4
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Diesel-Range Hydrocarbons	4800	2000		2.4
The Riley Group, Inc. 2000	**B-3-3**	**Aug-00**	**12.5-14**	**Heavy Oil-Range Hydrocarbons**	**21000**	**2000**		**11**
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Heavy Oil-Range Hydrocarbons	10000	2000		5.0
Farallon Consulting 2002d	B5-3-4	Mar-02	3-4	Heavy Oil-Range Hydrocarbons	10000	2000		5.0
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	B7-2-4	Mar-02	2-4	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	B4-0-3	Mar-02	0-3	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	B7-2-4	Mar-02	2-4	Heavy Oil-Range Hydrocarbons	3700	2000		1.9

Table presents detected chemicals with exceedance factors greater than 1 only.

mg/kg - Milligram per kilogram
DW - Dry weight
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - The lower of MTCA Method A or B cleanup levels was selected from CLARC database
[b] - Soil-to-sediment screening level, based on sediment CSLs (from SAIC 2006); samples collected between 0 and 9 feet bgs were compared to screening levels for vadose zone soils; samples collected below 9 feet bgs were compared to the screening levels for saturated soils
[c] - Sample location was within the area of excavation near the former junk shop (Farallon Consulting 2002d)

Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or soil-to-sediment screening levels, whichever is lower.
For illustrative purposes, chemicals with concentrations that exceed screening levels or MTCA cleanup levels by more than an order of magnitude (i.e., exceedance factors greater than 10) are shown in Bold.

Table 9
Chemicals Detected Above Screening Levels in Groundwater
Duwamish Marine Center

Source	Sample Location	Sample Date	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Metals							
Farallon Consulting 2002d	MW-2	Mar-02	Antimony	56	6.4		8.8
Farallon Consulting 2002d	MW-3	Mar-02	Antimony	7.9	6.4		1.2
Farallon Consulting 2002d	MW-1	Mar-02	Antimony	7.1	6.4		1.1
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Arsenic**	**220**	**0.058**	370	**3793**
Farallon Consulting 2002d	**MW-2**	**May-02**	**Arsenic**	**13**	**0.058**	370	**224**
Farallon Consulting 2002d	**MW-3**	**Mar-02**	**Arsenic**	**12**	**0.058**	370	**207**
Farallon Consulting 2002d	**MW-4**	**Mar-02**	**Arsenic**	**8**	**0.058**	370	**138**
Farallon Consulting 2002d	**MW-4**	**May-02**	**Arsenic**	**5.7**	**0.058**	370	**98**
The Riley Group, Inc. 2000	**B-3-W**	**Aug-00**	**Arsenic**	**3.9**	**0.058**	370	**67**
The Riley Group, Inc. 2000	**B-2-W**	**Aug-00**	**Arsenic**	**3.6**	**0.058**	370	**62**
Farallon Consulting 2002d	MW-2	Mar-02	Cadmium	12	5	3.4	3.5
Farallon Consulting 2002d	MW-2	Mar-02	Chromium	140	50	320	2.8
Farallon Consulting 2002d	MW-3	Mar-02	Chromium	58	50	320	1.2
Farallon Consulting 2002d	MW-2	Mar-02	Copper	810	590	120	6.8
Farallon Consulting 2002d	MW-3	Mar-02	Copper	140	590	120	1.2
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Lead**	**2100**	**15**	**13**	**162**
Farallon Consulting 2002d	MW-3	Mar-02	Lead	89	15	13	6.8
Farallon Consulting 2002d	MW-1	Mar-02	Lead	59	15	13	4.5
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Mercury**	**2**	2	**0.0074**	**270**
Farallon Consulting 2002d	**MW-3**	**Mar-02**	**Mercury**	**0.55**	2	**0.0074**	**74**
Farallon Consulting 2004	**MW-3**	**May-04**	**Mercury (total)**	**0.5**	2	**0.0074**	**68**
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Zinc**	**2000**	4800	**76**	**26**
Farallon Consulting 2002d	MW-1	Mar-02	Zinc	500	4800	76	6.6
The Riley Group, Inc. 2000	B-3-W	Aug-00	Zinc	300	4800	76	3.9
Farallon Consulting 2002d	MW-3	Mar-02	Zinc	150	4800	76	2.0
PAHs							
Farallon Consulting 2002d	MW-2	Mar-02	1-Methylnaphthalene	8.4	2.4		3.5
Farallon Consulting 2002d	MW-2	Mar-02	Acenaphthene	13	960	9.3	1.4
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Benzo(a)anthracene**	**11**		**0.63**	**17**
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Benzo(a)pyrene**	**13**	**0.012**	**0.27**	**1083**

Table 9
Chemicals Detected Above Screening Levels in Groundwater
Duwamish Marine Center

Source	Sample Location	Sample Date	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Farallon Consulting 2002d	MW-3	Mar-02	Benzo(a)pyrene	0.084	0.012	0.27	7.0
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Benzo(b)fluoranthene**	**9.6**		**0.56**	**17**
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Benzo(g,h,i)perylene**	**7**		**0.029**	**241**
Farallon Consulting 2002d	MW-3	Mar-02	Benzo(g,h,i)perylene	0.05		0.029	1.7
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Benzo(k)fluoranthene**	**13**		**0.029**	**448**
Farallon Consulting 2002d	MW-2	Mar-02	Chrysene	15		1.9	7.9
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Dibenzo(a,h)anthracene**	**0.68**		**0.013**	**52**
Farallon Consulting 2002d	MW-3	Mar-02	Dibenzo(a,h)anthracene	0.021		0.013	1.6
Farallon Consulting 2002d	MW-2	Mar-02	Fluorene	9.7	640	7.0	1.4
Farallon Consulting 2002d	**MW-2**	**Mar-02**	**Indeno(1,2,3-c,d)pyrene**	**6.8**		**0.033**	**206**
Farallon Consulting 2002d	MW-3	Mar-02	Indeno(1,2,3-c,d)pyrene	0.05		0.033	1.5
Farallon Consulting 2002d	MW-2	Mar-02	Naphthalene	140	160	92	1.5
Farallon Consulting 2002d	MW-2	Mar-02	Phenanthrene	29		23	1.3
Farallon Consulting 2002d	MW-2	Mar-02	Pyrene	24	480	20	1.2
Pentachlorophenol							
Farallon Consulting 2002d	MW-2	Mar-02	Pentachlorophenol	3.5	0.73	10	4.8
PCBs							
Farallon Consulting 2002d	MW-4	Mar-02	Aroclor 1242	0.67	0.1		6.7
Farallon Consulting 2002d	MW-2	Mar-02	Aroclor 1242	0.15	0.1		1.5
Farallon Consulting 2002d	MW-4	Mar-02	Aroclor 1254	0.17	0.1	0.86	1.7
Farallon Consulting 2002d	MW-2	Mar-02	Aroclor 1260	0.13	0.1	0.86	1.3
Farallon Consulting 2002d	MW-4	Mar-02	Aroclor 1260	0.11	0.1	0.31	1.1
Farallon Consulting 2002d	**MW-4**	**Mar-02**	**PCB (total)**	**0.95**	**0.044**	1.5	**22**
Farallon Consulting 2002d	MW-2	Mar-02	PCB (total)	0.28	0.044	1.5	6.4
VOCs							
The Riley Group, Inc. 2000	B-3-W	Aug-00	Benzene	2.7	0.8		3.4
Farallon Consulting 2002d	MW-1	Mar-02	Tetrachloroethene	0.69	0.081		8.5
Farallon Consulting 2002d	MW-2	Mar-02	Tetrachloroethene	0.69	0.081		8.5
Petroleum Hydrocarbons							
Farallon Consulting 2002d	MW-2	Apr-02	Diesel-Range Hydrocarbons	2700	500		5.4
Farallon Consulting 2002d	MW-2	Mar-02	Diesel-Range Hydrocarbons	2700	500		5.4

Table 9
Chemicals Detected Above Screening Levels in Groundwater
Duwamish Marine Center

Source	Sample Location	Sample Date	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
The Riley Group, Inc. 2000	B-2-W	Aug-00	Diesel-Range Hydrocarbons	520	500		1.0
The Riley Group, Inc. 2000	B-3-W	Aug-00	Diesel-Range Hydrocarbons	520	500		1.0
Farallon Consulting 2002d	MW-2	Apr-02	Heavy Oil-Range Hydrocarbons	4900	500		9.8
Farallon Consulting 2002d	MW-2	Mar-02	Heavy Oil-Range Hydrocarbons	4900	500		9.8
The Riley Group, Inc. 2000	B-3-W	Aug-00	Heavy Oil-Range Hydrocarbons	1600	500		3.2
Farallon Consulting 2002d	MW-4	Apr-02	Heavy Oil-Range Hydrocarbons	820	500		1.6
Farallon Consulting 2002d	MW-4	Mar-02	Heavy Oil-Range Hydrocarbons	820	500		1.6
The Riley Group, Inc. 2000	B-2-W	Aug-00	Heavy Oil-Range Hydrocarbons	650	500		1.3
Farallon Consulting 2004	MW-3	Feb-04	Heavy Oil-Range Hydrocarbons	550	500		1.1

Table presents detected chemicals with exceedance factors greater than 1 only.

ug/L - Microgram per Liter
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
VOC - Volatile organic compound
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or groundwater-to-sediment screening level, whichever is lower.
For illustrative purposes, chemicals with concentrations that exceed screening levels or MTCA cleanup levels by more than an order of magnitude (i.e., exceedance factors greater than 10) are shown in **Bold**.

Table 10
Chemicals Detected Above Screening Levels in Soil
Former Frank's Used Cars

Source	Sample Location	Sample Date	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Metals								
Environmental Associates 1993	**Surface Composite 3**	**1992**		**Arsenic**	**17**	**0.67**	12000	**25**
Environmental Associates 1993	**Surface Composite 2**	**1992**		**Arsenic**	**13**	**0.67**	12000	**19**
Environmental Associates 1993	**Surface Composite 1**	**1992**		**Arsenic**	**12**	**0.67**	12000	**18**
Ecology 1991i	Frank-1	Feb-91		Cadmium	14.5 J	2	34	7.3
Environmental Associates 1993	Surface Composite 3	1992		Cadmium	3.7	2	34	1.9
Environmental Associates 1993	Surface Composite 2	1992		Cadmium	2.7	2	34	1.4
Ecology 1991i	**Frank-1**	**Feb-91**		**Chromium**	**372**	**19**	5400	**20**
Environmental Associates 1993	Surface Composite 3	1992		Chromium	21	19	5400	1.1
Environmental Associates 1993	TP2-2	1992	4	Chromium	21	19	5400	1.1
Ecology 1991i	Frank-1	Feb-91		Lead	995	250	1300	4.0
Environmental Associates 1993	Surface Composite 3	1992		Lead	370	250	1300	1.5
Ecology 1991i	Frank-1	Feb-91		Zinc	1332	24000	770	1.7
PCBs								
NATEX 1991	Frank-1	Feb-91		Aroclor-1248	0.65	0.5	1.3	1.3
Environmental Associates 1993	Surface Composite 3	1992		PCBs (total)	0.60	0.5	1.3	1.2
VOCs								
NATEX 1991	Frank-1	Feb-91		Ethylbenzene	18	6		3.0
NATEX 1991	Frank-1	Feb-91		Ethylbenzene	17 D	6		2.8
NATEX 1991	Frank-1	Feb-91		Toluene	31 D	7		4.4
NATEX 1991	**Frank-1**	**Feb-91**		**Xylenes (total)**	**96 D**	**9**		**11**
Petroleum Hydrocarbons								
NATEX 1991	Frank-1	Feb-91		Total Volatile Petroleum Hydrocarbons	550 J	100		5.5

Table presents detected chemicals with exceedance factors greater than 1 only.

mg/kg - milligram per kilogram
DW - dry weight
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
PCB - polychlorinated biphenyl
VOC - volatile organic compound
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
J - Estimated value between the method detection limit and the laboratory reporting limit.
D - diluted sample

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Soil-to-sediment screening level for vadose zone soils, based on sediment CSLs (from SAIC 2006).

Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or soil-to-sediment screening level, whichever is lower.
For illustrative purposes, chemicals with concentrations that exceed screening levels or MTCA cleanup levels by more than an order of magnitude (i.e., exceedance factor greater than 10) are shown in **Bold**.

Table 11
Chemicals Detected Above Screening Levels in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
PAHs								
Golder Associates 1998a	**Apr-98**	**RW1-7.0**	**7.0**	**2-Methylnaphthalene**	**16**	320	**0.073**	**219**
Golder Associates 1998a	**Apr-98**	**RW2-4.0**	**4.0**	**2-Methylnaphthalene**	**16**	320	**0.073**	**219**
Golder Associates 1998a	**Apr-98**	**RW2-7.0**	**7.0**	**2-Methylnaphthalene**	**11**	320	**0.073**	**151**
Golder Associates 1998a	**Apr-98**	**RW1-7.0**	**7.0**	**Acenaphthene**	**1.8**	4800	**0.060**	**30**
Golder Associates 1998a	**Apr-98**	**RW2-7.0**	**7.0**	**Acenaphthene**	**0.93**	4800	**0.060**	**16**
Golder Associates 1998a	Apr-98	CF-T1		Acenaphthene	0.21	4800	0.060	3.5
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Acenaphthene	0.071	4800	0.060	1.2
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Anthracene	2.2	2400	1.2	1.8
Golder Associates 1998a	**Apr-98**	**RW1-7.0**	**7.0**	**Fluorene**	**2.5**	3200	**0.081**	**31**
Golder Associates 1998a	**Apr-98**	**RW2-7.0**	**7.0**	**Fluorene**	**2**	3200	**0.081**	**25**
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Fluorene	1.9	3200	1.6	1.2
Golder Associates 1998a	Apr-98	CF-T1		Fluorene	0.21	3200	0.081	2.6
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Naphthalene	8.1	5	3.8	2.1
Golder Associates 1998a	**Apr-98**	**RW2-7.0**	**7.0**	**Naphthalene**	**6.5**	5	**0.20**	**33**
Golder Associates 1998a	**Apr-98**	**RW1-7.0**	**7.0**	**Naphthalene**	**6.2**	5	**0.20**	**31**
Golder Associates 1998a	**Apr-98**	**RW1-7.0**	**7.0**	**Phenanthrene**	**7**		**0.49**	**14**
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Phenanthrene	3.6		0.49	7
VOCs								
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Ethylbenzene	7.4	6		1
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Xylenes (m,p)	30	9		3.3
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Xylenes (m,p)	29	9		3.2
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Xylenes (o)	26	9		2.9
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Xylenes (o)	18	9		2.0
Petroleum Hydrocarbons								
Blymyer & Sons Engineers, Inc. 1988a	**Apr-88**	**T-3**		**Diesel-Range Hydrocarbons**	**43602**	**2000**		**22**
Blymyer & Sons Engineers, Inc. 1988a	**Apr-88**	**T-1**		**Diesel-Range Hydrocarbons**	**41294**	**2000**		**21**
Fluor Daniel GTI 1998	**Jul-98**	**SW-1**		**Diesel-Range Hydrocarbons**	**28700**	**2000**		**14**
Golder Associates 1998b	**Oct-98**	**SW-1**		**Diesel-Range Hydrocarbons**	**28700**	**2000**		**14**
Blymyer & Sons Engineers, Inc. 1988a	**Apr-88**	**T-4**		**Diesel-Range Hydrocarbons**	**27812**	**2000**		**14**
Shannon & Wilson 1997	10/1/1997	P-2	5-8	Diesel-Range Hydrocarbons	19000	2000		9.5
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Diesel-Range Hydrocarbons	13000	2000		6.5
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-11		Diesel-Range Hydrocarbons	12643	2000		6.3
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Diesel-Range Hydrocarbons	12000	2000		6.0
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Diesel-Range Hydrocarbons	8800	2000		4.4
Fluor Daniel GTI 1998	Jul-98	SP-1		Diesel-Range Hydrocarbons	7970	2000		4.0
Golder Associates 1998b	Oct-98	SP-1		Diesel-Range Hydrocarbons	7970	2000		4.0
Golder Associates 1998b	Oct-98	CF-SP-5		Diesel-Range Hydrocarbons	7700 D	2000		3.9
Blymyer Engineers, Inc. 1988	Jun-88	MW-5	5	Diesel-Range Hydrocarbons	4797	2000		2.4

Table 11
Chemicals Detected Above Screening Levels in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Fluor Daniel GTI 1998	Jul-98	PL-2		Diesel-Range Hydrocarbons	4780	2000		2.4
Golder Associates 1998b	Oct-98	PL-2		Diesel-Range Hydrocarbons	4780	2000		2.4
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-10		Diesel-Range Hydrocarbons	4446	2000		2.2
Fluor Daniel GTI 1998	Jul-98	SP-2		Diesel-Range Hydrocarbons	3890	2000		1.9
Golder Associates 1998b	Oct-98	SP-2		Diesel-Range Hydrocarbons	3890	2000		1.9
Shannon & Wilson 1997	Oct-97	P-4	5-8	Diesel-Range Hydrocarbons	3500	2000		1.8
Blymyer Engineers, Inc. 1988	Jun-88	S-1V		Diesel-Range Hydrocarbons	3389	2000		1.7
Blymyer Engineers, Inc. 1988	Jun-88	S-2F		Diesel-Range Hydrocarbons	3187	2000		1.6
Blymyer Engineers, Inc. 1988	Jun-88	S-1F		Diesel-Range Hydrocarbons	2939	2000		1.5
Fluor Daniel GTI 1998	Jul-98	SW-4		Diesel-Range Hydrocarbons	2700	2000		1.4
Golder Associates 1998b	Oct-98	SW-4		Diesel-Range Hydrocarbons	2700	2000		1.4
Fluor Daniel GTI 1998	Jul-98	SP-3		Diesel-Range Hydrocarbons	2000	2000		1.0
Golder Associates 1998b	Oct-98	SP-3		Diesel-Range Hydrocarbons	2000	2000		1.0
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-7		Gasoline-Range Hydrocarbons	731	100		7.3
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-9		Gasoline-Range Hydrocarbons	319	100		3.2
Golder Associates 1998b	Oct-98	CF-SP-1		Heavy Oil-Range Hydrocarbons	6000	2000		3.0
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-11		Total Petroleum Hydrocarbons	11970	2000		6.0
Blymyer Engineers, Inc. 1988	Jun-88	S-1V		Total Petroleum Hydrocarbons	4274	2000		2.1
Blymyer Engineers, Inc. 1988	Jun-88	S-2F		Total Petroleum Hydrocarbons	4072	2000		2.0
Blymyer Engineers, Inc. 1988	Jun-88	S-1F		Total Petroleum Hydrocarbons	3383	2000		1.7
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-10		Total Petroleum Hydrocarbons	2045	2000		1.0

Table presents detected chemicals with exceedance factors greater than 1 only.

mg/kg - milligram per kilogram
DW - dry weight
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
PCB - polychlorinated biphenyl
VOC - volatile organic compound
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
D - diluted sample

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Soil-to-sediment screening level for vadose zone soils, based on sediment CSLs (from SAIC 2006).

Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or soil-to-sediment screening level, whichever is lower.
For illustrative purposes, chemicals with concentrations that exceed screening levels or MTCA cleanup levels by more than an order of magnitude (i.e., exceedance factor greater than 10) are shown in **Bold**.

Table 12
Chemicals Detected Above Screening Levels in Groundwater
Former Consolidated Freightways

Source	Sample Location	Sample Date	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Metals							
Blymyer Engineers, Inc. 1988	W-1	Aug-88	Chromium	800	50	320	16
Blymyer Engineers, Inc. 1988	W-1	Aug-88	Lead	1900	15	13	146
PAHs							
Golder Associates 1998a	RW-2	Jun-98	2-Methylnaphthalene	39000	32	31	1258
Golder Associates 1998a	RW-1	Jun-98	2-Methylnaphthalene	26000	32	31	839
Golder Associates 1998a	MW-2	Jun-98	2-Methylnaphthalene	180	32	31	5.8
Golder Associates 1998a	RW-2	Jun-98	Acenaphthene	1300	960	9.3	140
Golder Associates 1998a	RW-1	Jun-98	Acenaphthene	1100	960	9.3	118
Golder Associates 1998a	MW-2	Jun-98	Acenaphthene	840	960	9.3	90
Golder Associates 1998a	RW-1	Jun-98	Anthracene	150	4800	59	2.5
Golder Associates 1998a	RW-1	Jun-98	Fluorene	2900	640	7.0	414
Golder Associates 1998a	RW-2	Jun-98	Fluorene	2100	640	7.0	300
Golder Associates 1998a	MW-2	Jun-98	Fluorene	800	640	7.0	114
Golder Associates 1998a	RW-2	Jun-98	Naphthalene	43000	160	92	467
Golder Associates 1998a	RW-1	Jun-98	Naphthalene	11000	160	92	120
Golder Associates 1998a	RW-1	Jun-98	Phenanthrene	2500		23	109
Golder Associates 1998a	RW-2	Jun-98	Phenanthrene	2300		23	100
Golder Associates 1998a	MW-2	Jun-98	Phenanthrene	720		23	31
Golder Associates 1998a	RW-2	Jun-98	Pyrene	270	480	20	14
VOCs							
Golder Associates 1998a	RW-2	Jun-98	Benzene	210	0.8		263
Golder Associates 2000b	RW-2	Aug-99	Benzene	83	0.8		104
Blymyer & Sons Engineers, Inc. 1988a	W-2	Apr-88	Benzene	13	0.8		16
Blymyer & Sons Engineers, Inc. 1988a	W-2	Apr-88	Xylenes (m,p)	1790	1000		1.8
Petroleum Hydrocarbons							
Blymyer Engineers, Inc. 1988	W-1	Aug-88	Diesel-Range Hydrocarbons	2862000	500		5724
Blymyer & Sons Engineers, Inc. 1988a	W-1	Apr-88	Diesel-Range Hydrocarbons	2538000	500		5076
Shannon & Wilson 1997	P-2	Oct-97	Diesel-Range Hydrocarbons	2200000	500		4400
Fluor Daniel GTI 1998	TP-1	Jul-98	Diesel-Range Hydrocarbons	138000	500		276
Golder Associates 2000b	GP-14	Aug-99	Diesel-Range Hydrocarbons	34000	500		68
Golder Associates 2000b	GP-10	Aug-99	Diesel-Range Hydrocarbons	29000	500		58
Golder Associates 1998a	RW-2	Jun-98	Diesel-Range Hydrocarbons	5400	500		11
Golder Associates 2000b	GP-11	Aug-99	Diesel-Range Hydrocarbons	2500	500		5.0
Golder Associates 1998a	MW-2	Jun-98	Diesel-Range Hydrocarbons	2200	500		4.4
Golder Associates 2000b	MW-2	Aug-99	Diesel-Range Hydrocarbons	1900	500		3.8
Shannon & Wilson 1997	P-4	Oct-97	Diesel-Range Hydrocarbons	1700	500		3.4
Golder Associates 2000b	MW-3	Aug-99	Diesel-Range Hydrocarbons	1500	500		3.0
Golder Associates 2000b	RW-2	Aug-99	Diesel-Range Hydrocarbons	1500	500		3.0
Golder Associates 1998a	RW-1	Jun-98	Diesel-Range Hydrocarbons	1400	500		2.8
Golder Associates 2000b	GP-6	Aug-99	Diesel-Range Hydrocarbons	1400	500		2.8
Golder Associates 2000b	GP-1	Aug-99	Diesel-Range Hydrocarbons	1200	500		2.4
Golder Associates 2000b	GP-9	Aug-99	Diesel-Range Hydrocarbons	1200	500		2.4
Golder Associates 1998a	MW-3	Jun-98	Diesel-Range Hydrocarbons	1000	500		2.0

Table 12
Chemicals Detected Above Screening Levels in Groundwater
Former Consolidated Freightways

Source	Sample Location	Sample Date	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Golder Associates 2000b	GP-5	Aug-99	Diesel-Range Hydrocarbons	980	500		2.0
Golder Associates 2000b	GP-4	Aug-99	Diesel-Range Hydrocarbons	800	500		1.6
Golder Associates 2000b	GP-7	Aug-99	Diesel-Range Hydrocarbons	720	500		1.4
Golder Associates 2000b	GP-13	Aug-99	Diesel-Range Hydrocarbons	580	500		1.2
Blymyer & Sons Engineers, Inc. 1988a	**W-2**	**Apr-88**	**Gasoline-Range Hydrocarbons**	**158000**	**800**		**198**
Blymyer Engineers, Inc. 1988	**W-1**	**Aug-88**	**Heavy Oil-Range Hydrocarbons**	**3812000**	**500**		**7624**
Golder Associates 2000b	GP-14	Aug-99	Heavy Oil-Range Hydrocarbons	2500	500		5.0
Golder Associates 2000b	GP-10	Aug-99	Heavy Oil-Range Hydrocarbons	2100	500		4.2
Golder Associates 2000b	MW-3	Aug-99	Heavy Oil-Range Hydrocarbons	1800	500		3.6
Golder Associates 2000b	GP-6	Aug-99	Heavy Oil-Range Hydrocarbons	1800	500		3.6
Golder Associates 1998a	MW-3	Jun-98	Heavy Oil-Range Hydrocarbons	1100	500		2.2
Golder Associates 2000b	GP-11	Aug-99	Heavy Oil-Range Hydrocarbons	860	500		1.7
Golder Associates 2000b	GP-1	Aug-99	Heavy Oil-Range Hydrocarbons	690	500		1.4
Golder Associates 1998a	RW-2	Jun-98	Heavy Oil-Range Hydrocarbons	680	500		1.4
Golder Associates 1998a	MW-2	Jun-98	Heavy Oil-Range Hydrocarbons	660	500		1.3
Golder Associates 2000b	GP-3	Aug-99	Heavy Oil-Range Hydrocarbons	590	500		1.2
Golder Associates 2000b	MW-2	Aug-99	Heavy Oil-Range Hydrocarbons	580	500		1.2

Table presents detected chemicals with exceedance factors greater than 1 only.

ug/L - Microgram per Liter
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
PAH - Polycyclic aromatic hydrocarbon
VOC - Volatile organic compound
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or groundwater-to-sediment screening level, whichever is lower.
For illustrative purposes, chemicals with concentrations that exceed screening levels or MTCA cleanup levels by more than an order of magnitude (i.e., exceedance factors greater than 10) are shown in **Bold**.

Table 13
Summary of Data Gaps
Slip 2 to Slip 3 Source Control Area

Facility	Data Gap
Public Outfalls	
Michigan Street CSO and 1st Avenue S Bridge Outfall	***Stormwater Discharge***
	Data on contaminant concentrations in storm drain solids within the 1st Avenue S Bridge storm drain system are needed to evaluate whether contaminants are being transported to LDW sediments via Outfall 2503.
	Combined Sewer Discharge
	Data on contaminant concentrations in CSO discharges are needed to evaluate whether the Michigan Street CSO is a significant source of contaminants to LDW sediments.
	Additional information regarding operations at Georgetown Yard, including information regarding the facility's NPDES permit, is needed to determine if the facility may be a source of contaminants to LDW sediments.
	Additional information is needed to determine if undocumented and unregulated industrial operations are occurring within the Michigan Street CSO basin that may be an ongoing source of sediment recontamination.
Adjacent Properties	
Glacier Northwest	***Stormwater Discharge and Surface Runoff/Spills***
	A follow-up business inspection is needed to verify compliance with Ecology's recommendations, applicable regulations, and best management practices (BMPs), to prevent the release of contaminants to the LDW.
	Additional information is needed regarding the process water treatment and recycling system at Glacier Northwest, including the capacity of the system and the frequency and volume of discharges to the LDW.
	If discharges to the LDW from the process water treatment and recycling system occur, then catch basin solids samples and/or effluent discharge samples from the system are needed to determine if COCs in the discharge may be a source of sediment recontamination.
	Further investigation is needed to determine whether the trench drain installed at Glacier Northwest in 1985 discharges to the LDW.
	Further investigation is needed to determine what is connected to outfall 2018 that was identified during SPU's 2003 survey.
	Additional information on outfall 2019 is needed to determine if the outfall belongs to Glacier Northwest, an upland facility, or a public entity.
	Additional information is needed regarding a storm drain line shown on SPU maps that follows the Glacier Northwest shoreline and appears to discharge to Slip 2 approximately half-way between the head and mouth of the slip.
Seattle Biodiesel	***Stormwater Discharge and Surface Runoff/Spills***
	A follow-up business inspection of Seattle Biodiesel is needed to verify compliance with Ecology's recommendations, applicable regulations and BMPs to prevent the release of contaminants to the LDW.
	Bank Erosion/Leaching

Table 13
Summary of Data Gaps
Slip 2 to Slip 3 Source Control Area

Facility	Data Gap
	Additional information regarding chemical concentrations in bank soils is needed. A recent spill of process mixture flowed across the bank soils at this property, and residual contamination may be present.
Duwamish Marine Center	***Stormwater Discharge and Surface Runoff/Spills***
	A business inspection of the Duwamish Marine Center is needed to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW
	A follow-up business inspection of the Samson Tug and Barge facility is needed to verify compliance with corrective actions requested by SPU in July 2008.
	Information on the status of outfalls 2021 and 2022 is needed. If these outfalls and storm drain lines are currently in use, the area drained by the outfalls needs to be determined and an assessment made of the potential for COCs to reach the LDW via this pathway.
	Information is needed on the status of NPDES permits for Samson Tug and Barge and Duwamish Metal Fabricators.
	Information is needed on the types of activities associated with the boathouses/moorage located on the southern portion of the property.
	Groundwater Discharge
	Additional soil and groundwater data are needed to evaluate the potential for sediment recontamination via the groundwater discharge pathway. In April 2008, Ecology approved, with conditions, a sampling plan for the Duwamish Marine Center. The data collected during this investigation may be used to evaluate potential pathways for sediment COCs to reach the LDW.
	Bank Erosion/Leaching
	Additional data on concentrations of chemical contaminants in bank soils is needed to assess the potential for sediment recontamination via this pathway.
WSDOT Parcel	***Stormwater Discharge***
	No information was available regarding the effectiveness of the biofiltration swale in treating stormwater discharged from Outfall 2503.
	Surface Runoff/Spills
	Continued discussions with the adjacent property owner are needed to prevent parking and vehicle maintenance on the property.
Upland Properties	
Former Frank's Used Cars	***Stormwater Discharge***
	The most recent information on site conditions is over 15 years old. Additional information on current site conditions is needed to determine whether stormwater from this property is a potential source of sediment recontamination.
	Soil and Groundwater

Table 13
Summary of Data Gaps
Slip 2 to Slip 3 Source Control Area

Facility	Data Gap
	No information was available on the current status of cleanup activities at this site, or whether residual soil contamination poses a risk of sediment recontamination.
Former Consolidated Freightways	***Stormwater Discharge***
	Stormwater along the western edge of this property drains to outfall 2019. No information was available regarding activities along the western portion of the former Consolidated Freightways property or the potential that contaminants could be transported to the storm drain system.
	Groundwater Discharge
	The most recent groundwater samples at this site were collected in 1999. Additional groundwater data are needed to evaluate the potential for sediment recontamination via this pathway.
	In 1999, Ecology directed Consolidated Freightways to determine if contaminated groundwater extended off the property. Additional information is needed to determine if the groundwater plume has been laterally characterized as requested by Ecology.
Seattle Truck Repair/Evergreen Tractor	***Stormwater Discharge***
	Information on current activities is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).
Bank and Office Interiors	***Stormwater Discharge***
	Information on current activities at BOI is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).
	Information about industrial activities of other businesses operating at this property (such as Ener-G Foods) is needed to assess the potential for sediment recontamination
Fittings, Inc.	***Stormwater Discharge***
	A follow-up inspection is needed to verify compliance with the corrective actions identified by SPU in July 2008.
Former Taco Time	***Stormwater Discharge***
	Information on current activities at this property is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).
Properties in the Michigan Street CSO Basin	
All Properties	***Combined Sewer Discharges***

Table 13
Summary of Data Gaps
Slip 2 to Slip 3 Source Control Area

Facility	Data Gap
	Information on current activities at this property is needed to assess the potential for sediment recontamination associated with this property, including the locations of catch basins and storm drains, status and location of hazardous materials or potentially harmful chemicals/wastes stored or used at the facilities, and the adequacy of containment systems (if any).
	Information on materials, construction, and condition of storm drain and sanitary sewer lines in this area would be useful to assess the potential for groundwater to infiltrate into the combined sewer system.
Emerald Tool, Inc.	Information regarding concentrations of sediment COCs present in soil and catch basins at this facility is needed to evaluate the potential for sediment recontamination.
Kelly Moore Paint Company	An inventory of onsite USTs (past and present) is needed to evaluate how the facility handles hazardous materials and/or wastes and insure compliance with all necessary regulations.
	An evaluation of the current nature and extent of soil and groundwater contamination associated with this facility is needed to determine the potential for contaminated groundwater to infiltrate the combined sewer system.
	Information on the current status of cleanup efforts is needed to evaluate whether appropriate actions have been made or if additional remedial activities are required.
Pioneer Porcelain Enamel Company **Scougal Rubber Corporation** **Former Sonn Property** **Former Unocal Service Station 0907** **Winters Investment LP/Riveretz's Auto Care**	Information regarding the nature and extent of soil contamination at the site is needed to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.

APPENDICES

Appendix A
Sediment Sampling Data
RM 1.7–2.0 East (Slip 2 to Slip 3)

A–1. Chemicals Detected in Surface Sediment Samples

A–2. Chemicals Detected in Subsurface Sediment Samples

A–3. Chemicals Detected in Seep Samples

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR146	8/19/1998	1,2,3,4,6,7,8-HpCDD	3.30E-04	2.02	1.63E-02					
EPA Site Inspection	DR101	8/20/1998	1,2,3,4,6,7,8-HpCDD	6.60E-05	1.73	3.82E-03					
EPA Site Inspection	DR146	8/19/1998	1,2,3,4,6,7,8-HpCDF	4.94E-05	2.02	2.45E-03					
EPA Site Inspection	DR101	8/20/1998	1,2,3,4,6,7,8-HpCDF	9.60E-06	1.73	5.55E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,4,7,8,9-HpCDF	3.26E-06 J	2.02	1.61E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,4,7,8-HxCDD	2.60E-06 J	2.02	1.29E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,4,7,8-HxCDF	7.70E-06	2.02	3.81E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,6,7,8-HxCDD	1.12E-05	2.02	5.54E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,6,7,8-HxCDF	2.58E-06 J	2.02	1.28E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,7,8,9-HxCDD	8.17E-06	2.02	4.04E-04					
EPA Site Inspection	DR146	8/19/1998	1,2,3,7,8,9-HxCDF	1.40E-07 J	2.02	6.93E-06					
EPA Site Inspection	DR146	8/19/1998	1,2,3,7,8-PeCDD	1.89E-06 J	2.02	9.36E-05					
EPA Site Inspection	DR146	8/19/1998	1,2,3,7,8-PeCDF	1.62E-06 J	2.02	8.02E-05					
Puget Sound Sediment Sampling	205	6/23/1998	1,2-Dichlorobenzene	1.40E-03 J	1.33	1.05E-01	2.3	2.3	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	1,4-Dichlorobenzene	9.10E-03	2.02	4.50E-01	3.1	9	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	1,4-Dichlorobenzene	5.30E-03 J	1.33	3.98E-01	3.1	9	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	1-Methylnaphthalene	4.10E-02	1.33	3.08E+00					
Puget Sound Sediment Sampling	205	6/23/1998	1-Methylphenanthrene	9.20E-02	1.33	6.92E+00					
EPA Site Inspection	DR146	8/19/1998	2,3,4,6,7,8-HxCDF	1.85E-06 J	2.02	9.16E-05					
EPA Site Inspection	DR146	8/19/1998	2,3,4,7,8-PeCDF	7.64E-06	2.02	3.78E-04					
Puget Sound Sediment Sampling	205	6/23/1998	2,3,5-Trimethylnaphthalene	7.10E-02	1.33	5.34E+00					
EPA Site Inspection	DR146	8/19/1998	2,3,7,8-TCDF	3.28E-06	2.02	1.62E-04					
LDW RI Phase 2 Round 1	C5	8/27/2004	2,4'-DDT	2.00E-03 JN	0.32	6.25E-01					
Puget Sound Sediment Sampling	205	6/23/1998	2,6-Dimethylnaphthalene	8.20E-02	1.33	6.17E+00					
Puget Sound Sediment Sampling	205	6/23/1998	2-Methylnaphthalene	8.10E-02	1.33	6.09E+00	38	64	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	2-Methylnaphthalene	8.00E-02	2.99	2.68E+00	38	64	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	2-Methylnaphthalene	3.00E-02 J	1.73	1.73E+00	38	64	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	2-Methylnaphthalene	7.00E-03 J	0.47		1400	670	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	2-Methylnaphthalene	6.20E-03	0.32		1400	670	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	2-Methylphenanthrene	1.23E-01	1.33	9.25E+00					
Puget Sound Sediment Sampling	205	6/23/1998	4,4'-DDD	6.40E-03	1.33	4.81E-01					
LDW RI Phase 2 Round 1	C5	8/27/2004	4,4'-DDD	4.40E-04 JN	0.32	1.38E-01					
Puget Sound Sediment Sampling	205	6/23/1998	4,4'-DDE	1.20E-02	1.33	9.02E-01					
LDW RI Phase 2 Round 1	C5	8/27/2004	4,4'-DDT	2.50E-03 JN	0.32	7.81E-01					
Puget Sound Sediment Sampling	205	6/23/1998	4-Methylphenol	6.25E+00	1.33	4.70E+02	670	670	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	4-Methylphenol	8.60E-02	1.84	4.67E+00	670	670	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	4-Methylphenol	6.20E-02	1.78	3.48E+00	670	670	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Acenaphthene	1.40E-01 J	1.73	8.09E+00	16	57	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Acenaphthene	7.80E-02	1.33	5.86E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Acenaphthene	4.10E-02	0.32		500	730	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Acenaphthene	4.00E-02	2.99	1.34E+00	16	57	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Acenaphthene	3.60E-02	0.47		500	730	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Acenaphthene	3.00E-02	1.02	2.94E+00	16	57	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR147	9/2/1998	Acenaphthene	3.00E-02	2.15	1.40E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Acenaphthene	3.00E-02	2.82	1.06E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Acenaphthene	2.00E-02	2.71	7.38E-01	16	57	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Acenaphthylene	5.40E-02	1.33	4.06E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Acenaphthylene	3.90E-02 J	2.61	1.49E+00	66	66	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Acenaphthylene	3.00E-02 J	2.02	1.49E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Acenaphthylene	1.20E-02	0.32		1300	1300	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Acenaphthylene	1.00E-02 J	0.47		1300	1300	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5	8/27/2004	alpha-Chlordane	1.30E-04 JN	0.32	4.06E-02					
LDW RI Phase 2 Round 1	C5	8/27/2004	alpha-Endosulfan	3.30E-04 JN	0.32	1.03E-01					
EPA Site Inspection	DR103	8/18/1998	Aluminum	2.51E+04	1.84						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Aluminum	2.18E+04	2.63						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Aluminum	2.17E+04	2.82						
EPA Site Inspection	DR096	9/2/1998	Aluminum	2.15E+04	1.95						
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Aluminum	2.14E+04	2.71						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Aluminum	2.11E+04	2.84						
EPA Site Inspection	DR165	8/13/1998	Aluminum	1.97E+04	2.36						
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Aluminum	1.97E+04	2.17						
EPA Site Inspection	DR101	8/20/1998	Aluminum	1.86E+04	1.73						
EPA Site Inspection	DR147	9/2/1998	Aluminum	1.77E+04	2.15						
EPA Site Inspection	DR097	8/20/1998	Aluminum	1.74E+04	2.99						
Puget Sound Sediment Sampling	205	6/23/1998	Aluminum	1.60E+04	1.33						
EPA Site Inspection	DR166	8/13/1998	Aluminum	1.41E+04	1.47						
EPA Site Inspection	DR099	8/20/1998	Aluminum	1.16E+04	1.02						
EPA Site Inspection	DR101	8/20/1998	Aluminum	1.01E+04	1.66						
EPA Site Inspection	DR094	8/20/1998	Aluminum	7.85E+03	0.61						
EPA Site Inspection	DR097	8/20/1998	Anthracene	1.50E+00	2.99	5.02E+01	220	1200	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Anthracene	3.16E-01	1.33	2.38E+01	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Anthracene	2.20E-01 J	1.73	1.27E+01	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Anthracene	2.20E-01	2.61	8.43E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR094	8/20/1998	Anthracene	1.20E-01	0.61	1.97E+01	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Anthracene	1.20E-01	2.82	4.26E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Anthracene	1.00E-01	2.71	3.69E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Anthracene	9.40E-02	2.02	4.65E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Anthracene	9.00E-02	2.84	3.17E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Anthracene	8.00E-02	2.63	3.04E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Anthracene	7.00E-02	1.95	3.59E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Anthracene	7.00E-02	1.66	4.22E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Anthracene	7.00E-02	2.15	3.26E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Anthracene	6.20E-02 J	2.39	2.59E+00	220	1200	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Anthracene	6.00E-02	2.17	2.76E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Anthracene	5.90E-02	0.32		960	4400	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Anthracene	5.90E-02	0.47		960	4400	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR099	8/20/1998	Anthracene	5.00E-02	1.02	4.90E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Anthracene	4.50E-02	2.44	1.84E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Anthracene	4.00E-02	1.84	2.17E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Anthracene	3.90E-02 J	1.84	2.12E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Anthracene	3.70E-02 J	1.78	2.08E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Anthracene	3.60E-02 J	0.972	3.70E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Anthracene	2.00E-02	2.36	8.47E-01	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Antimony	7.00E+00 J	1.95						
EPA Site Inspection	DR097	8/20/1998	Antimony	6.00E+00 J	2.99						
EPA Site Inspection	DR094	8/20/1998	Antimony	5.00E+00 J	0.61						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Antimony	5.00E+00 J	2.82						
LDW RI Phase 2 Round 1	C5	8/27/2004	Antimony	6.70E-01 J	0.32						
Puget Sound Sediment Sampling	205	6/23/1998	Antimony	2.20E-01 J	1.33						
EPA Site Inspection	DR146	8/19/1998	Aroclor-1242	2.00E-01	2.02	9.90E+00					
EPA Site Inspection	DR099	8/20/1998	Aroclor-1242	1.13E-01	1.02	1.11E+01					
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Aroclor-1242	8.50E-02	2.71	3.14E+00					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Aroclor-1242	8.20E-02	2.61	3.14E+00					
Puget Sound Sediment Sampling	205	6/23/1998	Aroclor-1242	5.00E-02 J	1.33	3.76E+00					
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Aroclor-1242	4.10E-02	2.84	1.44E+00					
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Aroclor-1242	2.00E-02 J	2.44	8.20E-01					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1248	7.30E-02	1.84	3.97E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1248	7.00E-02	1.78	3.93E+00					
EPA Site Inspection	DR100	8/20/1998	Aroclor-1248	3.60E-02	1.59	2.26E+00					
EPA Site Inspection	DR098	8/20/1998	Aroclor-1248	3.30E-02	0.972	3.40E+00					
Puget Sound Sediment Sampling	205	6/23/1998	Aroclor-1254	3.00E-01	1.33	2.26E+01					
EPA Site Inspection	DR099	8/20/1998	Aroclor-1254	1.80E-01	1.02	1.76E+01					
EPA Site Inspection	DR146	8/19/1998	Aroclor-1254	1.50E-01	2.02	7.43E+00					
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Aroclor-1254	1.38E-01	2.71	5.09E+00					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Aroclor-1254	1.30E-01	2.61	4.98E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1254	1.20E-01	1.78	6.74E+00					
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Aroclor-1254	9.10E-02	2.82	3.23E+00					
EPA Site Inspection	DR096	9/2/1998	Aroclor-1254	8.20E-02	1.95	4.21E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1254	7.40E-02	1.84	4.02E+00					
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Aroclor-1254	6.90E-02	2.44	2.83E+00					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Aroclor-1254	6.70E-02	2.63	2.55E+00					
EPA Site Inspection	DR097	8/20/1998	Aroclor-1254	6.40E-02	2.99	2.14E+00					
EPA Site Inspection	DR147	9/2/1998	Aroclor-1254	6.40E-02	2.15	2.98E+00					
EPA Site Inspection	DR166	8/13/1998	Aroclor-1254	6.00E-02	1.47	4.08E+00					
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Aroclor-1254	5.30E-02	2.17	2.44E+00					
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Aroclor-1254	5.30E-02	2.39	2.22E+00					
EPA Site Inspection	DR098	8/20/1998	Aroclor-1254	4.60E-02	0.972	4.73E+00					
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Aroclor-1254	4.40E-02	2.84	1.55E+00					
EPA Site Inspection	DR100	8/20/1998	Aroclor-1254	4.30E-02	1.59	2.70E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1254	3.70E-02	1.84	2.01E+00					
EPA Site Inspection	DR095	8/20/1998	Aroclor-1254	3.60E-02	0.62	5.81E+00					

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR165	8/13/1998	Aroclor-1254	3.50E-02	2.36	1.48E+00					
EPA Site Inspection	DR101	8/20/1998	Aroclor-1254	3.20E-02	1.66	1.93E+00					
EPA Site Inspection	DR094	8/20/1998	Aroclor-1254	3.00E-02 J	0.47	6.38E+00					
LDW RI Phase 2 Round 1	C5	8/27/2004	Aroclor-1254	2.50E-02	0.32	7.81E+00					
Puget Sound Sediment Sampling	205	6/23/1998	Aroclor-1260	3.20E-01	1.33	2.41E+01					
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Aroclor-1260	1.57E-01 J	2.84	5.53E+00					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Aroclor-1260	1.30E-01	2.61	4.98E+00					
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Aroclor-1260	1.22E-01	2.71	4.50E+00					
EPA Site Inspection	DR146	8/19/1998	Aroclor-1260	1.10E-01	2.02	5.45E+00					
EPA Site Inspection	DR099	8/20/1998	Aroclor-1260	1.00E-01 J	1.02	9.80E+00					
EPA Site Inspection	DR096	9/2/1998	Aroclor-1260	9.00E-02 J	1.95	4.62E+00					
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Aroclor-1260	8.60E-02 J	2.82	3.05E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1260	6.60E-02	1.78	3.71E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1260	6.40E-02	1.84	3.48E+00					
EPA Site Inspection	DR097	8/20/1998	Aroclor-1260	6.20E-02 J	2.99	2.07E+00					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Aroclor-1260	5.80E-02 J	2.63	2.21E+00					
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Aroclor-1260	5.20E-02	2.44	2.13E+00					
EPA Site Inspection	DR098	8/20/1998	Aroclor-1260	4.50E-02	0.972	4.63E+00					
EPA Site Inspection	DR147	9/2/1998	Aroclor-1260	4.40E-02 J	2.15	2.05E+00					
EPA Site Inspection	DR100	8/20/1998	Aroclor-1260	4.30E-02	1.59	2.70E+00					
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Aroclor-1260	4.20E-02	2.39	1.76E+00					
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Aroclor-1260	3.80E-02 J	2.17	1.75E+00					
EPA Site Inspection	DR166	8/13/1998	Aroclor-1260	3.50E-02 J	1.47	2.38E+00					
EPA Site Inspection	DR103	8/18/1998	Aroclor-1260	3.20E-02 J	1.84	1.74E+00					
LDW RI Phase 2 Round 1	C5	8/27/2004	Aroclor-1260	2.80E-02	0.32	8.75E+00					
EPA Site Inspection	DR165	8/13/1998	Aroclor-1260	2.20E-02 J	2.36	9.32E-01					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Arsenic	1.69E+01	2.61		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Arsenic	1.46E+01	2.99		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Arsenic	1.43E+01	2.15		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Arsenic	1.42E+01	2.71		57	93	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Arsenic	1.31E+01	2.17		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Arsenic	1.23E+01	2.82		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Arsenic	1.22E+01	2.63		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Arsenic	1.22E+01	2.84		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Arsenic	1.20E+01	1.95		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Arsenic	1.19E+01	1.84		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Arsenic	1.13E+01	2.44		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Arsenic	1.11E+01	1.73		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Arsenic	1.07E+01	1.84		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Arsenic	1.02E+01	2.39		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Arsenic	1.00E+01	1.78		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR146	8/19/1998	Arsenic	9.50E+00	2.02		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Arsenic	8.90E+00	1.59		57	93	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Arsenic	8.85E+00	1.33		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Arsenic	8.70E+00	1.02		57	93	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR101	8/20/1998	Arsenic	8.50E+00	1.66		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Arsenic	8.40E+00	0.972		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Arsenic	8.30E+00	2.36		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Arsenic	7.50E+00 J	0.47		700	57	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Arsenic	6.90E+00	1.47		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Arsenic	4.72E+00	0.32		700	57	mg/kg DW	<1	<1
EPA Site Inspection	DR094	8/20/1998	Arsenic	4.60E+00	0.61		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Arsenic	2.40E+00	0.62		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Barium	1.10E+03	1.02						
EPA Site Inspection	DR097	8/20/1998	Barium	1.18E+02	2.99						
James Hardie Outfall and Nearshore Sediment Samplin	JHGSA-SD1-COMP27-00	7/3/2000	Barium	1.16E+02	2.17						
EPA Site Inspection	DR103	8/18/1998	Barium	1.13E+02	1.84						
EPA Site Inspection	DR096	9/2/1998	Barium	1.10E+02	1.95						
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Barium	9.30E+01	2.71						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Barium	8.90E+01	2.82						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Barium	8.60E+01	2.84						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Barium	8.40E+01	2.63						
EPA Site Inspection	DR165	8/13/1998	Barium	7.80E+01	2.36						
EPA Site Inspection	DR147	9/2/1998	Barium	7.40E+01	2.15						
EPA Site Inspection	DR101	8/20/1998	Barium	7.30E+01	1.73						
EPA Site Inspection	DR166	8/13/1998	Barium	6.40E+01	1.47						
Puget Sound Sediment Sampling	205	6/23/1998	Barium	6.07E+01	1.33						
EPA Site Inspection	DR101	8/20/1998	Barium	5.30E+01	1.66						
EPA Site Inspection	DR094	8/20/1998	Barium	4.20E+01	0.61						
EPA Site Inspection	DR097	8/20/1998	Benzo(a)anthracene	1.10E+00	2.99	3.68E+01	110	270	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(a)anthracene	9.08E-01	1.33	6.83E+01	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzo(a)anthracene	4.80E-01	2.02	2.38E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzo(a)anthracene	4.10E-01	0.32		1300	5100	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Benzo(a)anthracene	4.10E-01	2.71	1.51E+01	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Benzo(a)anthracene	3.50E-01	2.15	1.63E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(a)anthracene	3.50E-01	2.61	1.34E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Benzo(a)anthracene	3.50E-01	2.82	1.24E+01	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(a)anthracene	3.40E-01 J	1.73	1.97E+01	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Benzo(a)anthracene	3.00E-01	1.95	1.54E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Benzo(a)anthracene	2.80E-01	2.84	9.86E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(a)anthracene	2.50E-01	2.63	9.51E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR094	8/20/1998	Benzo(a)anthracene	2.00E-01	0.61	3.28E+01	110	270	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplin	JHGSA-SD1-COMP27-00	7/3/2000	Benzo(a)anthracene	2.00E-01	2.17	9.22E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Benzo(a)anthracene	1.60E-01	1.02	1.57E+01	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(a)anthracene	1.60E-01	1.84	8.70E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(a)anthracene	1.40E-01	1.66	8.43E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Benzo(a)anthracene	1.40E-01	2.39	5.86E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Benzo(a)anthracene	1.20E-01	2.44	4.92E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Benzo(a)anthracene	9.70E-02	0.972	9.98E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(a)anthracene	9.70E-02	1.84	5.27E+00	110	270	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR094 [a]	8/20/1998	Benzo(a)anthracene	8.70E-02	0.47		1300	5100	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Benzo(a)anthracene	8.00E-02	2.36	3.39E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Benzo(a)anthracene	8.00E-02	1.47	5.44E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Benzo(a)anthracene	4.90E-02 J	1.59	3.08E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzo(a)anthracene	1.20E-02	0.62	1.94E+00	110	270	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(a)pyrene	8.60E-01	1.33	6.47E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Benzo(a)pyrene	6.70E-01	2.99	2.24E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzo(a)pyrene	4.60E-01	2.02	2.28E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzo(a)pyrene	3.90E-01	0.32		1600	3600	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(a)pyrene	3.90E-01	2.61	1.49E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Benzo(a)pyrene	3.40E-01	2.82	1.21E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(a)pyrene	3.30E-01 J	1.73	1.91E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Benzo(a)pyrene	3.20E-01	2.15	1.49E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Benzo(a)pyrene	3.00E-01	2.71	1.11E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Benzo(a)pyrene	3.00E-01	2.84	1.06E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(a)pyrene	2.50E-01	2.63	9.51E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Benzo(a)pyrene	2.40E-01	1.95	1.23E+01	99	210	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Benzo(a)pyrene	2.20E-01	2.17	1.01E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Benzo(a)pyrene	1.80E-01	1.02	1.76E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR094	8/20/1998	Benzo(a)pyrene	1.70E-01	0.61	2.79E+01	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(a)pyrene	1.60E-01	1.84	8.70E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(a)pyrene	1.20E-01	1.84	6.52E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(a)pyrene	1.10E-01	1.66	6.63E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Benzo(a)pyrene	1.10E-01	2.39	4.60E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Benzo(a)pyrene	1.10E-01	2.44	4.51E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Benzo(a)pyrene	9.70E-02	0.972	9.98E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Benzo(a)pyrene	9.00E-02	2.36	3.81E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Benzo(a)pyrene	8.00E-02	1.47	5.44E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Benzo(a)pyrene	6.70E-02	0.47		1600	3600	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Benzo(a)pyrene	6.30E-02	1.59	3.96E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzo(a)pyrene	9.90E-03	0.62	1.60E+00	99	210	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(b)fluoranthene	1.60E+00 J	1.33	1.20E+02	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Benzo(b)fluoranthene	1.00E+00	2.99	3.34E+01				<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzo(b)fluoranthene	7.30E-01	2.02	3.61E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(b)fluoranthene	7.00E-01	2.61	2.68E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Benzo(b)fluoranthene	4.70E-01	2.82	1.67E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Benzo(b)fluoranthene	4.60E-01	2.15	2.14E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Benzo(b)fluoranthene	4.50E-01	2.71	1.66E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzo(b)fluoranthene	3.90E-01	0.32		3200	9900	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Benzo(b)fluoranthene	3.70E-01	2.84	1.30E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Benzo(b)fluoranthene	3.50E-01	1.95	1.79E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(b)fluoranthene	3.50E-01	2.63	1.33E+01	230	450	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Benzo(b)fluoranthene	3.00E-01	2.17	1.38E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(b)fluoranthene	2.80E-01 J	1.73	1.62E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Benzo(b)fluoranthene	2.40E-01	1.02	2.35E+01	230	450	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR103	8/18/1998	Benzo(b)fluoranthene	2.40E-01	1.84	1.30E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR094	8/20/1998	Benzo(b)fluoranthene	2.30E-01	0.61	3.77E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(b)fluoranthene	2.00E-01	1.84	1.09E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Benzo(b)fluoranthene	1.80E-01	2.39	7.53E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(b)fluoranthene	1.60E-01	1.66	9.64E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Benzo(b)fluoranthene	1.60E-01	2.44	6.56E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Benzo(b)fluoranthene	1.10E-01	0.972	1.13E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Benzo(b)fluoranthene	1.00E-01	1.59	6.29E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Benzo(b)fluoranthene	1.00E-01	2.36	4.24E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Benzo(b)fluoranthene	9.40E-02	0.47		3200	9900	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Benzo(b)fluoranthene	9.00E-02	1.47	6.12E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzo(b)fluoranthene	2.30E-02	0.62	3.71E+00	230	450	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(e)pyrene	7.78E-01	1.33	5.85E+01					
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(g,h,i)perylene	5.89E-01	1.33	4.43E+01	31	78	mg/kg OC	1.4	<1
EPA Site Inspection	DR097	8/20/1998	Benzo(g,h,i)perylene	2.60E-01	2.99	8.70E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Benzo(g,h,i)perylene	2.20E-01	2.82	7.80E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Benzo(g,h,i)perylene	2.10E-01	2.71	7.75E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Benzo(g,h,i)perylene	1.90E-01	2.15	8.84E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Benzo(g,h,i)perylene	1.90E-01	2.84	6.69E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(g,h,i)perylene	1.80E-01 J	1.73	1.04E+01	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Benzo(g,h,i)perylene	1.60E-01	1.95	8.21E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(g,h,i)perylene	1.50E-01	2.63	5.70E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzo(g,h,i)perylene	1.30E-01	2.02	6.44E+00	31	78	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Benzo(g,h,i)perylene	1.20E-01	2.17	5.53E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzo(g,h,i)perylene	1.10E-01	0.32		670	2600	mg/kg DW	<1	<1
EPA Site Inspection	DR094	8/20/1998	Benzo(g,h,i)perylene	1.00E-01	0.61	1.64E+01	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(g,h,i)perylene	9.40E-02	2.61	3.60E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(g,h,i)perylene	8.10E-02	1.84	4.40E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Benzo(g,h,i)perylene	8.00E-02	1.02	7.84E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(g,h,i)perylene	8.00E-02	1.84	4.35E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Benzo(g,h,i)perylene	6.80E-02	0.972	7.00E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(g,h,i)perylene	6.00E-02	1.66	3.61E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Benzo(g,h,i)perylene	6.00E-02	2.36	2.54E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Benzo(g,h,i)perylene	6.00E-02	1.47	4.08E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Benzo(g,h,i)perylene	5.30E-02 J	1.59	3.33E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Benzo(g,h,i)perylene	5.00E-02	2.44	2.05E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Benzo(g,h,i)perylene	4.00E-02	0.47		670	2600	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Benzo(k)fluoranthene	7.30E-01	2.99	2.44E+01				<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzo(k)fluoranthene	6.40E-01	2.02	3.17E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(k)fluoranthene	5.90E-01	2.61	2.26E+01	230	450	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzo(k)fluoranthene	5.87E-01	1.33	4.41E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Benzo(k)fluoranthene	3.30E-01	2.15	1.53E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Benzo(k)fluoranthene	3.20E-01	2.71	1.18E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Benzo(k)fluoranthene	3.10E-01	2.82	1.10E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Benzo(k)fluoranthene	2.90E-01	2.84	1.02E+01	230	450	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR101	8/20/1998	Benzo(k)fluoranthene	2.70E-01 J	1.73	1.56E+01	230	450	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Benzo(k)fluoranthene	2.40E-01	2.17	1.11E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzo(k)fluoranthene	2.40E-01	2.63	9.13E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Benzo(k)fluoranthene	2.30E-01	1.95	1.18E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Benzo(k)fluoranthene	2.10E-01	2.39	8.79E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzo(k)fluoranthene	2.00E-01	0.61	3.28E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Benzo(k)fluoranthene	2.00E-01	1.02	1.96E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzo(k)fluoranthene	1.80E-01	0.32		3200	9900	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Benzo(k)fluoranthene	1.70E-01	1.84	9.24E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Benzo(k)fluoranthene	1.10E-01	1.84	5.98E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Benzo(k)fluoranthene	1.10E-01	2.44	4.51E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzo(k)fluoranthene	1.00E-01	1.66	6.02E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Benzo(k)fluoranthene	9.90E-02	0.972	1.02E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Benzo(k)fluoranthene	8.00E-02	2.36	3.39E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Benzo(k)fluoranthene	8.00E-02	1.47	5.44E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Benzo(k)fluoranthene	7.20E-02	0.47		3200	9900	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Benzo(k)fluoranthene	5.90E-02 J	1.59	3.71E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzo(k)fluoranthene	2.40E-02	0.62	3.87E+00	230	450	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzofluoranthenes (total-calc'd)	2.19E+00 J	1.33	1.64E+02	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Benzofluoranthenes (total-calc'd)	1.73E+00	2.99	5.79E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzofluoranthenes (total-calc'd)	1.37E+00	2.02	6.78E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzofluoranthenes (total-calc'd)	1.29E+00	2.61	4.94E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Benzofluoranthenes (total-calc'd)	7.90E-01	2.15	3.67E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Benzofluoranthenes (total-calc'd)	7.80E-01	2.82	2.77E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Benzofluoranthenes (total-calc'd)	7.70E-01	2.71	2.84E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Benzofluoranthenes (total-calc'd)	6.60E-01	2.84	2.32E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Benzofluoranthenes (total-calc'd)	5.90E-01	2.63	2.24E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Benzofluoranthenes (total-calc'd)	5.80E-01	1.95	2.97E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzofluoranthenes (total-calc'd)	5.70E-01	0.32		3200	9900	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzofluoranthenes (total-calc'd)	5.50E-01 J	1.73	3.18E+01	230	450	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Benzofluoranthenes (total-calc'd)	5.40E-01	2.17	2.49E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Benzofluoranthenes (total-calc'd)	4.40E-01	1.02	4.31E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzofluoranthenes (total-calc'd)	4.30E-01	0.61	7.05E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Benzofluoranthenes (total-calc'd)	4.10E-01	1.84	2.23E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Benzofluoranthenes (total-calc'd)	3.90E-01	2.39	1.63E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Benzofluoranthenes (total-calc'd)	3.10E-01	1.84	1.68E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Benzofluoranthenes (total-calc'd)	2.70E-01	2.44	1.11E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Benzofluoranthenes (total-calc'd)	2.60E-01	1.66	1.57E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Benzofluoranthenes (total-calc'd)	2.10E-01	0.972	2.16E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Benzofluoranthenes (total-calc'd)	1.80E-01	2.36	7.63E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Benzofluoranthenes (total-calc'd)	1.70E-01	1.47	1.16E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Benzofluoranthenes (total-calc'd)	1.66E-01	0.47		3200	9900	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Benzofluoranthenes (total-calc'd)	1.60E-01 J	1.59	1.01E+01	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Benzofluoranthenes (total-calc'd)	4.70E-02	0.62	7.58E+00	230	450	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Benzoic acid	5.93E+00 J	1.33	4.46E+02	650	650	ug/kg DW	9.1	9.1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Benzoic acid	6.00E-01	0.32		650	650	mg/kg DW	<1	<1
EPA Site Inspection	DR146	8/19/1998	Benzoic acid	1.20E-01	2.02	5.94E+00	650	650	ug/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Beryllium	5.30E-01	2.36						
EPA Site Inspection	DR104	8/18/1998	Beryllium	4.80E-01	1.84						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Beryllium	4.80E-01	2.63						
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Beryllium	4.70E-01	2.71						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Beryllium	4.70E-01	2.82						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Beryllium	4.60E-01	2.84						
EPA Site Inspection	DR166	8/13/1998	Beryllium	4.40E-01	1.47						
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Beryllium	4.10E-01	2.17						
EPA Site Inspection	DR096	9/2/1998	Beryllium	3.90E-01	1.95						
EPA Site Inspection	DR101	8/20/1998	Beryllium	3.80E-01	1.73						
Puget Sound Sediment Sampling	205	6/23/1998	Beryllium	3.70E-01	1.33						
EPA Site Inspection	DR097	8/20/1998	Beryllium	3.70E-01	2.99						
EPA Site Inspection	DR147	9/2/1998	Beryllium	3.60E-01	2.15						
EPA Site Inspection	DR099	8/20/1998	Beryllium	2.40E-01	1.02						
EPA Site Inspection	DR101	8/20/1998	Beryllium	2.10E-01	1.66						
EPA Site Inspection	DR095	8/20/1998	Beryllium	1.60E-01	0.61						
Puget Sound Sediment Sampling	205	6/23/1998	Biphenyl	3.10E-02	1.33	2.33E+00	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Bis(2-ethylhexyl)phthalate	1.20E+00	2.99	4.01E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Bis(2-ethylhexyl)phthalate	7.70E-01	2.71	2.84E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Bis(2-ethylhexyl)phthalate	6.20E-01	2.82	2.20E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Bis(2-ethylhexyl)phthalate	5.50E-01	2.84	1.94E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Bis(2-ethylhexyl)phthalate	5.30E-01	2.63	2.02E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Bis(2-ethylhexyl)phthalate	4.40E-01	2.61	1.69E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Bis(2-ethylhexyl)phthalate	4.20E-01	1.84	2.28E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Bis(2-ethylhexyl)phthalate	4.00E-01	2.15	1.86E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Bis(2-ethylhexyl)phthalate	3.30E-01	1.95	1.69E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Bis(2-ethylhexyl)phthalate	3.10E-01	2.02	1.53E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Bis(2-ethylhexyl)phthalate	2.10E-01	1.84	1.14E+01	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Bis(2-ethylhexyl)phthalate	1.80E-01	1.59	1.13E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Bis(2-ethylhexyl)phthalate	1.50E-01	2.39	6.28E+00	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Bis(2-ethylhexyl)phthalate	1.40E-01	0.972	1.44E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Bis(2-ethylhexyl)phthalate	4.10E-02 J	0.32		1900	1300	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Bis(2-ethylhexyl)phthalate	3.90E-02 J	0.47		1900	1300	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Bis(2-ethylhexyl)phthalate	3.60E-02 J	1.78	2.02E+00	47	78	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Bis(2-ethylhexyl)phthalate	2.20E-02	0.62	3.55E+00	47	78	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Butyl benzyl phthalate	8.60E-02	1.33	6.47E+00	4.9	64	mg/kg OC	1.3	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Butyl benzyl phthalate	6.00E-02	2.71	2.21E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Butyl benzyl phthalate	5.00E-02	2.84	1.76E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Butyl benzyl phthalate	4.00E-02	2.99	1.34E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Butyl benzyl phthalate	4.00E-02	2.63	1.52E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Butyl benzyl phthalate	4.00E-02	2.82	1.42E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5	8/27/2004	Butyl benzyl phthalate	3.90E-02	0.32	1.22E+01	63	900	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Butyl benzyl phthalate	3.60E-02	2.02	1.78E+00	4.9	64	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR096	9/2/1998	Butyl benzyl phthalate	3.00E-02	1.95	1.54E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Butyl benzyl phthalate	3.00E-02	1.84	1.63E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Butyl benzyl phthalate	3.00E-02	2.15	1.40E+00	4.9	64	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Butyl benzyl phthalate	3.00E-02	2.17	1.38E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Butyl benzyl phthalate	2.00E-02	1.47	1.36E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Butyl benzyl phthalate	1.80E-02	1.84	9.78E-01	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Butyl benzyl phthalate	1.20E-02	0.972	1.23E+00	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Butyl benzyl phthalate	1.20E-02	1.59	7.55E-01	4.9	64	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Butyl benzyl phthalate	6.20E-03	1.78	3.48E-01	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Cadmium	7.00E-01	2.61		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR146	8/19/1998	Cadmium	6.00E-01	2.02		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Cadmium	6.00E-01	2.71		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Cadmium	5.10E-01	1.02		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Cadmium	5.00E-01	1.78		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Cadmium	5.00E-01	2.63		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Cadmium	4.70E-01	1.73		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Cadmium	4.60E-01	2.82		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Cadmium	4.20E-01	2.15		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Cadmium	4.20E-01	2.84		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Cadmium	4.00E-01	1.95		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Cadmium	4.00E-01	1.84		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Cadmium	4.00E-01	2.44		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Cadmium	3.90E-01	2.99		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Cadmium	3.90E-01	1.47		5.1	6.7	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Cadmium	3.90E-01	2.17		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Cadmium	3.50E-01	1.84		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Cadmium	3.10E-01	2.36		5.1	6.7	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Cadmium	2.80E-01	1.33		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Cadmium	2.40E-01	1.66		5.1	6.7	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Cadmium	2.30E-01	0.47		9.6	5.1	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Cadmium	2.20E-01	0.61		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Cadmium	7.00E-02	0.32		9.6	5.1	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Calcium	6.18E+03	2.99						
EPA Site Inspection	DR165	8/13/1998	Calcium	5.10E+03	2.36						
EPA Site Inspection	DR166	8/13/1998	Calcium	4.55E+03	1.47						
EPA Site Inspection	DR097	8/20/1998	Carbazole	4.30E-01	2.99	1.44E+01					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Carbazole	8.00E-02	2.61	3.07E+00					
EPA Site Inspection	DR102	8/20/1998	Carbazole	5.00E-02 J	1.73	2.89E+00					
EPA Site Inspection	DR095	8/20/1998	Carbazole	4.00E-02	0.61	6.56E+00					
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Carbazole	4.00E-02	2.71	1.48E+00					
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Carbazole	4.00E-02	2.82	1.42E+00					
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Carbazole	4.00E-02	2.84	1.41E+00					
EPA Site Inspection	DR146	8/19/1998	Carbazole	3.90E-02 J	2.02	1.93E+00					
EPA Site Inspection	DR147	9/2/1998	Carbazole	3.00E-02	2.15	1.40E+00					
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Carbazole	3.00E-02	2.63	1.14E+00					

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 1	C5	8/27/2004	Carbazole	2.10E-02 J	0.32	6.56E+00					
EPA Site Inspection	DR096	9/2/1998	Carbazole	2.00E-02	1.95	1.03E+00					
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Carbazole	2.00E-02	2.17	9.22E-01					
EPA Site Inspection	DR100	8/20/1998	Chromium	3.88E+01	1.59		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Chromium	3.60E+01	2.15		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Chromium	3.60E+01	2.61		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Chromium	3.50E+01	1.95		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Chromium	3.50E+01	2.71		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Chromium	3.30E+01	2.82		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Chromium	3.20E+01	1.84		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Chromium	3.20E+01	2.84		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Chromium	3.00E+01	2.36		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Chromium	2.90E+01	2.99		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Chromium	2.90E+01	2.63		260	270	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Chromium	2.80E+01	2.17		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR146	8/19/1998	Chromium	2.77E+01	2.02		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Chromium	2.70E+01	1.78		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Chromium	2.65E+01	0.972		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Chromium	2.52E+01	2.44		260	270	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Chromium	2.51E+01	1.33		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Chromium	2.50E+01	1.73		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Chromium	2.47E+01	2.39		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Chromium	2.30E+01 J	0.47		NA	260	mg/kg DW	NA	<1
EPA Site Inspection	DR099	8/20/1998	Chromium	2.30E+01	1.02		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Chromium	2.17E+01	1.84		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Chromium	2.10E+01	1.47		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Chromium	1.50E+01	1.66		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Chromium	1.24E+01	0.62		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Chromium	1.20E+01	0.61		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Chromium	1.04E+01	0.32		NA	260	mg/kg DW	NA	<1
EPA Site Inspection	DR097	8/20/1998	Chrysene	1.70E+00	2.99	5.69E+01	100	460	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Chrysene	1.47E+00	1.33	1.11E+02	100	460	mg/kg OC	1.1	<1
EPA Site Inspection	DR146	8/19/1998	Chrysene	6.00E-01	2.02	2.97E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Chrysene	5.80E-01	2.61	2.22E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Chrysene	5.30E-01	2.71	1.96E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Chrysene	5.30E-01	2.82	1.88E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Chrysene	4.70E-01	2.15	2.19E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Chrysene	4.30E-01 J	1.73	2.49E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Chrysene	4.20E-01	2.84	1.48E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Chrysene	4.00E-01	1.95	2.05E+01	100	460	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Chrysene	3.60E-01	0.61	5.90E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Chrysene	3.60E-01	2.63	1.37E+01	110	460	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	Chrysene	3.00E-01	2.17	1.38E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Chrysene	2.90E-01	0.32		1400	9200	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Chrysene	2.80E-01	1.02	2.75E+01	110	460	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Chrysene	2.60E-01	2.39	1.09E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Chrysene	2.30E-01	1.84	1.25E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Chrysene	1.80E-01	1.66	1.08E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Chrysene	1.80E-01	2.44	7.38E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Chrysene	1.70E-01	0.972	1.75E+01	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Chrysene	1.70E-01	1.84	9.24E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Chrysene	1.40E-01	0.47		1400	9200	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Chrysene	1.10E-01	2.36	4.66E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Chrysene	1.00E-01	1.47	6.80E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Chrysene	7.30E-02	1.59	4.59E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Chrysene	3.50E-02 J	1.78	1.97E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Chrysene	2.30E-02	0.62	3.71E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Cobalt	1.10E+01	1.78						
EPA Site Inspection	DR104	8/18/1998	Cobalt	1.10E+01	1.84						
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Cobalt	1.10E+01	2.71						
EPA Site Inspection	DR096	9/2/1998	Cobalt	1.00E+01	1.95						
EPA Site Inspection	DR165	8/13/1998	Cobalt	1.00E+01	2.36						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Cobalt	1.00E+01	2.63						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Cobalt	1.00E+01	2.82						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Cobalt	1.00E+01	2.84						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Cobalt	9.60E+00	2.61						
EPA Site Inspection	DR147	9/2/1998	Cobalt	9.00E+00	2.15						
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Cobalt	9.00E+00	2.17						
EPA Site Inspection	DR097	8/20/1998	Cobalt	8.00E+00	2.99						
EPA Site Inspection	DR102	8/20/1998	Cobalt	8.00E+00	1.73						
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Cobalt	7.80E+00	2.44						
Puget Sound Sediment Sampling	205	6/23/1998	Cobalt	7.73E+00	1.33						
EPA Site Inspection	DR099	8/20/1998	Cobalt	7.00E+00	1.02						
EPA Site Inspection	DR166	8/13/1998	Cobalt	7.00E+00	1.47						
EPA Site Inspection	DR104	8/18/1998	Cobalt	6.80E+00	1.84						
EPA Site Inspection	DR100	8/20/1998	Cobalt	6.40E+00	1.59						
EPA Site Inspection	DR098	8/20/1998	Cobalt	6.10E+00	0.972						
EPA Site Inspection	DR147	9/2/1998	Cobalt	6.10E+00	2.02						
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Cobalt	6.10E+00	2.39						
EPA Site Inspection	DR101	8/20/1998	Cobalt	5.00E+00	1.66						
EPA Site Inspection	DR095	8/20/1998	Cobalt	4.50E+00	0.62						
EPA Site Inspection	DR095	8/20/1998	Cobalt	4.00E+00	0.61						
LDW RI Phase 2 Round 1	C5	8/27/2004	Cobalt	3.92E+00	0.32						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Copper	9.40E+01 J	2.61		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Copper	7.80E+01	2.71		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Copper	7.10E+01	2.82		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Copper	6.90E+01	2.15		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Copper	6.90E+01	2.84		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Copper	6.70E+01	2.63		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Copper	6.60E+01	1.95		390	390	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR097	8/20/1998	Copper	6.30E+01	2.99		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Copper	6.29E+01	0.972		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Copper	6.10E+01	1.84		390	390	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Copper	5.90E+01	2.17		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Copper	5.89E+01	2.44		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Copper	5.79E+01 J	2.02		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Copper	5.25E+01	1.84		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Copper	4.83E+01	2.39		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Copper	4.70E+01	1.73		390	390	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Copper	4.37E+01	1.33		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Copper	4.21E+01	1.78		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Copper	4.20E+01	2.36		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Copper	4.19E+01	1.59		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Copper	4.09E+01 J	0.47		390	530	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Copper	3.90E+01	1.02		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Copper	3.30E+01	1.47		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Copper	3.10E+01	1.66		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Copper	2.50E+01	0.61		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Copper	1.74E+01	0.32		390	530	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Copper	1.69E+01	0.62		390	390	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	DDTs (total-calc'd)	1.84E-02	1.33	1.38E+00	6.9	69	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5	8/27/2004	DDTs (total-calc'd)	4.90E-03 JN	0.32	1.53E+00	6.9	69	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Dibenzo(a,h)anthracene	1.32E-01	1.33	9.92E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Dibenzo(a,h)anthracene	7.00E-02	2.99	2.34E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Dibenzo(a,h)anthracene	7.00E-02	2.82	2.48E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Dibenzo(a,h)anthracene	6.00E-02	1.95	3.08E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Dibenzo(a,h)anthracene	6.00E-02	2.71	2.21E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Dibenzo(a,h)anthracene	5.40E-02 J	2.02	2.67E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Dibenzo(a,h)anthracene	5.00E-02	2.15	2.33E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Dibenzo(a,h)anthracene	5.00E-02	2.84	1.76E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Dibenzo(a,h)anthracene	4.00E-02 J	1.73	2.31E+00	12	33	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Dibenzo(a,h)anthracene	4.00E-02	2.17	1.84E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Dibenzo(a,h)anthracene	4.00E-02	2.63	1.52E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Dibenzo(a,h)anthracene	3.10E-02	1.84	1.68E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Dibenzo(a,h)anthracene	3.00E-02	0.61	4.92E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Dibenzo(a,h)anthracene	2.80E-02	0.32		230	970	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Dibenzo(a,h)anthracene	2.00E-02	1.02	1.96E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Dibenzo(a,h)anthracene	1.30E-02	0.972	1.34E+00	12	33	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Dibenzo(a,h)anthracene	1.00E-02 J	0.47		230	970	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Dibenzo(a,h)anthracene	9.20E-03	1.59	5.79E-01	12	33	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Dibenzofuran	1.03E-01	1.33	7.74E+00	15	58	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Dibenzofuran	1.00E-01	2.99	3.34E+00	15	58	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Dibenzofuran	3.00E-02 J	1.73	1.73E+00	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Dibenzofuran	3.00E-02	2.82	1.06E+00	15	58	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Dibenzofuran	2.30E-02	0.47		540	700	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Dibenzofuran	2.10E-02	0.32		540	700	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Dibenzofuran	2.00E-02	1.95	1.03E+00	15	58	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Dibenzofuran	2.00E-02	1.02	1.96E+00	15	58	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Dibenzofuran	2.00E-02	2.15	9.30E-01	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Dibenzofuran	2.00E-02	2.63	7.60E-01	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Dibenzofuran	2.00E-02	2.71	7.38E-01	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Dibenzofuran	2.00E-02	2.84	7.04E-01	15	58	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Dibenzothiophene	5.90E-02	1.33	4.44E+00					
Puget Sound Sediment Sampling	205	6/23/1998	Dibutyltin as ion	2.00E-02	1.33	1.50E+00					
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Dibutyltin as ion	2.00E-02 J	2.71	7.38E-01					
EPA Site Inspection	DR096	9/2/1998	Dibutyltin as ion	1.40E-02 J	1.95	7.18E-01					
EPA Site Inspection	DR102	8/20/1998	Dibutyltin as ion	1.10E-02 J	1.73	6.36E-01					
LDW RI Phase 2 Round 1	C5	8/27/2004	Dibutyltin as ion	2.90E-03	0.32	9.06E-01					
Puget Sound Sediment Sampling	205	6/23/1998	Diethyl phthalate	2.70E-02	1.33	2.03E+00	61	110	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Diethyl phthalate	1.00E-02	2.39	4.18E-01	61	110	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Dimethyl phthalate	3.40E-02	1.33	2.56E+00	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Dimethyl phthalate	3.00E-02	2.71	1.11E+00	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Dimethyl phthalate	2.00E-02	2.99	6.69E-01	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Dimethyl phthalate	2.00E-02	2.82	7.09E-01	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Dimethyl phthalate	7.20E-03	2.02	3.56E-01	53	53	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Dimethyl phthalate	6.20E-03 J	0.972	6.38E-01	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Di-n-butyl phthalate	2.90E-02 J	0.32		1400	NA	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Di-n-butyl phthalate	2.00E-02	2.99	6.69E-01	220	1700	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Di-n-butyl phthalate	2.00E-02 J	1.73	1.16E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Di-n-butyl phthalate	2.00E-02	2.84	7.04E-01	220	1700	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Di-n-butyl phthalate	5.00E-03 J	0.47		1400	NA	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Di-n-octyl phthalate	4.00E-02	2.71	1.48E+00	58	4500	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Fluoranthene	2.70E+00	2.99	9.03E+01	160	1200	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Fluoranthene	1.79E+00	1.33	1.35E+02	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Fluoranthene	1.20E+00	2.02	5.94E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Fluoranthene	1.00E+00	2.71	3.69E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Fluoranthene	9.80E-01	2.61	3.75E+01	160	1200	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	EIT079	11/4/1997	Fluoranthene	8.90E-01	2.15	4.14E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Fluoranthene	8.70E-01	2.82	3.09E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Fluoranthene	7.00E-01	2.84	2.46E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Fluoranthene	6.90E-01 J	1.73	3.99E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Fluoranthene	6.60E-01	2.63	2.51E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Fluoranthene	6.40E-01	1.95	3.28E+01	160	1200	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Fluoranthene	5.90E-01	2.17	2.72E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Fluoranthene	4.70E-01	2.39	1.97E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Fluoranthene	4.40E-01	0.32		1700	24000	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Fluoranthene	4.30E-01	1.02	4.22E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Fluoranthene	4.10E-01	1.84	2.23E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Fluoranthene	3.60E-01	0.61	5.90E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Fluoranthene	2.80E-01	1.66	1.69E+01	160	1200	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Fluoranthene	2.80E-01	2.44	1.15E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Fluoranthene	2.40E-01	1.84	1.30E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Fluoranthene	2.30E-01	1.47	1.56E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Fluoranthene	2.20E-01	2.36	9.32E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Fluoranthene	2.10E-01	0.47		1700	24000	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Fluoranthene	1.70E-01	0.972	1.75E+01	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Fluoranthene	9.40E-02	1.59	5.91E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Fluoranthene	6.50E-02	1.78	3.65E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Fluoranthene	3.30E-02	0.62	5.32E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Fluorene	3.60E-01	2.99	1.20E+01	23	79	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Fluorene	1.24E-01	1.33	9.32E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Fluorene	1.00E-01 J	1.73	5.78E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Fluorene	6.30E-02	2.61	2.41E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Fluorene	5.00E-02	2.82	1.77E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Fluorene	4.00E-02	1.02	3.92E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Fluorene	4.00E-02	2.71	1.48E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Fluorene	3.30E-02	0.32		540	1000	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Fluorene	3.00E-02	0.61	4.92E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Fluorene	3.00E-02	1.95	1.54E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Fluorene	3.00E-02	1.66	1.81E+00	23	79	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	EIT079	11/4/1997	Fluorene	3.00E-02	2.15	1.40E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Fluorene	3.00E-02	2.63	1.14E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Fluorene	3.00E-02	2.84	1.06E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Fluorene	2.90E-02	0.47		540	1000	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Samplii	JHGSA-SD1-COMP27-00	7/3/2000	Fluorene	2.00E-02	2.17	9.22E-01	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5	8/27/2004	gamma-Chlordane	1.10E-03 JN	0.32	3.44E-01					
Puget Sound Sediment Sampling	205	6/23/1998	Hexachlorobenzene	4.50E-03	1.33	3.38E-01	0.38	2.3	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Indeno(1,2,3-cd)pyrene	6.19E-01	1.33	4.65E+01	34	88	mg/kg OC	1.4	<1
EPA Site Inspection	DR097	8/20/1998	Indeno(1,2,3-cd)pyrene	3.50E-01	2.99	1.17E+01	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Indeno(1,2,3-cd)pyrene	2.60E-01	2.82	9.22E+00	34	88	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	EIT081	10/17/1997	Indeno(1,2,3-cd)pyrene	2.40E-01	2.15	1.12E+01	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Indeno(1,2,3-cd)pyrene	2.40E-01	2.84	8.45E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS65	3/8/2005	Indeno(1,2,3-cd)pyrene	2.20E-01	2.71	8.12E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Indeno(1,2,3-cd)pyrene	2.00E-01	0.32		600	2600	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Indeno(1,2,3-cd)pyrene	1.90E-01	2.63	7.22E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Indeno(1,2,3-cd)pyrene	1.70E-01	1.95	8.72E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Indeno(1,2,3-cd)pyrene	1.70E-01 J	1.73	9.83E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Indeno(1,2,3-cd)pyrene	1.50E-01	2.02	7.43E+00	34	88	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplii	JHGSA-SD1-COMP27-00	7/3/2000	Indeno(1,2,3-cd)pyrene	1.50E-01	2.17	6.91E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Indeno(1,2,3-cd)pyrene	1.30E-01	0.61	2.13E+01	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Indeno(1,2,3-cd)pyrene	1.30E-01	2.61	4.98E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Indeno(1,2,3-cd)pyrene	1.00E-01	1.02	9.80E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Indeno(1,2,3-cd)pyrene	1.00E-01	1.84	5.43E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Indeno(1,2,3-cd)pyrene	7.00E-02	1.84	3.80E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Indeno(1,2,3-cd)pyrene	7.00E-02	2.36	2.97E+00	34	88	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Indeno(1,2,3-cd)pyrene	6.30E-02	2.44	2.58E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Indeno(1,2,3-cd)pyrene	6.00E-02	1.66	3.61E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Indeno(1,2,3-cd)pyrene	6.00E-02	1.47	4.08E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Indeno(1,2,3-cd)pyrene	5.30E-02 J	0.972	5.45E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Indeno(1,2,3-cd)pyrene	4.40E-02	0.47		600	2600	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Indeno(1,2,3-cd)pyrene	3.80E-02 J	1.59	2.39E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Indeno(1,2,3-cd)pyrene	1.50E-02	2.39	6.28E-01	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Indeno(1,2,3-cd)pyrene	7.30E-03	0.62	1.18E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Iron	3.43E+04 J	1.84						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Iron	3.33E+04	2.71						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Iron	3.18E+04 J	2.82						
EPA Site Inspection	DR096	9/2/1998	Iron	3.16E+04 J	1.95						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Iron	3.06E+04 J	2.84						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Iron	3.00E+04 J	2.63						
EPA Site Inspection	DR097	8/20/1998	Iron	2.90E+04 J	2.99						
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Iron	2.86E+04 J	2.17						
Duwamish Waterway Sediment Characterization Study	EIT081	10/17/1997	Iron	2.67E+04 J	2.15						
EPA Site Inspection	DR102	8/20/1998	Iron	2.60E+04 J	1.73						
EPA Site Inspection	DR165	8/13/1998	Iron	2.53E+04 J	2.36						
Puget Sound Sediment Sampling	205	6/23/1998	Iron	2.32E+04	1.33						
EPA Site Inspection	DR166	8/13/1998	Iron	1.91E+04 J	1.47						
EPA Site Inspection	DR101	8/20/1998	Iron	1.86E+04 J	1.66						
EPA Site Inspection	DR099	8/20/1998	Iron	1.77E+04 J	1.02						
EPA Site Inspection	DR095	8/20/1998	Iron	1.31E+04 J	0.61						
EPA Site Inspection	DR098	8/20/1998	Lead	3.03E+02	0.972		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Lead	6.99E+01	2.71		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Lead	5.50E+01	2.61		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Lead	4.69E+01	2.82		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Lead	4.60E+01	2.02		450	530	mg/kg DW	<1	<1
Duwamish Waterway Sediment Characterization Study	EST195	10/14/1997	Lead	4.45E+01	2.15		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Lead	4.40E+01	1.59		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Lead	4.10E+01	2.99		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Lead	3.68E+01	2.84		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Lead	3.42E+01	1.95		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Lead	3.40E+01	1.84		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Lead	3.40E+01	2.44		450	530	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Lead	3.30E+01	2.17		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Lead	3.29E+01	1.47		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Lead	3.25E+01	2.63		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Lead	3.02E+01	1.84		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Lead	2.95E+01	2.36		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Lead	2.94E+01	1.02		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Lead	2.80E+01	2.39		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Lead	2.66E+01	1.73		450	530	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Lead	2.62E+01	1.33		450	530	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR103	8/18/1998	Lead	2.50E+01	1.78		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Lead	2.25E+01 J	0.32		530	450	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Lead	2.07E+01	1.66		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Lead	1.84E+01	0.47		530	450	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Lead	1.22E+01	0.61		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Lead	1.10E+01	0.62		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Magnesium	8.20E+03	2.99						
EPA Site Inspection	DR165	8/13/1998	Magnesium	7.32E+03	2.36						
EPA Site Inspection	DR166	8/13/1998	Magnesium	5.48E+03	1.47						
EPA Site Inspection	DR096	9/2/1998	Manganese	3.79E+02	1.95						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Manganese	3.68E+02	2.71						
EPA Site Inspection	DR104	8/18/1998	Manganese	3.59E+02	1.84						
EPA Site Inspection	DR165	8/13/1998	Manganese	3.30E+02	2.36						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Manganese	3.25E+02	2.63						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Manganese	3.20E+02	2.82						
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Manganese	3.12E+02	2.17						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Manganese	3.06E+02	2.84						
EPA Site Inspection	DR097	8/20/1998	Manganese	2.91E+02	2.99						
Duwamish Waterway Sediment Characterization Study	EST195	10/14/1997	Manganese	2.76E+02	2.15						
EPA Site Inspection	DR102	8/20/1998	Manganese	2.56E+02	1.73						
Puget Sound Sediment Sampling	205	6/23/1998	Manganese	2.36E+02	1.33						
EPA Site Inspection	DR166	8/13/1998	Manganese	2.15E+02	1.47						
EPA Site Inspection	DR099	8/20/1998	Manganese	1.79E+02	1.02						
EPA Site Inspection	DR101	8/20/1998	Manganese	1.68E+02	1.66						
EPA Site Inspection	DR095	8/20/1998	Manganese	1.25E+02	0.61						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Mercury	3.40E-01 J	2.61		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Mercury	3.00E-01	2.84		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Mercury	2.90E-01 J	2.02		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Mercury	2.70E-01	2.71		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Mercury	2.50E-01	1.78		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Mercury	2.50E-01	2.82		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Mercury	1.80E-01	1.73		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Mercury	1.70E-01	1.84		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Mercury	1.70E-01	2.63		0.41	0.59	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Mercury	1.50E-01	2.17		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Mercury	1.40E-01	1.95		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Mercury	1.40E-01	2.99		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Mercury	1.40E-01	1.84		0.41	0.59	mg/kg DW	<1	<1
Duwamish Waterway Sediment Characterization Study	EST196	10/22/1997	Mercury	1.30E-01	2.15		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Mercury	1.20E-01	2.36		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Mercury	1.20E-01	2.44		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Mercury	1.10E-01	1.02		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Mercury	1.10E-01	1.47		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Mercury	1.00E-01	1.59		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Mercury	8.00E-02	2.39		0.41	0.59	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
Puget Sound Sediment Sampling	205	6/23/1998	Mercury	7.00E-02	1.33		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Mercury	7.00E-02	1.66		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Mercury	6.00E-02	0.61		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Mercury	6.00E-02	0.62		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Mercury	6.00E-02	0.972		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Mercury	2.10E-02	0.32		0.41	2.1	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Methoxychlor	2.00E-03	1.73						
EPA Site Inspection	DR102	8/20/1998	Methyl ethyl ketone	7.80E-03	1.73						
EPA Site Inspection	DR147	9/2/1998	Molybdenum	2.40E+00	2.02						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Molybdenum	2.00E+00	2.61						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Molybdenum	1.40E+00	2.44						
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Molybdenum	1.10E+00	2.39						
EPA Site Inspection	DR098	8/20/1998	Molybdenum	7.00E-01	0.62						
EPA Site Inspection	DR101	8/20/1998	Molybdenum	6.00E-01	1.59						
EPA Site Inspection	DR098	8/20/1998	Molybdenum	5.00E-01	0.972						
EPA Site Inspection	DR103	8/18/1998	Molybdenum	5.00E-01	1.78						
EPA Site Inspection	DR104	8/18/1998	Molybdenum	5.00E-01	1.84						
LDW RI Phase 2 Round 1	C5	8/27/2004	Molybdenum	4.95E-01 J	0.32						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Monobutyltin as ion	2.30E-02 J	2.71	8.49E-01					
EPA Site Inspection	DR166	8/13/1998	Monobutyltin as ion	6.00E-03 J	1.47	4.08E-01					
LDW RI Phase 2 Round 1	C5	8/27/2004	Monobutyltin as ion	8.50E-04 J	0.32	2.66E-01					
Puget Sound Sediment Sampling	205	6/23/1998	Naphthalene	1.04E-01	1.33	7.82E+00	99	170	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Naphthalene	3.00E-02	2.99	1.00E+00	99	170	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Naphthalene	2.00E-02 J	1.73	1.16E+00	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Naphthalene	1.30E-02	0.32		2100	2700	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Naphthalene	1.00E-02 J	0.47		2100	2700	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	n-Butyltin	1.10E-02 J	1.95						
EPA Site Inspection	DR104	8/18/1998	Nickel	2.61E+01	1.84						
Duwamish Waterway Sediment Characterization Study	EST196	10/22/1997	Nickel	2.59E+01	2.15						
EPA Site Inspection	DR165	8/13/1998	Nickel	2.57E+01	2.36						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Nickel	2.50E+01	2.61						
EPA Site Inspection	DR096	9/2/1998	Nickel	2.28E+01	1.95						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Nickel	2.28E+01	2.71						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Nickel	2.27E+01	2.63						
EPA Site Inspection	DR097	8/20/1998	Nickel	2.16E+01	2.99						
EPA Site Inspection	DR102	8/20/1998	Nickel	2.11E+01	1.73						
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Nickel	2.10E+01	2.39						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Nickel	2.10E+01	2.82						
James Hardie Outfall and Nearshore Sediment Sampli	JHGSA-SD1-COMP27-00	7/3/2000	Nickel	2.07E+01	2.17						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Nickel	2.02E+01	2.84						
EPA Site Inspection	DR103	8/18/1998	Nickel	1.99E+01	1.78						
EPA Site Inspection	DR166	8/13/1998	Nickel	1.97E+01	1.47						
EPA Site Inspection	DR098	8/20/1998	Nickel	1.89E+01	0.972						
EPA Site Inspection	DR104	8/18/1998	Nickel	1.87E+01	1.84						
Puget Sound Sediment Sampling	205	6/23/1998	Nickel	1.78E+01	1.33						

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Nickel	1.70E+01	2.44						
EPA Site Inspection	DR101	8/20/1998	Nickel	1.69E+01	1.59						
EPA Site Inspection	DR099	8/20/1998	Nickel	1.63E+01	1.02						
EPA Site Inspection	DR101	8/20/1998	Nickel	1.51E+01	1.66						
EPA Site Inspection	DR147	9/2/1998	Nickel	1.50E+01	2.02						
LDW RI Phase 2 Round 1	C5	8/27/2004	Nickel	1.13E+01	0.32						
EPA Site Inspection	DR095	8/20/1998	Nickel	1.11E+01	0.61						
EPA Site Inspection	DR098	8/20/1998	Nickel	1.00E+01	0.62						
EPA Site Inspection	DR147	9/2/1998	N-Nitrosodiphenylamine	7.20E-03	2.02	3.56E-01	11	11	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	N-Nitrosodiphenylamine	7.20E-03	2.61	2.76E-01	11	11	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	OCDD	2.96E-03	2.02	1.47E-01					
EPA Site Inspection	DR102	8/20/1998	OCDD	6.20E-04	1.73	3.58E-02					
EPA Site Inspection	DR147	9/2/1998	OCDF	1.85E-04	2.02	9.16E-03					
EPA Site Inspection	DR102	8/20/1998	OCDF	2.80E-05	1.73	1.62E-03					
Puget Sound Sediment Sampling	205	6/23/1998	PCBs (total calc'd)	6.70E-01 J	1.33	5.04E+01	12	65	mg/kg OC	4.2	<1
EPA Site Inspection	DR147	9/2/1998	PCBs (total calc'd)	4.60E-01	2.02	2.28E+01	12	65	mg/kg OC	1.9	<1
EPA Site Inspection	DR099	8/20/1998	PCBs (total calc'd)	3.90E-01 J	1.02	3.82E+01	12	65	mg/kg OC	3.2	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	PCBs (total calc'd)	3.45E-01	2.71	1.27E+01	12	65	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	PCBs (total calc'd)	3.40E-01	2.61	1.30E+01	12	65	mg/kg OC	1.1	<1
EPA Site Inspection	DR147	9/2/1998	PCBs (total calc'd)	3.00E-01	2.04	1.47E+01	12	65	mg/kg OC	1.2	<1
EPA Site Inspection	DR103	8/18/1998	PCBs (total calc'd)	2.60E-01	1.78	1.46E+01	12	65	mg/kg OC	1.2	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	PCBs (total calc'd)	2.42E-01 J	2.84	8.52E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	PCBs (total calc'd)	2.40E-01	1.5	1.60E+01	12	65	mg/kg OC	1.3	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	PCBs (total calc'd)	2.20E-01	2.27	9.69E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	PCBs (total calc'd)	2.11E-01	1.84	1.15E+01	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	PCBs (total calc'd)	1.80E-01	1.47	1.22E+01	12	65	mg/kg OC	1.0	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	PCBs (total calc'd)	1.77E-01 J	2.82	6.28E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	PCBs (total calc'd)	1.72E-01 J	1.95	8.82E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	PCBs (total calc'd)	1.41E-01 J	2.44	5.78E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	PCBs (total calc'd)	1.40E-01	1.87	7.49E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	PCBs (total calc'd)	1.30E-01	2.13	6.10E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	PCBs (total calc'd)	1.30E-01	2.35	5.53E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	PCBs (total calc'd)	1.26E-01 J	2.99	4.21E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	PCBs (total calc'd)	1.25E-01 J	2.63	4.75E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	PCBs (total calc'd)	1.24E-01	0.972	1.28E+01	12	65	mg/kg OC	1.1	<1
EPA Site Inspection	DR101	8/20/1998	PCBs (total calc'd)	1.22E-01	1.59	7.67E+00	12	65	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	CH0029	10/16/1997	PCBs (total calc'd)	1.20E-01	2.01	5.97E+00	12	65	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	EST197	10/7/1997	PCBs (total calc'd)	1.08E-01 J	2.15	5.02E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	PCBs (total calc'd)	1.00E-01	1.33	7.52E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	PCBs (total calc'd)	9.50E-02 J	1.47	6.46E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	PCBs (total calc'd)	9.50E-02	2.39	3.97E+00	12	65	mg/kg OC	<1	<1
James Hardie Outfall and Nearshore Sediment Samplir	JHGSA-SD1-COMP27-00	7/3/2000	PCBs (total calc'd)	9.10E-02 J	2.17	4.19E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	PCBs (total calc'd)	6.90E-02 J	1.84	3.75E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	PCBs (total calc'd)	5.70E-02 J	2.36	2.42E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	PCBs (total calc'd)	5.30E-02	0.32		130	1000	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
Duwamish Waterway Sediment Characterization Study	CH0028 [a]	10/16/1997	PCBs (total calc'd)	4.50E-02 J	0.35		130	1000	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	PCBs (total calc'd)	3.60E-02	0.62	5.81E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	PCBs (total calc'd)	3.20E-02	1.66	1.93E+00	12	65	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	PCBs (total calc'd)	3.00E-02 J	0.47		130	1000	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	PCTs (total)	5.20E-02	2.27	2.29E+00					
EPA Site Inspection	DR100	8/20/1998	PCTs (total)	4.60E-02	1.5	3.07E+00					
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	PCTs (total)	2.80E-02	2.35	1.19E+00					
EPA Site Inspection	DR146	8/19/1998	PCTs (total)	2.20E-02	1.87	1.18E+00					
EPA Site Inspection	DR100	8/20/1998	PCTs (total)	2.10E-02	1.47	1.43E+00					
Duwamish Waterway Sediment Characterization Study	CH0028	10/16/1997	PCTs (total)	2.00E-02	0.35	5.71E+00					
EPA Site Inspection	DR147	9/2/1998	PCTs (total)	1.90E-02	2.13	8.92E-01					
EPA Site Inspection	DR100	8/20/1998	PCTs (total)	1.80E-02	1.33	1.35E+00					
EPA Site Inspection	DR147	9/2/1998	PCTs (total)	1.80E-02	2.04	8.82E-01					
Puget Sound Sediment Sampling	205	6/23/1998	Pentachlorophenol	5.27E-01	1.33	3.96E+01	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Pentachlorophenol	4.40E-02	0.32		NA	690	mg/kg DW	NA	<1
Puget Sound Sediment Sampling	205	6/23/1998	Perylene	9.49E-01	1.33	7.14E+01					
EPA Site Inspection	DR097	8/20/1998	Phenanthrene	1.40E+00	2.99	4.68E+01	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Phenanthrene	7.50E-01 J	1.73	4.34E+01	100	480	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Phenanthrene	6.76E-01	1.33	5.08E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Phenanthrene	3.00E-01	2.71	1.11E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Phenanthrene	2.90E-01	2.61	1.11E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Phenanthrene	2.60E-01	2.82	9.22E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Phenanthrene	2.30E-01	0.32		1500	5400	mg/kg DW	<1	<1
Duwamish Waterway Sediment Characterization Study	EST197	10/7/1997	Phenanthrene	2.10E-01	2.15	9.77E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Phenanthrene	2.10E-01	2.84	7.39E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Phenanthrene	1.90E-01	2.02	9.41E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Phenanthrene	1.90E-01	2.39	7.95E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Phenanthrene	1.70E-01	2.63	6.46E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Phenanthrene	1.50E-01	1.95	7.69E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Phenanthrene	1.50E-01	1.02	1.47E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Phenanthrene	1.30E-01	2.17	5.99E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Phenanthrene	1.10E-01	0.61	1.80E+01	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Phenanthrene	1.10E-01	1.66	6.63E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Phenanthrene	1.10E-01	1.84	5.98E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Phenanthrene	9.00E-02	2.36	3.81E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Phenanthrene	8.20E-02	0.47		1500	5400	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Phenanthrene	7.80E-02	1.84	4.24E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Phenanthrene	7.30E-02	2.44	2.99E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Phenanthrene	7.20E-02	0.972	7.41E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Phenanthrene	6.00E-02	1.47	4.08E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Phenanthrene	4.10E-02 J	1.78	2.30E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Phenanthrene	3.90E-02 J	1.59	2.45E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Phenol	2.80E-01	2.44	1.15E+01	420	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Phenol	2.50E-01	1.95	1.28E+01	420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Phenol	1.80E-01	2.71	6.64E+00	420	1200	ug/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Phenol	1.60E-01	2.17	7.37E+00	420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Phenol	1.30E-01	2.84	4.58E+00	420	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Phenol	8.00E-02	1.84	4.35E+00	420	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Phenol	7.00E-02	1.02	6.86E+00	420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Phenol	5.90E-02	0.32		1200	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Phenol	3.00E-02	0.61	4.92E+00	420	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Phenol	3.00E-02	2.99	1.00E+00	420	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Phenol	3.00E-02	2.36	1.27E+00	420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Phenol	2.00E-02	2.63	7.60E-01	420	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Phenol	1.00E-02 J	0.47		1200	1200	ug/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Pyrene	1.90E+00	2.99	6.35E+01	1000	1400	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Pyrene	1.76E+00	1.33	1.32E+02	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Pyrene	9.10E-01	2.02	4.50E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Pyrene	7.90E-01	2.61	3.03E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Pyrene	7.70E-01 J	1.73	4.45E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Pyrene	7.70E-01	2.71	2.84E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Pyrene	6.80E-01	2.82	2.41E+01	1000	1400	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	EST198	11/13/1997	Pyrene	6.60E-01	2.15	3.07E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Pyrene	5.40E-01	2.84	1.90E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Pyrene	5.30E-01	1.95	2.72E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Pyrene	4.60E-01	2.63	1.75E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Pyrene	4.30E-01	2.17	1.98E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Pyrene	4.10E-01	1.02	4.02E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Pyrene	3.90E-01	0.32		2600	16000	ug/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Pyrene	3.60E-01	1.84	1.96E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Pyrene	3.10E-01	0.61	5.08E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Pyrene	3.10E-01	2.39	1.30E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Pyrene	2.40E-01	1.84	1.30E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Pyrene	2.30E-01	1.66	1.39E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Pyrene	2.10E-01	0.972	2.16E+01	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Pyrene	1.90E-01	2.36	8.05E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Pyrene	1.90E-01	1.47	1.29E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Pyrene	1.80E-01	2.44	7.38E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Pyrene	1.60E-01	0.47		2600	16000	ug/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Pyrene	1.40E-01	1.59	8.81E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Pyrene	5.40E-02 J	1.78	3.03E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Pyrene	2.80E-02	0.62	4.52E+00	1000	1400	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Retene	2.67E-01	1.33	2.01E+01					
EPA Site Inspection	DR096	9/2/1998	Selenium	2.40E+01	1.95						
EPA Site Inspection	DR165	8/13/1998	Selenium	7.00E+00	2.36						
EPA Site Inspection	DR166	8/13/1998	Selenium	7.00E+00	1.47						
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Selenium	7.00E+00	2.82						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Selenium	7.00E+00	2.84						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Selenium	6.00E+00 J	2.63						
EPA Site Inspection	DR097	8/20/1998	Selenium	5.00E+00	2.99						

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR102	8/20/1998	Selenium	5.00E+00	1.73						
EPA Site Inspection	DR104	8/18/1998	Selenium	5.00E+00	1.84						
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Selenium	5.00E+00	2.17						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Selenium	5.00E+00	2.71						
Duwamish Waterway Sediment Characterization Study	EST198	11/13/1997	Selenium	4.00E+00	2.15						
EPA Site Inspection	DR095	8/20/1998	Selenium	3.00E+00	0.61						
EPA Site Inspection	DR100	8/20/1998	Selenium	3.00E+00	1.02						
EPA Site Inspection	DR101	8/20/1998	Selenium	2.00E+00	1.66						
LDW RI Phase 2 Round 1	C5	8/27/2004	Selenium	3.00E-01 J	0.32						
EPA Site Inspection	DR147	9/2/1998	Silver	1.00E+00	2.02		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Silver	6.00E-01 J	1.78		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Silver	4.80E-01 J	2.71		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Silver	4.50E-01	1.02		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Silver	4.30E-01	1.73		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Silver	4.10E-01	2.99		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS69b	3/16/2005	Silver	4.10E-01	2.82		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Silver	4.00E-01 J	1.84		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Silver	3.90E-01	2.84		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Silver	3.70E-01	2.17		6.1	6.1	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Silver	3.60E-01	1.33		6.1	6.1	mg/kg DW	<1	<1
Duwamish Waterway Sediment Characterization Study	EST199	10/7/1997	Silver	3.60E-01	2.15		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Silver	3.50E-01	2.63		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Silver	3.30E-01	0.61		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Silver	3.30E-01	2.36		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Silver	3.20E-01	1.95		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR104	8/18/1998	Silver	3.20E-01	1.84		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Silver	2.70E-01	1.47		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Silver	1.80E-01	1.66		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Silver	8.00E-02	0.47		NA	NA	mg/kg DW	NA	NA
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Silver	7.70E-02	0.32		NA	NA	mg/kg DW	NA	NA
Puget Sound Sediment Sampling	205	6/23/1998	Thallium	2.70E-01	1.33						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Thallium	1.40E-01	2.71						
EPA Site Inspection	DR102	8/20/1998	Thallium	1.30E-01	1.73						
EPA Site Inspection	DR104	8/18/1998	Thallium	1.30E-01	1.84						
EPA Site Inspection	DR097	8/20/1998	Thallium	1.20E-01	2.99						
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Thallium	1.20E-01	2.17						
EPA Site Inspection	DR096	9/2/1998	Thallium	1.10E-01	1.95						
EPA Site Inspection	DR100	8/20/1998	Thallium	1.10E-01	1.02						
EPA Site Inspection	DR165	8/13/1998	Thallium	1.10E-01	2.36						
EPA Site Inspection	DR166	8/13/1998	Thallium	1.10E-01	1.47						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Thallium	1.10E-01	2.82						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Thallium	1.10E-01	2.84						
Duwamish Waterway Sediment Characterization Study	EST199	10/7/1997	Thallium	1.00E-01	2.15						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Thallium	1.00E-01 J	2.63						
EPA Site Inspection	DR095	8/20/1998	Thallium	5.00E-02	0.61						

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR101	8/20/1998	Thallium	5.00E-02	1.66						
LDW RI Phase 2 Round 1	C5	8/27/2004	Thallium	4.40E-02	0.32						
EPA Site Inspection	DR096	9/2/1998	Tin	6.00E+00	1.95						
EPA Site Inspection	DR097	8/20/1998	Tin	6.00E+00	2.99						
EPA Site Inspection	DR100	8/20/1998	Tin	6.00E+00	1.02						
Puget Sound Sediment Sampling	205	6/23/1998	Tin	5.00E+00 J	1.33						
Duwamish Waterway Sediment Characterization Study	EST200	10/6/1997	Tin	5.00E+00	2.15						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Tin	5.00E+00	2.63						
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Tin	4.00E+00	2.17						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Tin	4.00E+00 J	2.82						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Tin	4.00E+00 J	2.84						
EPA Site Inspection	DR101	8/20/1998	Tin	3.00E+00	1.66						
EPA Site Inspection	DR102	8/20/1998	Tin	3.00E+00	1.73						
EPA Site Inspection	DR104	8/18/1998	Tin	3.00E+00	1.84						
LDW RI Phase 2 Round 1	C5	8/27/2004	Total Chlordane (calc'd)	1.20E-03 JN	0.32	3.75E-01					
EPA Site Inspection	DR097	8/20/1998	Total HPAH (calc'd)	1.05E+01	2.99	3.51E+02	960	5300	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Total HPAH (calc'd)	1.03E+01 J	1.33	7.76E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Total HPAH (calc'd)	5.40E+00 J	2.02	2.67E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Total HPAH (calc'd)	4.60E+00	2.61	1.76E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Total HPAH (calc'd)	4.30E+00	2.71	1.59E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Total HPAH (calc'd)	4.10E+00	2.82	1.45E+02	960	5300	mg/kg OC	<1	<1
Duwamish Waterway Sediment Characterization Study	EST200	10/6/1997	Total HPAH (calc'd)	3.96E+00	2.15	1.84E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Total HPAH (calc'd)	3.50E+00 J	1.73	2.02E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Total HPAH (calc'd)	3.38E+00	2.84	1.19E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Total HPAH (calc'd)	3.08E+00	1.95	1.58E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Total HPAH (calc'd)	2.95E+00	2.63	1.12E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Total HPAH (calc'd)	2.83E+00	0.32		12000	69000	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Total HPAH (calc'd)	2.59E+00	2.17	1.19E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Total HPAH (calc'd)	2.10E+00	1.02	2.06E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Total HPAH (calc'd)	2.09E+00	0.61	3.43E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR104	8/18/1998	Total HPAH (calc'd)	1.91E+00	1.84	1.04E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Total HPAH (calc'd)	1.70E+00	2.39	7.11E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Total HPAH (calc'd)	1.36E+00	1.84	7.39E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Total HPAH (calc'd)	1.32E+00	1.66	7.95E+01	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Total HPAH (calc'd)	1.25E+00	2.44	5.12E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Total HPAH (calc'd)	1.09E+00 J	0.972	1.12E+02	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Total HPAH (calc'd)	1.00E+00	2.36	4.24E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Total HPAH (calc'd)	9.70E-01	1.47	6.60E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Total HPAH (calc'd)	9.20E-01 J	0.47		12000	69000	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Total HPAH (calc'd)	6.80E-01 J	1.59	4.28E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR098	8/20/1998	Total HPAH (calc'd)	1.60E-01	0.62	2.58E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Total HPAH (calc'd)	1.54E-01 J	1.78	8.65E+00	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Total HpCDD	1.80E-04	1.73	1.04E-02					
EPA Site Inspection	DR102	8/20/1998	Total HpCDF	4.10E-05	1.73	2.37E-03					
EPA Site Inspection	DR102	8/20/1998	Total HxCDD	1.80E-05	1.73	1.04E-03					

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR102	8/20/1998	Total HxCDF	1.50E-05	1.73	8.67E-04					
EPA Site Inspection	DR097	8/20/1998	Total LPAH (calc'd)	3.33E+00	2.99	1.11E+02	370	780	mg/kg OC	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Total LPAH (calc'd)	1.35E+00	1.33	1.02E+02	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR102	8/20/1998	Total LPAH (calc'd)	1.23E+00 J	1.73	7.11E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Total LPAH (calc'd)	6.10E-01 J	2.61	2.34E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Total LPAH (calc'd)	4.60E-01	2.71	1.70E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Total LPAH (calc'd)	4.60E-01	2.82	1.63E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Total LPAH (calc'd)	3.90E-01	0.32		5200	13000	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Samplii	JHGSA-SD1-COMP27-00	7/3/2000	Total LPAH (calc'd)	3.40E-01	2.15	1.58E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Total LPAH (calc'd)	3.30E-01	2.84	1.16E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR147	9/2/1998	Total LPAH (calc'd)	3.10E-01 J	2.02	1.53E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Total LPAH (calc'd)	2.80E-01	2.63	1.06E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR100	8/20/1998	Total LPAH (calc'd)	2.70E-01	1.02	2.65E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR095	8/20/1998	Total LPAH (calc'd)	2.60E-01	0.61	4.26E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR096	9/2/1998	Total LPAH (calc'd)	2.50E-01	1.95	1.28E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Total LPAH (calc'd)	2.50E-01 J	2.39	1.05E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Total LPAH (calc'd)	2.26E-01 J	0.47		5200	13000	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Total LPAH (calc'd)	2.10E-01	1.66	1.27E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Total LPAH (calc'd)	2.10E-01	2.17	9.68E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Total LPAH (calc'd)	1.50E-01	1.84	8.15E+00	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Total LPAH (calc'd)	1.18E-01	2.44	4.84E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR146	8/19/1998	Total LPAH (calc'd)	1.17E-01 J	1.84	6.36E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR165	8/13/1998	Total LPAH (calc'd)	1.10E-01	2.36	4.66E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR099	8/20/1998	Total LPAH (calc'd)	1.08E-01 J	0.972	1.11E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR103	8/18/1998	Total LPAH (calc'd)	7.80E-02 J	1.78	4.38E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR166	8/13/1998	Total LPAH (calc'd)	6.00E-02	1.47	4.08E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR101	8/20/1998	Total LPAH (calc'd)	3.90E-02 J	1.59	2.45E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR097	8/20/1998	Total PAH (calc'd)	1.38E+01	2.99	4.62E+02					
Puget Sound Sediment Sampling	205	6/23/1998	Total PAH (calc'd)	1.17E+01 J	1.33	8.77E+02					
EPA Site Inspection	DR096	9/2/1998	Total PAH (calc'd)	3.33E+00	1.95	1.71E+02					
EPA Site Inspection	DR165	8/13/1998	Total PAH (calc'd)	1.11E+00	2.36	4.70E+01					
EPA Site Inspection	DR166	8/13/1998	Total PAH (calc'd)	1.03E+00	1.47	7.01E+01					
EPA Site Inspection	DR102	8/20/1998	Total PeCDF	1.60E-05	1.73	9.25E-04					
EPA Site Inspection	DR102	8/20/1998	Total TCDD	5.30E-06	1.73	3.06E-04					
EPA Site Inspection	DR102	8/20/1998	Total TCDF	2.40E-05	1.73	1.39E-03					
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Tributyltin as ion	8.10E-02	2.71	2.99E+00					
Puget Sound Sediment Sampling	205	6/23/1998	Tributyltin as ion	5.50E-02	1.33	4.14E+00					
EPA Site Inspection	DR102	8/20/1998	Tributyltin as ion	4.20E-02 J	1.73	2.43E+00					
EPA Site Inspection	DR096	9/2/1998	Tributyltin as ion	3.90E-02 J	1.95	2.00E+00					
EPA Site Inspection	DR166	8/13/1998	Tributyltin as ion	2.80E-02	1.47	1.90E+00					
LDW RI Phase 2 Round 1	C5	8/27/2004	Tributyltin as ion	6.50E-03	0.32	2.03E+00					
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Vanadium	7.32E+01	2.61						
EPA Site Inspection	DR146	8/19/1998	Vanadium	7.20E+01	1.84						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Vanadium	7.00E+01	2.71						
EPA Site Inspection	DR096	9/2/1998	Vanadium	6.90E+01	1.95						

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR103	8/18/1998	Vanadium	6.80E+01	1.78						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Vanadium	6.60E+01	2.82						
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Vanadium	6.30E+01	2.63						
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Vanadium	6.20E+01	2.84						
EPA Site Inspection	DR102	8/20/1998	Vanadium	5.90E+01	1.73						
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Vanadium	5.90E+01	2.17						
EPA Site Inspection	DR097	8/20/1998	Vanadium	5.70E+01	2.99						
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Vanadium	5.70E+01	2.44						
Puget Sound Sediment Sampling	205	6/23/1998	Vanadium	5.67E+01	1.33						
James Hardie Outfall and Nearshore Sediment Samplii	JHGSA-SD1-COMP27-00	7/3/2000	Vanadium	5.60E+01	2.15						
EPA Site Inspection	DR165	8/13/1998	Vanadium	5.40E+01	2.36						
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Vanadium	4.81E+01	2.39						
EPA Site Inspection	DR147	9/2/1998	Vanadium	4.65E+01	2.02						
EPA Site Inspection	DR146	8/19/1998	Vanadium	4.62E+01	1.84						
EPA Site Inspection	DR100	8/20/1998	Vanadium	4.40E+01	1.02						
LDW RI Phase 2 Round 1	C5	8/27/2004	Vanadium	4.15E+01	0.32						
EPA Site Inspection	DR101	8/20/1998	Vanadium	4.11E+01	1.59						
EPA Site Inspection	DR098	8/20/1998	Vanadium	4.06E+01	0.62						
EPA Site Inspection	DR166	8/13/1998	Vanadium	4.00E+01	1.47						
EPA Site Inspection	DR099	8/20/1998	Vanadium	3.90E+01	0.972						
EPA Site Inspection	DR101	8/20/1998	Vanadium	3.30E+01	1.66						
EPA Site Inspection	DR095	8/20/1998	Vanadium	2.90E+01	0.61						
LDW RI Phase 2 Round 1	LDW-SS67	1/21/2005	Zinc	1.68E+02	2.71		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Zinc	1.63E+02	2.61		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR146	8/19/1998	Zinc	1.43E+02	1.84		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Zinc	1.38E+02	2.82		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR096	9/2/1998	Zinc	1.34E+02	1.95		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR097	8/20/1998	Zinc	1.34E+02	2.99		410	960	mg/kg DW	<1	<1
James Hardie Outfall and Nearshore Sediment Samplii	JHGSA-SD1-COMP27-00	7/3/2000	Zinc	1.32E+02	2.15		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS71	3/15/2005	Zinc	1.30E+02	2.84		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS63	1/21/2005	Zinc	1.22E+02	2.63		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR146	8/19/1998	Zinc	1.13E+02	1.84		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS327	10/2/2006	Zinc	1.11E+02	2.17		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR147	9/2/1998	Zinc	1.10E+02	2.02		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS329	10/2/2006	Zinc	1.01E+02	2.44		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS328	10/2/2006	Zinc	9.30E+01	2.39		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR094 [a]	8/20/1998	Zinc	9.09E+01 J	0.47		1600	410	mg/kg DW	<1	<1
EPA Site Inspection	DR103	8/18/1998	Zinc	8.80E+01	1.78		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR100	8/20/1998	Zinc	8.60E+01	1.02		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR166	8/13/1998	Zinc	8.60E+01	1.47		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR102	8/20/1998	Zinc	8.50E+01	1.73		410	960	mg/kg DW	<1	<1
Puget Sound Sediment Sampling	205	6/23/1998	Zinc	8.25E+01	1.33		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR165	8/13/1998	Zinc	8.00E+01	2.36		410	960	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

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
EPA Site Inspection	DR101	8/20/1998	Zinc	7.70E+01	1.66		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR099	8/20/1998	Zinc	7.50E+01	0.972		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR101	8/20/1998	Zinc	7.40E+01	1.59		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	C5 [a]	8/27/2004	Zinc	7.04E+01 J	0.32		1600	410	mg/kg DW	<1	<1
EPA Site Inspection	DR095	8/20/1998	Zinc	5.10E+01	0.61		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR098	8/20/1998	Zinc	4.10E+01	0.62		410	960	mg/kg DW	<1	<1

Table presents detected chemicals only. Sampling events are listed in Table 1.
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.

mg/kg - Milligram per kilogram
ug/kg - Microgram per kilogram
DW - Dry weight
TOC - Total Organic Carbon
OC - Organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level
PAH - Polycyclic aromatic hydrocarbon
Total HPAH - Total high molecular weight PAH
Total LPAH - Total low molecular weight PAH
PCB - Polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
JN - Estimated value between the method detection limit and laboratory reporting limit; tentative identification, the analyte exhibits low spectral match
NA - Not Applicable

[a] Due to the high TOC in this sample, results were compared to the Lowest Apparent Effects Threshold (LAET) value rather than the SQS and/or CSL (Ecology 1996e). In most cases the Benthic LAET value replaced the CSL value and the Microtox LAET value replaced the SQS value. In some cases one or the other of these values was not available and therefore was not reported in the table.

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	1,2,4-Trichlorobenzene	6.50E-03 J	3.34	1.95E-01	0.81	1.8	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	1,2,4-Trichlorobenzene	6.00E-03 J	1.88	3.19E-01	0.81	1.8	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	1,2,4-Trichlorobenzene	4.20E-03 J	1.16	3.62E-01	0.81	1.8	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	1,2,4-Trichlorobenzene	4.10E-03 J	1.47	2.79E-01	0.81	1.8	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	1,4-Dichlorobenzene	5.90E-03 J	2.1	2.81E-01	3.1	9	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	1,4-Dichlorobenzene	3.90E-03 J	2.13	1.83E-01	3.1	9	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	1,4-Dichlorobenzene	3.50E-03 J	2.52	1.39E-01	3.1	9	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	1-Methylnaphthalene	1.60E-01	1.16	1.38E+01					
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	1-Methylnaphthalene	1.10E-01	2.13	5.16E+00					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	1-Methylnaphthalene	8.70E-02	1.47	5.92E+00					
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	1-Methylnaphthalene	7.60E-02	2.1	3.62E+00					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	2,4-Dimethylphenol	1.10E-02 J	1.47	7.48E-01	29	29	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	2,4-Dimethylphenol	6.50E-03 J	2.13	3.05E-01	29	29	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	2,4-Dimethylphenol	5.50E-03 J	1.53	3.59E-01	29	29	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	2,4-Dimethylphenol	3.70E-03 J	1.55	2.39E-01	29	29	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	2-Methylnaphthalene	1.60E-01	1.9	8.42E+00	38	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	2-Methylnaphthalene	8.80E-02	1.47	5.99E+00	38	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	2-Methylnaphthalene	8.60E-02	1.16	7.41E+00	38	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	2-Methylnaphthalene	8.20E-02	2.13	3.85E+00	38	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	2-Methylnaphthalene	6.30E-02 J	2.1	3.00E+00	38	64	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	2-Methylnaphthalene	2.40E-02	2.4	1.00E+00	38	64	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	4,4'-DDE	4.50E-03	1.8	2.50E-01					
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	4,4'-DDE	3.90E-03	1.8	2.17E-01					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Acenaphthene	1.40E+00	1.16	1.21E+02	16	57	mg/kg OC	7.5	2.1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Acenaphthene	1.00E+00	2.1	4.76E+01	16	57	mg/kg OC	3.0	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Acenaphthene	7.10E-01	2.13	3.33E+01	16	57	mg/kg OC	2.1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Acenaphthene	3.00E-01	1.47	2.04E+01	16	57	mg/kg OC	1.3	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Acenaphthene	2.30E-01	1.9	1.21E+01	16	57	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Acenaphthene	2.00E-01	3.34	5.99E+00	16	57	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Acenaphthene	6.60E-02 J	1.62	4.07E+00	16	57	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Acenaphthene	4.80E-02	1.9	2.53E+00	16	57	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Acenaphthene	2.10E-02	1.33	1.58E+00	16	57	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Acenaphthene	2.00E-02	2.34	8.55E-01	16	57	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Acenaphthene	2.00E-02	1.9	1.05E+00	16	57	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Acenaphthene	1.80E-02 J	1.5	1.20E+00	16	57	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Acenaphthene	1.20E-02 J	1.88	6.38E-01	16	57	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Acenaphthylene	1.20E-02 J	1.88	6.38E-01	66	66	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Aluminum	2.20E+04	1.82						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Aluminum	2.20E+04	2.34						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Anthracene	4.90E-01	2.13	2.30E+01	220	1200	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Anthracene	4.40E-01	1.9	2.32E+01	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Anthracene	4.20E-01	2.1	2.00E+01	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Anthracene	3.60E-01	1.16	3.10E+01	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Anthracene	2.10E-01	3.34	6.29E+00	220	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Anthracene	2.00E-01	1.9	1.05E+01	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Anthracene	1.10E-01 J	1.62	6.79E+00	220	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Anthracene	1.00E-01	2.4	4.17E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Anthracene	8.40E-02	1.47	5.71E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Anthracene	7.10E-02	2.52	2.82E+00	220	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Anthracene	6.00E-02	1.9	3.16E+00	220	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Anthracene	5.60E-02	1.9	2.95E+00	220	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Anthracene	5.50E-02	1.9	2.89E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Anthracene	4.80E-02 J	2.18	2.20E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Anthracene	4.80E-02 J	1.53	3.14E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Anthracene	4.70E-02	1.88	2.50E+00	220	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Anthracene	4.60E-02	2	2.30E+00	220	1200	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Anthracene	4.40E-02	1.8	2.44E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Anthracene	4.20E-02 J	1.81	2.32E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Anthracene	4.00E-02 J	1.55	2.58E+00	220	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Anthracene	3.80E-02	1.5	2.53E+00	220	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Anthracene	3.20E-02	2.1	1.52E+00	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Anthracene	3.20E-02	1.33	2.41E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Anthracene	3.00E-02	1.82	1.65E+00	220	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Anthracene	2.90E-02	2.3	1.26E+00	220	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Anthracene	2.00E-02	2.34	8.55E-01	220	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Antimony	1.30E+01 J	3.34						
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Antimony	5.40E+00	1.8						
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Antimony	4.30E+00	1.8						
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Antimony	1.20E+00	2.1						
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Antimony	1.20E+00	2						
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Antimony	9.00E-01	1.9						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1 - 1.5	Aroclor-1242	2.40E+00	2.53						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Aroclor-1242	1.50E+00	3.34						
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Aroclor-1242	5.90E-01	1.8						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0.5 - 1	Aroclor-1242	3.90E-01	2.14						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Aroclor-1242	3.30E-01	1.88						
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Aroclor-1242	2.90E-01	1.5						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 0.5	Aroclor-1242	1.80E-01	1.76						
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Aroclor-1242	1.00E-01	2						
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Aroclor-1242	9.20E-02	2.1						

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Aroclor-1242	8.00E-02	1.5						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Aroclor-1242	7.40E-02 J	1.33						
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Aroclor-1242	6.30E-02	1.9						
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Aroclor-1242	5.10E-02	1.9						
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Aroclor-1242	4.70E-02	2.4						
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Aroclor-1242	4.40E-02	1.9						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Aroclor-1248	8.30E-01	1.47						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1.5 - 2	Aroclor-1248	7.40E-01	2.42						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Aroclor-1248	5.40E-01	1.16						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Aroclor-1248	4.30E-01	1.81						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Aroclor-1248	1.00E-01	2.18						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Aroclor-1248	6.90E-02	2.52						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1 - 1.5	Aroclor-1254	1.40E+00	2.53						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1.5 - 2	Aroclor-1254	1.00E+00	2.42						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Aroclor-1254	9.50E-01	1.47						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Aroclor-1254	8.60E-01	3.34						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Aroclor-1254	8.50E-01	1.16						
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Aroclor-1254	6.80E-01	2.4						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2.5 - 3	Aroclor-1254	5.30E-01	1.98						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Aroclor-1254	5.10E-01	1.88						
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Aroclor-1254	4.20E-01	1.8						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Aroclor-1254	3.80E-01	1.81						
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Aroclor-1254	3.00E-01	1.5						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0.5 - 1	Aroclor-1254	2.40E-01	2.14						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Aroclor-1254	2.40E-01	1.62						
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Aroclor-1254	2.40E-01	2.3						
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Aroclor-1254	2.20E-01	1.5						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Aroclor-1254	2.20E-01 J	1.33						
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Aroclor-1254	2.00E-01	2						
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Aroclor-1254	2.00E-01	1.9						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Aroclor-1254	1.60E-01	2.52						
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Aroclor-1254	1.50E-01	2.1						
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Aroclor-1254	1.50E-01	1.8						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Aroclor-1254	1.50E-01	2.1						
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Aroclor-1254	1.40E-01	1.8						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Aroclor-1254	1.40E-01	2.18						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 0.5	Aroclor-1254	1.40E-01	1.76						
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Aroclor-1254	1.30E-01	1.9						
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Aroclor-1254	1.20E-01	2.4						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Aroclor-1254	1.20E-01	2.13						

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 2.5	Aroclor-1254	1.20E-01	1.35						
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Aroclor-1254	9.50E-02	1.5						
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Aroclor-1254	8.80E-02	1.9						
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Aroclor-1254	8.10E-02	1.9						
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Aroclor-1254	7.90E-02	1.9						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	2.8 - 4	Aroclor-1254	2.70E-03 J	0.11						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1 - 1.5	Aroclor-1260	8.50E-01	2.53						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1.5 - 2	Aroclor-1260	7.90E-01 J	2.42						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Aroclor-1260	7.60E-01	3.34						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Aroclor-1260	6.70E-01	1.47						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Aroclor-1260	6.10E-01	1.88						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2.5 - 3	Aroclor-1260	4.10E-01	1.98						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Aroclor-1260	3.30E-01	1.16						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Aroclor-1260	2.40E-01 J	1.33						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Aroclor-1260	2.20E-01	2.13						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Aroclor-1260	2.00E-01	1.81						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Aroclor-1260	1.80E-01	1.62						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 0.5	Aroclor-1260	1.70E-01	1.76						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0.5 - 1	Aroclor-1260	1.60E-01	2.14						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Aroclor-1260	1.40E-01	2.52						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Aroclor-1260	1.30E-01	2.1						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 2.5	Aroclor-1260	9.40E-02	1.35						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Aroclor-1260	8.80E-02	2.18						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Arsenic	5.60E+01	3.34		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Arsenic	4.00E+01	1.16		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Arsenic	3.00E+01	1.47		57	93	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Arsenic	2.30E+01	1.8		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Arsenic	2.20E+01	1.8		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Arsenic	2.00E+01	2.52		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Arsenic	2.00E+01	1.81		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Arsenic	1.90E+01	1.88		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Arsenic	1.70E+01	1.9		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Arsenic	1.70E+01	2.18		57	93	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Arsenic	1.60E+01	1.8		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Arsenic	1.50E+01	1.9		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Arsenic	1.50E+01	1.9		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Arsenic	1.50E+01	1.5		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Arsenic	1.40E+01	1.5		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Arsenic	1.40E+01	2.1		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Arsenic	1.30E+01	2.1		57	93	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Arsenic	1.30E+01	2		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Arsenic	1.30E+01	1.33		57	93	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Arsenic	1.30E+01	1.62		57	93	mg/kg DW	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Arsenic	1.10E+01	2.4		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Arsenic	1.00E+01	1.82		57	93	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Arsenic	1.00E+01	2.4		57	93	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Arsenic	1.00E+01	1.9		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Arsenic	8.00E+00	2.34		57	93	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Arsenic	8.00E+00	1.9		57	93	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Arsenic	7.00E+00	1.5		57	93	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Arsenic	7.00E+00	2.3		57	93	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Barium	7.60E+01	2.34						
EPA Site Inspection	DR101	9/21/1998	0 - 2	Barium	6.40E+01	1.82						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Benzo(a)anthracene	9.90E-01	1.16	8.53E+01	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Benzo(a)anthracene	7.80E-01	2.13	3.66E+01	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Benzo(a)anthracene	6.10E-01	2.1	2.90E+01	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Benzo(a)anthracene	5.40E-01	1.9	2.84E+01	110	270	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Benzo(a)anthracene	3.40E-01	1.9	1.79E+01	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Benzo(a)anthracene	2.60E-01	3.34	7.78E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzo(a)anthracene	2.40E-01	2.52	9.52E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Benzo(a)anthracene	1.80E-01	2	9.00E+00	110	270	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Benzo(a)anthracene	1.80E-01	1.8	1.00E+01	110	270	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Benzo(a)anthracene	1.70E-01	1.9	8.95E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Benzo(a)anthracene	1.60E-01	2.1	7.62E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Benzo(a)anthracene	1.60E-01	1.9	8.42E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Benzo(a)anthracene	1.50E-01	1.9	7.89E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzo(a)anthracene	1.50E-01	2.18	6.88E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Benzo(a)anthracene	1.50E-01	1.47	1.02E+01	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Benzo(a)anthracene	1.50E-01 J	1.62	9.26E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Benzo(a)anthracene	1.40E-01	1.88	7.45E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Benzo(a)anthracene	1.20E-01	1.81	6.63E+00	110	270	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Benzo(a)anthracene	1.10E-01	1.8	6.11E+00	110	270	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Benzo(a)anthracene	1.00E-01	2.3	4.35E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Benzo(a)anthracene	9.50E-02	1.53	6.21E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Benzo(a)anthracene	9.40E-02	1.5	6.27E+00	110	270	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Benzo(a)anthracene	9.20E-02	1.5	6.13E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Benzo(a)anthracene	8.40E-02	1.55	5.42E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Benzo(a)anthracene	8.20E-02	2.4	3.42E+00	110	270	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Benzo(a)anthracene	7.00E-02	1.8	3.89E+00	110	270	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Benzo(a)anthracene	5.20E-02	2.4	2.17E+00	110	270	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA Site Inspection	DR101	9/21/1998	0 - 2	Benzo(a)anthracene	5.00E-02	1.82	2.75E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Benzo(a)anthracene	4.80E-02	1.33	3.61E+00	110	270	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Benzo(a)anthracene	3.00E-02	2.34	1.28E+00	110	270	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Benzo(a)pyrene	5.00E-01	2.13	2.35E+01	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Benzo(a)pyrene	4.60E-01	1.9	2.42E+01	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Benzo(a)pyrene	4.00E-01	1.16	3.45E+01	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Benzo(a)pyrene	2.70E-01	2.1	1.29E+01	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Benzo(a)pyrene	2.30E-01	3.34	6.89E+00	99	210	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Benzo(a)pyrene	2.20E-01	1.8	1.22E+01	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzo(a)pyrene	2.20E-01	2.52	8.73E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Benzo(a)pyrene	2.00E-01	1.88	1.06E+01	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzo(a)pyrene	2.00E-01	2.18	9.17E+00	99	210	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Benzo(a)pyrene	1.90E-01	1.9	1.00E+01	99	210	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Benzo(a)pyrene	1.80E-01	1.9	9.47E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Benzo(a)pyrene	1.60E-01	2	8.00E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Benzo(a)pyrene	1.60E-01	1.9	8.42E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Benzo(a)pyrene	1.60E-01	1.81	8.84E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Benzo(a)pyrene	1.50E-01	1.9	7.89E+00	99	210	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Benzo(a)pyrene	1.40E-01	1.8	7.78E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Benzo(a)pyrene	1.20E-01	2.1	5.71E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Benzo(a)pyrene	1.10E-01	1.47	7.48E+00	99	210	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Benzo(a)pyrene	1.10E-01	2.3	4.78E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Benzo(a)pyrene	9.60E-02	1.5	6.40E+00	99	210	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Benzo(a)pyrene	9.50E-02	1.5	6.33E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Benzo(a)pyrene	9.00E-02	1.33	6.77E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Benzo(a)pyrene	8.30E-02	2.4	3.46E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Benzo(a)pyrene	8.20E-02	1.53	5.36E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Benzo(a)pyrene	7.90E-02 J	1.62	4.88E+00	99	210	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Benzo(a)pyrene	6.80E-02	1.8	3.78E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Benzo(a)pyrene	6.10E-02	1.55	3.94E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Benzo(a)pyrene	5.00E-02	1.82	2.75E+00	99	210	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Benzo(a)pyrene	4.80E-02	2.4	2.00E+00	99	210	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Benzo(a)pyrene	3.00E-02	2.34	1.28E+00	99	210	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Benzo(b)fluoranthene	8.50E-01	1.16	7.33E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Benzo(b)fluoranthene	7.30E-01	1.9	3.84E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Benzo(b)fluoranthene	6.50E-01	2.13	3.05E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Benzo(b)fluoranthene	3.80E-01	2.1	1.81E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Benzo(b)fluoranthene	3.60E-01	3.34	1.08E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzo(b)fluoranthene	3.20E-01	2.18	1.47E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Benzo(b)fluoranthene	3.10E-01	1.88	1.65E+01	230	450	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Benzo(b)fluoranthene	2.90E-01	1.8	1.61E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzo(b)fluoranthene	2.90E-01	2.52	1.15E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Benzo(b)fluoranthene	2.90E-01	1.9	1.53E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Benzo(b)fluoranthene	2.70E-01	1.81	1.49E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Benzo(b)fluoranthene	2.20E-01	1.9	1.16E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Benzo(b)fluoranthene	2.10E-01	1.47	1.43E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Benzo(b)fluoranthene	2.00E-01	1.9	1.05E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Benzo(b)fluoranthene	1.90E-01	2	9.50E+00	230	450	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Benzo(b)fluoranthene	1.90E-01	1.8	1.06E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Benzo(b)fluoranthene	1.80E-01	1.9	9.47E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Benzo(b)fluoranthene	1.60E-01	2.1	7.62E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Benzo(b)fluoranthene	1.40E-01	1.33	1.05E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Benzo(b)fluoranthene	1.40E-01	2.3	6.09E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Benzo(b)fluoranthene	1.20E-01 J	1.62	7.41E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Benzo(b)fluoranthene	1.10E-01	1.5	7.33E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Benzo(b)fluoranthene	1.10E-01	2.4	4.58E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Benzo(b)fluoranthene	1.10E-01	1.5	7.33E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Benzo(b)fluoranthene	7.90E-02	1.8	4.39E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Benzo(b)fluoranthene	6.30E-02	2.4	2.63E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Benzo(b)fluoranthene	5.60E-02 J	1.53	3.66E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Benzo(b)fluoranthene	5.00E-02	1.82	2.75E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Benzo(b)fluoranthene	4.50E-02 J	1.55	2.90E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Benzo(b)fluoranthene	3.00E-02	2.34	1.28E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Benzo(g,h,i)perylene	2.10E-01	2.13	9.86E+00	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Benzo(g,h,i)perylene	1.90E-01	1.9	1.00E+01	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Benzo(g,h,i)perylene	1.20E-01	2	6.00E+00	31	78	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Benzo(g,h,i)perylene	1.10E-01	1.8	6.11E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Benzo(g,h,i)perylene	1.10E-01	2.1	5.24E+00	31	78	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Benzo(g,h,i)perylene	9.50E-02	1.8	5.28E+00	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Benzo(g,h,i)perylene	8.30E-02	1.9	4.37E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzo(g,h,i)perylene	7.90E-02	2.52	3.13E+00	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Benzo(g,h,i)perylene	7.80E-02	2.1	3.71E+00	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Benzo(g,h,i)perylene	7.80E-02	1.9	4.11E+00	31	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Benzo(g,h,i)perylene	7.60E-02	1.9	4.00E+00	31	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Benzo(g,h,i)perylene	7.20E-02	2.3	3.13E+00	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Benzo(g,h,i)perylene	6.50E-02	2.4	2.71E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Benzo(g,h,i)perylene	5.40E-02 J	3.34	1.62E+00	31	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Benzo(g,h,i)perylene	5.20E-02	1.5	3.47E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Benzo(g,h,i)perylene	5.00E-02	1.82	2.75E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzo(g,h,i)perylene	5.00E-02 J	2.18	2.29E+00	31	78	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Benzo(g,h,i)perylene	5.00E-02 J	1.53	3.27E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Benzo(g,h,i)perylene	4.30E-02 J	1.16	3.71E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Benzo(g,h,i)perylene	4.20E-02	1.88	2.23E+00	31	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Benzo(g,h,i)perylene	4.20E-02	2.4	1.75E+00	31	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Benzo(g,h,i)perylene	3.90E-02	1.9	2.05E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Benzo(g,h,i)perylene	3.50E-02 J	1.55	2.26E+00	31	78	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Benzo(g,h,i)perylene	3.00E-02	2.34	1.28E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Benzo(g,h,i)perylene	2.00E-02	1.47	1.36E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Benzo(g,h,i)perylene	1.70E-02 J	1.33	1.28E+00	31	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Benzo(g,h,i)perylene	1.40E-02 J	1.62	8.64E-01	31	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Benzo(k)fluoranthene	6.50E-01	1.9	3.42E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Benzo(k)fluoranthene	5.10E-01	1.16	4.40E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Benzo(k)fluoranthene	4.40E-01	2.13	2.07E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzo(k)fluoranthene	2.80E-01	2.52	1.11E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzo(k)fluoranthene	2.70E-01	2.18	1.24E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Benzo(k)fluoranthene	2.60E-01	1.88	1.38E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Benzo(k)fluoranthene	2.50E-01	2.1	1.19E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Benzo(k)fluoranthene	2.40E-01	3.34	7.19E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Benzo(k)fluoranthene	2.30E-01	1.9	1.21E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Benzo(k)fluoranthene	2.00E-01	1.9	1.05E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Benzo(k)fluoranthene	1.90E-01	1.9	1.00E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Benzo(k)fluoranthene	1.90E-01	1.9	1.00E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Benzo(k)fluoranthene	1.80E-01	1.81	9.94E+00	230	450	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Benzo(k)fluoranthene	1.70E-01	1.8	9.44E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Benzo(k)fluoranthene	1.70E-01	1.47	1.16E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Benzo(k)fluoranthene	1.50E-01	2	7.50E+00	230	450	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Benzo(k)fluoranthene	1.30E-01	1.8	7.22E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Benzo(k)fluoranthene	1.20E-01	2.1	5.71E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Benzo(k)fluoranthene	1.20E-01	1.33	9.02E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Benzo(k)fluoranthene	1.20E-01	2.3	5.22E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Benzo(k)fluoranthene	1.00E-01	1.5	6.67E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Benzo(k)fluoranthene	9.80E-02	1.5	6.53E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Benzo(k)fluoranthene	9.40E-02	2.4	3.92E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Benzo(k)fluoranthene	9.00E-02	1.53	5.88E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Benzo(k)fluoranthene	8.60E-02 J	1.62	5.31E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Benzo(k)fluoranthene	7.20E-02	1.55	4.65E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Benzo(k)fluoranthene	6.80E-02	2.4	2.83E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Benzo(k)fluoranthene	6.60E-02	1.8	3.67E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Benzo(k)fluoranthene	5.00E-02	1.82	2.75E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Benzo(k)fluoranthene	2.00E-02	2.34	8.55E-01	230	450	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Benzofluoranthenes (total-calc'd)	1.38E+00	1.9	7.26E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Benzofluoranthenes (total-calc'd)	1.36E+00	1.16	1.17E+02	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Benzofluoranthenes (total-calc'd)	1.09E+00	2.13	5.12E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Benzofluoranthenes (total-calc'd)	6.30E-01	2.1	3.00E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Benzofluoranthenes (total-calc'd)	6.00E-01	3.34	1.80E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzofluoranthenes (total-calc'd)	5.90E-01	2.18	2.71E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Benzofluoranthenes (total-calc'd)	5.70E-01	1.88	3.03E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzofluoranthenes (total-calc'd)	5.70E-01	2.52	2.26E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Benzofluoranthenes (total-calc'd)	5.20E-01	1.9	2.74E+01	230	450	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Benzofluoranthenes (total-calc'd)	4.60E-01	1.8	2.56E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Benzofluoranthenes (total-calc'd)	4.50E-01	1.81	2.49E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Benzofluoranthenes (total-calc'd)	4.10E-01	1.9	2.16E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Benzofluoranthenes (total-calc'd)	3.90E-01	1.9	2.05E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Benzofluoranthenes (total-calc'd)	3.80E-01	1.9	2.00E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Benzofluoranthenes (total-calc'd)	3.80E-01	1.47	2.59E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Benzofluoranthenes (total-calc'd)	3.40E-01	2	1.70E+01	230	450	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Benzofluoranthenes (total-calc'd)	3.20E-01	1.8	1.78E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Benzofluoranthenes (total-calc'd)	2.80E-01	2.1	1.33E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Benzofluoranthenes (total-calc'd)	2.60E-01	1.33	1.95E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Benzofluoranthenes (total-calc'd)	2.60E-01	2.3	1.13E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Benzofluoranthenes (total-calc'd)	2.10E-01	1.5	1.40E+01	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Benzofluoranthenes (total-calc'd)	2.10E-01	1.5	1.40E+01	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Benzofluoranthenes (total-calc'd)	2.10E-01 J	1.62	1.30E+01	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Benzofluoranthenes (total-calc'd)	2.00E-01	2.4	8.33E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Benzofluoranthenes (total-calc'd)	1.46E-01 J	1.53	9.54E+00	230	450	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Benzofluoranthenes (total-calc'd)	1.45E-01	1.8	8.06E+00	230	450	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Benzofluoranthenes (total-calc'd)	1.31E-01	2.4	5.46E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Benzofluoranthenes (total-calc'd)	1.17E-01 J	1.55	7.55E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Benzofluoranthenes (total-calc'd)	1.00E-01	1.82	5.49E+00	230	450	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Benzofluoranthenes (total-calc'd)	5.00E-02	2.34	2.14E+00	230	450	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Benzoic acid	1.70E-01 J	2.52		650	650	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Benzoic acid	1.60E-01	1.81		650	650	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Benzoic acid	1.20E-01 J	2.18		650	650	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31 [a]	2/16/2006	2.8 - 4	Benzoic acid	5.70E-02 J	0.11		650	650	ug/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Beryllium	3.30E-01	1.82						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Beryllium	3.20E-01	2.34						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Bis(2-ethylhexyl)phthalate	1.40E+00	2.34	5.98E+01	47	78	mg/kg OC	1.3	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Bis(2-ethylhexyl)phthalate	6.90E-01	2	3.45E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Bis(2-ethylhexyl)phthalate	6.50E-01	1.16	5.60E+01	47	78	mg/kg OC	1.2	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Bis(2-ethylhexyl)phthalate	5.30E-01	1.9	2.79E+01	47	78	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Bis(2-ethylhexyl)phthalate	4.70E-01	1.9	2.47E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Bis(2-ethylhexyl)phthalate	4.60E-01	1.47	3.13E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Bis(2-ethylhexyl)phthalate	4.00E-01	3.34	1.20E+01	47	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Bis(2-ethylhexyl)phthalate	3.90E-01	1.9	2.05E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Bis(2-ethylhexyl)phthalate	3.80E-01	1.88	2.02E+01	47	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Bis(2-ethylhexyl)phthalate	3.60E-01	1.9	1.89E+01	47	78	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Bis(2-ethylhexyl)phthalate	3.10E-01	1.8	1.72E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Bis(2-ethylhexyl)phthalate	2.70E-01	2.52	1.07E+01	47	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Bis(2-ethylhexyl)phthalate	2.70E-01	1.9	1.42E+01	47	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Bis(2-ethylhexyl)phthalate	2.70E-01	2.3	1.17E+01	47	78	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Bis(2-ethylhexyl)phthalate	2.60E-01	2.1	1.24E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Bis(2-ethylhexyl)phthalate	2.60E-01	2.18	1.19E+01	47	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Bis(2-ethylhexyl)phthalate	2.40E-01	1.5	1.60E+01	47	78	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Bis(2-ethylhexyl)phthalate	2.40E-01	1.8	1.33E+01	47	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Bis(2-ethylhexyl)phthalate	2.30E-01	1.8	1.28E+01	47	78	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Bis(2-ethylhexyl)phthalate	2.10E-01	2.4	8.75E+00	47	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Bis(2-ethylhexyl)phthalate	2.00E-01	1.5	1.33E+01	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Bis(2-ethylhexyl)phthalate	2.00E-01	1.81	1.10E+01	47	78	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Bis(2-ethylhexyl)phthalate	1.80E-01	2.4	7.50E+00	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Bis(2-ethylhexyl)phthalate	1.30E-01 J	1.62	8.02E+00	47	78	mg/kg OC	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Bis(2-ethylhexyl)phthalate	1.20E-01	1.5	8.00E+00	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Bis(2-ethylhexyl)phthalate	1.00E-01	1.33	7.52E+00	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Bis(2-ethylhexyl)phthalate	5.60E-02 J	2.1	2.67E+00	47	78	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Butyl benzyl phthalate	4.50E-02	1.47	3.06E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Butyl benzyl phthalate	4.40E-02	1.16	3.79E+00	4.9	64	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Butyl benzyl phthalate	3.80E-02	1.8	2.11E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Butyl benzyl phthalate	3.80E-02	2.52	1.51E+00	4.9	64	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Butyl benzyl phthalate	3.30E-02	2	1.65E+00	4.9	64	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Butyl benzyl phthalate	3.30E-02	1.9	1.74E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Butyl benzyl phthalate	3.20E-02	1.81	1.77E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Butyl benzyl phthalate	2.90E-02	1.88	1.54E+00	4.9	64	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Butyl benzyl phthalate	2.30E-02	1.9	1.21E+00	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Butyl benzyl phthalate	2.10E-02	2.18	9.63E-01	4.9	64	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Butyl benzyl phthalate	2.00E-02	2.4	8.33E-01	4.9	64	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Butyl benzyl phthalate	1.90E-02 J	1.5	1.27E+00	4.9	64	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Butyl benzyl phthalate	1.80E-02 J	2.3	7.83E-01	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Butyl benzyl phthalate	1.10E-02	3.34	3.29E-01	4.9	64	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Cadmium	1.70E+00	1.16		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Cadmium	1.20E+00	3.34		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Cadmium	1.00E+00	1.47		5.1	6.7	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Cadmium	1.00E+00	2.4		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Cadmium	8.00E-01	1.33		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Cadmium	8.00E-01	1.62		5.1	6.7	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Cadmium	8.00E-01	2.3		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Cadmium	7.00E-01	1.88		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Cadmium	7.00E-01	2.1		5.1	6.7	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Cadmium	7.00E-01	1.9		5.1	6.7	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Cadmium	6.60E-01	1.8		5.1	6.7	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Cadmium	6.40E-01	1.8		5.1	6.7	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Cadmium	6.00E-01	1.5		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Cadmium	6.00E-01	1.81		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Cadmium	5.40E-01	1.8		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Cadmium	5.00E-01	2.52		5.1	6.7	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Cadmium	5.00E-01	2.18		5.1	6.7	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Cadmium	5.00E-01	1.9		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Cadmium	4.90E-01	2		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Cadmium	4.40E-01	2.1		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Cadmium	3.90E-01	2.4		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Cadmium	3.50E-01	1.5		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Cadmium	2.30E-01	1.9		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Cadmium	1.90E-01	1.9		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Cadmium	1.60E-01	1.9		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Cadmium	1.30E-01	1.5		5.1	6.7	mg/kg DW	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Chlordane	3.60E-03	2	1.80E-01					
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Chlordane	2.50E-03	2.1	1.19E-01					
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Chromium	4.99E+01	3.34		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Chromium	4.60E+01	1.16		260	270	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Chromium	4.11E+01	2.4		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Chromium	3.80E+01	2.1		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Chromium	3.79E+01	1.88		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Chromium	3.77E+01	1.62		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Chromium	3.70E+01	1.47		260	270	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Chromium	3.51E+01	1.9		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Chromium	3.50E+01	2.52		260	270	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Chromium	3.49E+01	2.3		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Chromium	3.41E+01	1.33		260	270	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Chromium	3.41E+01	1.9		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Chromium	3.35E+01	1.81		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Chromium	3.11E+01	2.18		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Chromium	2.90E+01	1.82		260	270	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Chromium	2.89E+01	1.5		260	270	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Chromium	2.60E+01	2.34		260	270	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31 [a]	2/16/2006	2.8 - 4	Chromium	8.90E+00	0.11		NA	260	mg/kg DW	NA	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Chrysene	1.40E+00	1.9	7.37E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Chrysene	9.00E-01	2.13	4.23E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Chrysene	8.90E-01	1.16	7.67E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Chrysene	5.60E-01	2.1	2.67E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Chrysene	4.90E-01	3.34	1.47E+01	110	460	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Chrysene	3.60E-01	1.9	1.89E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Chrysene	3.30E-01	2.52	1.31E+01	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Chrysene	2.90E-01	1.9	1.53E+01	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Chrysene	2.70E-01	1.9	1.42E+01	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Chrysene	2.50E-01	2	1.25E+01	110	460	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Chrysene	2.50E-01	1.8	1.39E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Chrysene	2.50E-01	2.18	1.15E+01	110	460	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Chrysene	2.20E-01	1.9	1.16E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Chrysene	2.10E-01	1.88	1.12E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Chrysene	2.10E-01	1.47	1.43E+01	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Chrysene	1.70E-01	1.81	9.39E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Chrysene	1.70E-01 J	1.62	1.05E+01	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Chrysene	1.60E-01	2.1	7.62E+00	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Chrysene	1.60E-01	1.5	1.07E+01	110	460	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Chrysene	1.60E-01	1.8	8.89E+00	110	460	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Chrysene	1.50E-01	2.3	6.52E+00	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Chrysene	1.20E-01	2.4	5.00E+00	110	460	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Chrysene	1.20E-01	1.5	8.00E+00	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Chrysene	1.20E-01	1.8	6.67E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Chrysene	1.20E-01	1.53	7.84E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Chrysene	9.40E-02	1.55	6.06E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Chrysene	7.30E-02	1.33	5.49E+00	110	460	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Chrysene	7.00E-02	2.4	2.92E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Chrysene	6.00E-02	1.82	3.30E+00	110	460	mg/kg OC	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Chrysene	5.20E-02	1.5	3.47E+00	110	460	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Chrysene	4.00E-02	2.34	1.71E+00	110	460	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Cobalt	1.22E+01	3.34						
EPA Site Inspection	DR101	9/21/1998	0 - 2	Cobalt	1.00E+01	1.82						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Cobalt	9.70E+00	2.52						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Cobalt	9.60E+00	1.88						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Cobalt	9.60E+00	1.16						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Cobalt	9.30E+00	1.62						

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Cobalt	9.20E+00	2.18						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Cobalt	9.00E+00	2.34						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Cobalt	9.00E+00	1.33						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Cobalt	8.90E+00	2.1						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Cobalt	8.40E+00	1.81						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Cobalt	7.90E+00	1.47						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	2.8 - 4	Cobalt	3.60E+00	0.11						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Copper	1.90E+02 J	3.34		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Copper	1.70E+02	1.9		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Copper	9.02E+01	1.16		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Copper	8.84E+01	2.52		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Copper	8.80E+01 J	1.88		390	390	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Copper	8.20E+01	1.8		390	390	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Copper	7.70E+01	1.8		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Copper	7.60E+01	2		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Copper	7.29E+01	2.18		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Copper	6.70E+01	1.8		390	390	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Copper	6.63E+01	1.9		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Copper	6.50E+01	2.1		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Copper	6.10E+01	2.4		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Copper	6.00E+01	1.47		390	390	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Copper	5.94E+01	2.3		390	390	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Copper	5.85E+01	2.4		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Copper	5.82E+01	1.81		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Copper	5.80E+01	1.9		390	390	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Copper	5.71E+01	1.9		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Copper	5.50E+01	1.9		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Copper	5.40E+01	1.5		390	390	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Copper	5.21E+01	1.5		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Copper	5.18E+01	2.1		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Copper	5.10E+01 J	1.62		390	390	mg/kg DW	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Copper	4.90E+01	1.5		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Copper	4.84E+01 J	1.33		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Copper	4.50E+01	1.82		390	390	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Copper	4.00E+01	2.34		390	390	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31 [a]	2/16/2006	2.8 - 4	Copper	9.30E+00	0.11		390	530	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	DDTs (total-calc'd)	4.50E-03	1.8	2.50E-01					
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	DDTs (total-calc'd)	3.90E-03	1.8	2.17E-01					
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Dibenzo(a,h)anthracene	1.00E-01	2.13	4.69E+00	12	33	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Dibenzo(a,h)anthracene	5.70E-02	2.1	2.71E+00	12	33	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Dibenzo(a,h)anthracene	3.20E-02	2	1.60E+00	12	33	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Dibenzo(a,h)anthracene	2.70E-02	1.8	1.50E+00	12	33	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Dibenzo(a,h)anthracene	2.30E-02	1.53	1.50E+00	12	33	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Dibenzo(a,h)anthracene	1.90E-02	1.55	1.23E+00	12	33	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Dibenzo(a,h)anthracene	1.90E-02 J	1.9	1.00E+00	12	33	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Dibenzo(a,h)anthracene	1.40E-02 J	1.88	7.45E-01	12	33	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Dibenzofuran	1.20E+00	1.16	1.03E+02	15	58	mg/kg OC	6.9	1.8
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Dibenzofuran	3.80E-01	2.1	1.81E+01	15	58	mg/kg OC	1.2	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Dibenzofuran	2.80E-01	2.13	1.31E+01	15	58	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Dibenzofuran	2.50E-01	1.9	1.32E+01	15	58	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Dibenzofuran	1.70E-01	1.47	1.16E+01	15	58	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Dibenzofuran	4.90E-02	1.9	2.58E+00	15	58	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Dibenzofuran	2.50E-02 J	1.62	1.54E+00	15	58	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Dibenzofuran	2.00E-02	2.34	8.55E-01	15	58	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Dibenzofuran	2.00E-02	2.4	8.33E-01	15	58	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Dibutyltin as ion	1.30E-02	2.52	5.16E-01					
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Dieldrin	1.10E-02	1.8	6.11E-01					
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Dieldrin	7.80E-03	1.5	5.20E-01					
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Dieldrin	3.30E-03	1.5	2.20E-01					
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Dieldrin	3.30E-03	1.9	1.74E-01					
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Dieldrin	2.60E-03	1.9	1.37E-01					
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Dieldrin	2.50E-03	1.9	1.32E-01					
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Di-n-butyl phthalate	3.30E-02 J	2.52	1.31E+00	220	1700	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Di-n-butyl phthalate	3.00E-02	1.82	1.65E+00	220	1700	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Di-n-butyl phthalate	2.00E-02	1.9	1.05E+00	220	1700	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31 [a]	2/16/2006	2.8 - 4	Di-n-butyl phthalate	1.10E-02 J	0.11		1400	NA	mg/kg DW	<1	NA
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Di-n-octyl phthalate	3.00E-02	2.1	1.43E+00	58	4500	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Fluoranthene	5.00E+00	2.13	2.35E+02	160	1200	mg/kg OC	1.5	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Fluoranthene	3.20E+00	2.1	1.52E+02	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Fluoranthene	2.50E+00	1.16	2.16E+02	160	1200	mg/kg OC	1.3	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Fluoranthene	2.40E+00	1.9	1.26E+02	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Fluoranthene	1.50E+00	3.34	4.49E+01	160	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Fluoranthene	1.10E+00	1.9	5.79E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Fluoranthene	8.50E-01 J	1.62	5.25E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Fluoranthene	6.00E-01	2.52	2.38E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Fluoranthene	5.90E-01	1.47	4.01E+01	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Fluoranthene	5.60E-01	1.9	2.95E+01	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Fluoranthene	5.40E-01	2.1	2.57E+01	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Fluoranthene	4.40E-01	1.9	2.32E+01	160	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Fluoranthene	4.00E-01	1.9	2.11E+01	160	1200	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Fluoranthene	3.60E-01	2	1.80E+01	160	1200	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Fluoranthene	3.50E-01	1.8	1.94E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Fluoranthene	3.50E-01	1.53	2.29E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Fluoranthene	3.20E-01	1.88	1.70E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Fluoranthene	3.20E-01	2.18	1.47E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Fluoranthene	3.00E-01	1.55	1.94E+01	160	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Fluoranthene	2.30E-01	2.3	1.00E+01	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Fluoranthene	2.20E-01	1.5	1.47E+01	160	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Fluoranthene	2.10E-01	1.5	1.40E+01	160	1200	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Fluoranthene	2.10E-01	1.8	1.17E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Fluoranthene	2.10E-01	1.81	1.16E+01	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Fluoranthene	1.90E-01	1.33	1.43E+01	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Fluoranthene	1.70E-01	2.4	7.08E+00	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Fluoranthene	1.60E-01	1.8	8.89E+00	160	1200	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Fluoranthene	1.50E-01	2.4	6.25E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Fluoranthene	1.20E-01	1.82	6.59E+00	160	1200	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Fluoranthene	1.10E-01	2.34	4.70E+00	160	1200	mg/kg OC	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Fluoranthene	6.70E-02	1.5	4.47E+00	160	1200	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Fluorene	1.90E+00	1.16	1.64E+02	23	79	mg/kg OC	7.1	2.1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Fluorene	6.30E-01	2.1	3.00E+01	23	79	mg/kg OC	1.3	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Fluorene	5.10E-01	2.13	2.39E+01	23	79	mg/kg OC	1.0	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Fluorene	2.90E-01	1.9	1.53E+01	23	79	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Fluorene	2.60E-01	1.47	1.77E+01	23	79	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Fluorene	1.80E-01	1.9	9.47E+00	23	79	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Fluorene	1.70E-01	3.34	5.09E+00	23	79	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Fluorene	6.50E-02 J	1.62	4.01E+00	23	79	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Fluorene	3.80E-02 J	1.53	2.48E+00	23	79	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Fluorene	3.00E-02	2.34	1.28E+00	23	79	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Fluorene	2.60E-02	2.4	1.08E+00	23	79	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Fluorene	2.00E-02	1.5	1.33E+00	23	79	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Fluorene	2.00E-02	1.9	1.05E+00	23	79	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Fluorene	1.70E-02 J	1.88	9.04E-01	23	79	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Fluorene	1.70E-02 J	1.33	1.28E+00	23	79	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Hexachlorobenzene	1.30E-02	2	6.50E-01	0.38	2.3	mg/kg OC	1.7	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Indeno(1,2,3-cd)pyrene	2.10E-01	1.9	1.11E+01	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Indeno(1,2,3-cd)pyrene	1.80E-01	2.13	8.45E+00	34	88	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Indeno(1,2,3-cd)pyrene	1.10E-01	2	5.50E+00	34	88	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Indeno(1,2,3-cd)pyrene	1.10E-01	1.8	6.11E+00	34	88	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Indeno(1,2,3-cd)pyrene	1.00E-01	1.9	5.26E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Indeno(1,2,3-cd)pyrene	9.80E-02	2.52	3.89E+00	34	88	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Indeno(1,2,3-cd)pyrene	9.60E-02	1.9	5.05E+00	34	88	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Indeno(1,2,3-cd)pyrene	8.90E-02	1.8	4.94E+00	34	88	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Indeno(1,2,3-cd)pyrene	8.70E-02	1.9	4.58E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Indeno(1,2,3-cd)pyrene	8.40E-02	2.1	4.00E+00	34	88	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Indeno(1,2,3-cd)pyrene	8.10E-02	2.3	3.52E+00	34	88	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Indeno(1,2,3-cd)pyrene	7.10E-02	2.1	3.38E+00	34	88	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Indeno(1,2,3-cd)pyrene	6.70E-02	2.4	2.79E+00	34	88	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Indeno(1,2,3-cd)pyrene	6.40E-02	1.5	4.27E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Indeno(1,2,3-cd)pyrene	6.00E-02	1.16	5.17E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Indeno(1,2,3-cd)pyrene	5.70E-02 J	3.34	1.71E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Indeno(1,2,3-cd)pyrene	5.60E-02 J	2.18	2.57E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Indeno(1,2,3-cd)pyrene	5.10E-02	1.88	2.71E+00	34	88	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Indeno(1,2,3-cd)pyrene	5.10E-02	1.9	2.68E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Indeno(1,2,3-cd)pyrene	4.80E-02 J	1.53	3.14E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Indeno(1,2,3-cd)pyrene	4.00E-02	1.82	2.20E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Indeno(1,2,3-cd)pyrene	3.60E-02 J	1.81	1.99E+00	34	88	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Indeno(1,2,3-cd)pyrene	3.60E-02	2.4	1.50E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Indeno(1,2,3-cd)pyrene	3.40E-02 J	1.55	2.19E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Indeno(1,2,3-cd)pyrene	2.20E-02	1.47	1.50E+00	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Indeno(1,2,3-cd)pyrene	2.00E-02	2.34	8.55E-01	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Indeno(1,2,3-cd)pyrene	2.00E-02 J	1.33	1.50E+00	34	88	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Indeno(1,2,3-cd)pyrene	1.60E-02 J	1.62	9.88E-01	34	88	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Iron	2.90E+04 J	1.82						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Iron	2.70E+04 J	2.34						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Lead	7.72E+02	1.88		450	530	mg/kg DW	1.7	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0.5 - 1	Lead	1.77E+02	2.14		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1 - 1.5	Lead	1.17E+02	2.53		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Lead	1.08E+02	3.34		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Lead	1.00E+02	1.8		450	530	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Lead	9.10E+01	1.8		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Lead	8.70E+01	1.16		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1.5 - 2	Lead	8.40E+01	2.42		450	530	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Lead	8.30E+01	1.8		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 0.5	Lead	7.20E+01	1.76		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Lead	5.90E+01	1.81		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Lead	5.80E+01	1.5		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Lead	5.50E+01	2		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Lead	5.10E+01	2.1		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Lead	5.10E+01	1.47		450	530	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Lead	5.00E+01	1.9		450	530	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Lead	4.90E+01	2.52		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Lead	4.50E+01	1.5		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2.5 - 3	Lead	4.50E+01	1.98		450	530	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Lead	4.50E+01	2.3		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Lead	4.30E+01	2.18		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Lead	4.20E+01	1.33		450	530	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Lead	4.00E+01	2.4		450	530	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Lead	3.70E+01	1.5		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Lead	3.50E+01	1.9		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Lead	3.50E+01	1.9		450	530	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Lead	3.50E+01	1.9		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Lead	3.30E+01	1.62		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Lead	3.30E+01	2.1		450	530	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Lead	3.20E+01	1.9		450	530	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 2.5	Lead	2.10E+01	1.35		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Lead	1.70E+01	1.82		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Lead	9.80E+00	2.34		450	530	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Magnesium	7.50E+03	1.82						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Magnesium	6.50E+03	2.34						
EPA Site Inspection	DR101	9/21/1998	2 - 4	Manganese	3.00E+02	2.34						
EPA Site Inspection	DR101	9/21/1998	0 - 2	Manganese	2.80E+02	1.82						
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Mercury	4.30E-01	1.8		0.41	0.59	mg/kg DW	1.0	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Mercury	3.90E-01	1.5		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Mercury	3.90E-01 J	3.34		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Mercury	3.30E-01	2.52		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Mercury	3.00E-01 J	1.33		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Mercury	3.00E-01	1.16		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Mercury	3.00E-01 J	1.62		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Mercury	2.80E-01 J	1.88		0.41	0.59	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Mercury	2.60E-01	1.9		0.41	0.59	mg/kg DW	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Mercury	2.50E-01	2		0.41	0.59	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Mercury	2.50E-01	2.4		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Mercury	2.40E-01	1.82		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Mercury	2.20E-01	2.18		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Mercury	2.20E-01	1.47		0.41	0.59	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Mercury	2.10E-01	1.5		0.41	0.59	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Mercury	2.10E-01	1.9		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Mercury	2.00E-01	1.81		0.41	0.59	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Mercury	1.70E-01	2.1		0.41	0.59	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Mercury	1.70E-01	1.9		0.41	0.59	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Mercury	1.60E-01	2.4		0.41	0.59	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Mercury	1.50E-01	1.5		0.41	0.59	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Mercury	1.50E-01	2.34		0.41	0.59	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Mercury	1.50E-01	1.9		0.41	0.59	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Mercury	1.30E-01	1.8		0.41	0.59	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Mercury	1.30E-01	2.3		0.41	0.59	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Mercury	1.20E-01	1.9		0.41	0.59	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Mercury	1.10E-01	1.8		0.41	0.59	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Molybdenum	9.10E+00	3.34						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Molybdenum	2.00E+00	1.88						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Molybdenum	1.20E+00	1.33						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Molybdenum	1.20E+00	1.62						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Molybdenum	1.10E+00	1.81						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Molybdenum	1.00E+00	2.18						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Molybdenum	1.00E+00	2.1						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Naphthalene	4.10E-01	2.1		99	170	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Naphthalene	3.80E-01	2.13		99	170	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Naphthalene	1.40E-01	1.16		99	170	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Naphthalene	1.40E-01	1.47		99	170	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Naphthalene	1.20E-01	1.9		99	170	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Naphthalene	2.70E-02	1.33		99	170	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Naphthalene	1.70E-02 J	1.62		99	170	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Nickel	4.60E+01	1.8						
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Nickel	4.20E+01	1.8						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Nickel	3.20E+01	3.34						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Nickel	3.00E+01	1.16						
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Nickel	2.70E+01	1.9						
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Nickel	2.68E+01	2.4						
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Nickel	2.59E+01	1.9						
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Nickel	2.58E+01	2.3						
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Nickel	2.40E+01	2.4						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Nickel	2.40E+01	1.88						
EPA Site Inspection	DR101	9/21/1998	0 - 2	Nickel	2.30E+01	1.82						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Nickel	2.30E+01	1.47						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Nickel	2.30E+01	2.1						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Nickel	2.20E+01	2.52						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Nickel	2.20E+01	1.81						
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Nickel	2.10E+01	1.9						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Nickel	2.10E+01	2.18						
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Nickel	2.05E+01	1.5						

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA Site Inspection	DR101	9/21/1998	2 - 4	Nickel	2.00E+01	2.34						
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Nickel	1.90E+01	1.9						
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Nickel	1.90E+01	1.8						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Nickel	1.90E+01	1.62						
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Nickel	1.80E+01	1.33						
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Nickel	1.70E+01	2						
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Nickel	1.60E+01	1.5						
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Nickel	1.50E+01	2.1						
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Nickel	1.50E+01	1.5						
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Nickel	1.50E+01	1.9						
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	2.8 - 4	Nickel	6.00E+00	0.11						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	N-Nitroso-di-n-propylamine	7.00E-02	1.16						
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	N-Nitroso-di-n-propylamine	4.10E-02	1.47						
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1 - 1.5	PCBs (total calc'd)	4.70E+00	2.53	1.86E+02	12	65	mg/kg OC	15	2.9
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	PCBs (total calc'd)	3.10E+00	3.34	9.28E+01	12	65	mg/kg OC	7.7	1.4
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	1.5 - 2	PCBs (total calc'd)	2.50E+00 J	2.42	1.03E+02	12	65	mg/kg OC	8.6	1.6
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	PCBs (total calc'd)	2.45E+00	1.47	1.67E+02	12	65	mg/kg OC	14	2.6
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	PCBs (total calc'd)	1.72E+00	1.16	1.48E+02	12	65	mg/kg OC	12	2.3
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	PCBs (total calc'd)	1.45E+00	1.88	7.71E+01	12	65	mg/kg OC	6.4	1.2
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	PCBs (total calc'd)	1.01E+00	1.8	5.61E+01	12	65	mg/kg OC	4.7	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	PCBs (total calc'd)	1.01E+00	1.81	5.58E+01	12	65	mg/kg OC	4.7	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2.5 - 3	PCBs (total calc'd)	9.40E-01	1.98	4.75E+01	12	65	mg/kg OC	4.0	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0.5 - 1	PCBs (total calc'd)	7.90E-01	2.14	3.69E+01	12	65	mg/kg OC	3.1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	PCBs (total calc'd)	6.80E-01	2.4	2.83E+01	12	65	mg/kg OC	2.4	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	PCBs (total calc'd)	5.90E-01	1.5	3.93E+01	12	65	mg/kg OC	3.3	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	PCBs (total calc'd)	5.30E-01 J	1.33	3.98E+01	12	65	mg/kg OC	3.3	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 0.5	PCBs (total calc'd)	4.90E-01	1.76	2.78E+01	12	65	mg/kg OC	2.3	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	PCBs (total calc'd)	4.20E-01	1.62	2.59E+01	12	65	mg/kg OC	2.2	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	PCBs (total calc'd)	3.70E-01	2.52	1.47E+01	12	65	mg/kg OC	1.2	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	PCBs (total calc'd)	3.40E-01	2.13	1.60E+01	12	65	mg/kg OC	1.3	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	PCBs (total calc'd)	3.30E-01	2.18	1.51E+01	12	65	mg/kg OC	1.3	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	PCBs (total calc'd)	3.00E-01	2	1.50E+01	12	65	mg/kg OC	1.3	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	PCBs (total calc'd)	2.80E-01	2.1	1.33E+01	12	65	mg/kg OC	1.1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	PCBs (total calc'd)	2.40E-01	2.1	1.14E+01	12	65	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	PCBs (total calc'd)	2.40E-01	2.3	1.04E+01	12	65	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	PCBs (total calc'd)	2.20E-01	1.5	1.47E+01	12	65	mg/kg OC	1.2	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 2.5	PCBs (total calc'd)	2.10E-01	1.35	1.56E+01	12	65	mg/kg OC	1.3	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	PCBs (total calc'd)	2.00E-01	1.9	1.05E+01	12	65	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	PCBs (total calc'd)	1.75E-01	1.5	1.17E+01	12	65	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	PCBs (total calc'd)	1.70E-01	2.4	7.08E+00	12	65	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	PCBs (total calc'd)	1.50E-01	1.8	8.33E+00	12	65	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	PCBs (total calc'd)	1.42E-01	1.9	7.47E+00	12	65	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	PCBs (total calc'd)	1.40E-01	1.8	7.78E+00	12	65	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	PCBs (total calc'd)	1.39E-01	1.9	7.32E+00	12	65	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	PCBs (total calc'd)	1.30E-01	1.9	6.84E+00	12	65	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	PCBs (total calc'd)	1.25E-01	1.9	6.58E+00	12	65	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31 [a]	2/16/2006	2.8 - 4	PCBs (total calc'd)	2.70E-03 J	0.11		130	1000	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Pentachlorophenol	7.30E-01	3.34	2.19E+01	360	690	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Pentachlorophenol	3.60E-02	2.13	1.69E+00	360	690	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Pentachlorophenol	3.60E-02	2.1	1.71E+00	360	690	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	5.2 - 8	Pentachlorophenol	2.50E-02 J	0.724	3.45E+00	360	690	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Pentachlorophenol	2.00E-02 J	1.16	1.72E+00	360	690	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Phenanthrene	3.70E+00	1.16	3.19E+02	100	480	mg/kg OC	3.2	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Phenanthrene	2.20E+00	1.9	1.16E+02	100	480	mg/kg OC	1.2	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Phenanthrene	1.40E+00	2.1	6.67E+01	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Phenanthrene	1.30E+00	2.13	6.10E+01	100	480	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Phenanthrene	1.20E+00	1.9	6.32E+01	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Phenanthrene	6.40E-01	3.34	1.92E+01	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Phenanthrene	4.60E-01	1.47	3.13E+01	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Phenanthrene	2.20E-01	1.9	1.16E+01	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Phenanthrene	1.70E-01	1.9	8.95E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Phenanthrene	1.70E-01 J	1.62	1.05E+01	100	480	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Phenanthrene	1.60E-01	1.9	8.42E+00	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Phenanthrene	1.50E-01	2	7.50E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Phenanthrene	1.50E-01	1.55	9.68E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Phenanthrene	1.50E-01	1.53	9.80E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Phenanthrene	1.40E-01	2.52	5.56E+00	100	480	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Phenanthrene	1.20E-01	1.5	8.00E+00	100	480	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Phenanthrene	1.20E-01	1.8	6.67E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Phenanthrene	1.20E-01	1.88	6.38E+00	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Phenanthrene	1.00E-01	1.5	6.67E+00	100	480	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Phenanthrene	1.00E-01	1.8	5.56E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Phenanthrene	1.00E-01	2.18	4.59E+00	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Phenanthrene	9.30E-02	1.8	5.17E+00	100	480	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Phenanthrene	9.10E-02	2.4	3.79E+00	100	480	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Phenanthrene	9.00E-02	2.3	3.91E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Phenanthrene	8.80E-02	1.81	4.86E+00	100	480	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Phenanthrene	8.00E-02	2.34	3.42E+00	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Phenanthrene	7.70E-02	2.1	3.67E+00	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Phenanthrene	6.60E-02	2.4	2.75E+00	100	480	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA Site Inspection	DR101	9/21/1998	0 - 2	Phenanthrene	6.00E-02	1.82	3.30E+00	100	480	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Phenanthrene	5.40E-02	1.33	4.06E+00	100	480	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Phenol	2.80E-01	1.9		420	1200	ug/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Phenol	9.90E-02	1.9		420	1200	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Phenol	6.90E-02	1.81		420	1200	ug/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Phenol	3.20E-02	1.8		420	1200	ug/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Pyrene	4.70E+00	2.13	2.21E+02	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Pyrene	2.80E+00	1.9	1.47E+02	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Pyrene	2.60E+00	2.1	1.24E+02	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Pyrene	1.20E+00	1.16	1.03E+02	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Pyrene	1.10E+00	3.34	3.29E+01	1000	1400	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Pyrene	8.00E-01	1.9	4.21E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Pyrene	7.30E-01	1.9	3.84E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Pyrene	6.60E-01	2.1	3.14E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Pyrene	5.80E-01 J	1.33	4.36E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Pyrene	5.20E-01	2	2.60E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Pyrene	5.00E-01	1.88	2.66E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Pyrene	4.90E-01	1.9	2.58E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Pyrene	4.70E-01 J	1.62	2.90E+01	1000	1400	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Pyrene	4.60E-01	1.9	2.42E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Pyrene	4.30E-01	2.18	1.97E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Pyrene	4.20E-01	1.81	2.32E+01	1000	1400	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Pyrene	4.10E-01	1.8	2.28E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Pyrene	4.10E-01	2.52	1.63E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Pyrene	3.80E-01	1.5	2.53E+01	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Pyrene	3.70E-01	1.47	2.52E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Pyrene	2.90E-01	1.8	1.61E+01	1000	1400	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Pyrene	2.60E-01	1.5	1.73E+01	1000	1400	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Pyrene	2.60E-01	2.3	1.13E+01	1000	1400	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Pyrene	2.40E-01	1.8	1.33E+01	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Pyrene	2.30E-01	2.4	9.58E+00	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Pyrene	2.10E-01	1.53	1.37E+01	1000	1400	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Pyrene	2.10E-01	2.4	8.75E+00	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Pyrene	1.50E-01	1.55	9.68E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Pyrene	1.40E-01	1.82	7.69E+00	1000	1400	mg/kg OC	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Pyrene	1.10E-01	1.5	7.33E+00	1000	1400	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Pyrene	9.00E-02	2.34	3.85E+00	1000	1400	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Silver	2.60E+00	3.34		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Silver	2.20E+00	1.62		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Silver	1.70E+00	1.33		6.1	6.1	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Silver	1.50E+00	2.4		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Silver	1.40E+00	2.1		6.1	6.1	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Silver	1.30E+00	1.9		6.1	6.1	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Silver	1.20E+00	1.5		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Silver	1.10E+00	1.88		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Silver	1.10E+00	1.16		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Silver	1.00E+00	1.47		6.1	6.1	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Silver	1.00E+00	2.3		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Silver	9.70E-01	2.1		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Silver	9.60E-01	2.4		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Silver	8.50E-01	2		6.1	6.1	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Silver	8.00E-01	1.9		6.1	6.1	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Silver	5.00E-01	1.81		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Silver	4.00E-01	1.5		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Silver	3.10E-01	1.8		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Silver	2.90E-01	1.5		6.1	6.1	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Silver	2.50E-01	1.8		6.1	6.1	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Silver	2.40E-01	1.8		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Silver	2.30E-01	1.9		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Silver	2.10E-01	1.9		6.1	6.1	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Silver	1.80E-01	1.9		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Silver	1.40E-01	1.82		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Silver	8.00E-02	2.34		6.1	6.1	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Thallium	7.00E+00	2.34						
EPA Site Inspection	DR101	9/21/1998	0 - 2	Tin	4.00E+00	1.82	2.20E+02					
EPA Site Inspection	DR101	9/21/1998	2 - 4	Tin	3.00E+00	2.34	1.28E+02					
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Total aldrin/dieldrin (calc'd)	1.10E-02	1.8	6.11E-01					
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Total aldrin/dieldrin (calc'd)	7.80E-03	1.5	5.20E-01					
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Total aldrin/dieldrin (calc'd)	3.30E-03	1.5	2.20E-01					
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Total aldrin/dieldrin (calc'd)	3.30E-03	1.9	1.74E-01					
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Total aldrin/dieldrin (calc'd)	2.60E-03	1.9	1.37E-01					
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Total aldrin/dieldrin (calc'd)	2.50E-03	1.9	1.32E-01					
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Total HPAH (calc'd)	1.35E+01	2.13	6.34E+02	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Total HPAH (calc'd)	9.40E+00	1.9	4.95E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Total HPAH (calc'd)	8.10E+00	2.1	3.86E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Total HPAH (calc'd)	7.40E+00 J	1.16	6.38E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Total HPAH (calc'd)	4.30E+00 J	3.34	1.29E+02	960	5300	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Total HPAH (calc'd)	3.40E+00 J	1.9	1.79E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Total HPAH (calc'd)	2.55E+00	2.52	1.01E+02	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Total HPAH (calc'd)	2.46E+00	1.9	1.29E+02	960	5300	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Total HPAH (calc'd)	2.12E+00	1.8	1.18E+02	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Total HPAH (calc'd)	2.07E+00	2.1	9.86E+01	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Total HPAH (calc'd)	2.07E+00	2	1.04E+02	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Total HPAH (calc'd)	2.06E+00	1.9	1.08E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Total HPAH (calc'd)	2.05E+00 J	1.88	1.09E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Total HPAH (calc'd)	2.05E+00 J	2.18	9.40E+01	960	5300	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Total HPAH (calc'd)	2.05E+00	1.9	1.08E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Total HPAH (calc'd)	1.96E+00 J	1.62	1.21E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Total HPAH (calc'd)	1.85E+00	1.47	1.26E+02	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Total HPAH (calc'd)	1.57E+00 J	1.81	8.67E+01	960	5300	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Total HPAH (calc'd)	1.36E+00	1.8	7.56E+01	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Total HPAH (calc'd)	1.28E+00 J	1.33	9.62E+01	960	5300	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Total HPAH (calc'd)	1.26E+00	2.3	5.48E+01	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Total HPAH (calc'd)	1.16E+00	1.5	7.73E+01	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Total HPAH (calc'd)	1.12E+00 J	1.53	7.32E+01	960	5300	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Total HPAH (calc'd)	1.10E+00	1.5	7.33E+01	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Total HPAH (calc'd)	1.02E+00	2.4	4.25E+01	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Total HPAH (calc'd)	8.90E-01 J	1.55	5.74E+01	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Total HPAH (calc'd)	8.50E-01	1.8	4.72E+01	960	5300	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Total HPAH (calc'd)	7.40E-01	2.4	3.08E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Total HPAH (calc'd)	6.10E-01	1.82	3.35E+01	960	5300	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Total HPAH (calc'd)	4.00E-01	2.34	1.71E+01	960	5300	mg/kg OC	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Total HPAH (calc'd)	2.30E-01	1.5	1.53E+01	960	5300	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Total LPAH (calc'd)	7.50E+00	1.16	6.47E+02	370	780	mg/kg OC	1.7	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Total LPAH (calc'd)	3.90E+00	2.1	1.86E+02	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	4 - 6	Total LPAH (calc'd)	3.40E+00	2.13	1.60E+02	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Total LPAH (calc'd)	3.00E+00	1.9	1.58E+02	370	780	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Total LPAH (calc'd)	1.90E+00	1.9	1.00E+02	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Total LPAH (calc'd)	1.24E+00	1.47	8.44E+01	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Total LPAH (calc'd)	1.22E+00	3.34	3.65E+01	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Total LPAH (calc'd)	4.30E-01 J	1.62	2.65E+01	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Total LPAH (calc'd)	2.80E-01	1.9	1.47E+01	370	780	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Total LPAH (calc'd)	2.60E-01	1.9	1.37E+01	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	8 - 10	Total LPAH (calc'd)	2.40E-01 J	1.53	1.57E+01	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Total LPAH (calc'd)	2.30E-01	1.9	1.21E+01	370	780	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Total LPAH (calc'd)	2.20E-01	2.4	9.17E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Total LPAH (calc'd)	2.10E-01 J	1.88	1.12E+01	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Total LPAH (calc'd)	2.10E-01	2.52	8.33E+00	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Total LPAH (calc'd)	2.00E-01	2	1.00E+01	370	780	mg/kg OC	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Total LPAH (calc'd)	2.00E-01 J	1.5	1.33E+01	370	780	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	8 - 10	Total LPAH (calc'd)	1.90E-01 J	1.55	1.23E+01	370	780	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Total LPAH (calc'd)	1.60E-01	1.8	8.89E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Total LPAH (calc'd)	1.51E-01 J	1.33	1.14E+01	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Total LPAH (calc'd)	1.50E-01	2.34	6.41E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Total LPAH (calc'd)	1.50E-01 J	2.18	6.88E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Total LPAH (calc'd)	1.30E-01 J	1.81	7.18E+00	370	780	mg/kg OC	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Total LPAH (calc'd)	1.19E-01	2.3	5.17E+00	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Total LPAH (calc'd)	1.09E-01	2.1	5.19E+00	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Total LPAH (calc'd)	1.00E-01	1.5	6.67E+00	370	780	mg/kg OC	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Total LPAH (calc'd)	1.00E-01	1.8	5.56E+00	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Total LPAH (calc'd)	9.30E-02	1.8	5.17E+00	370	780	mg/kg OC	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Total LPAH (calc'd)	9.00E-02	1.82	4.95E+00	370	780	mg/kg OC	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Total LPAH (calc'd)	6.60E-02	2.4	2.75E+00	370	780	mg/kg OC	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Tributyltin as ion	4.90E-02	2.18	2.25E+00					
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Tributyltin as ion	4.60E-02	2.52	1.83E+00					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Vanadium	7.67E+01	1.16	6.61E+03					
EPA Site Inspection	DR101	9/21/1998	0 - 2	Vanadium	7.60E+01	1.82	4.18E+03					
EPA Site Inspection	DR101	9/21/1998	2 - 4	Vanadium	7.60E+01	2.34	3.25E+03					
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Vanadium	7.52E+01	2.52	2.98E+03					
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Vanadium	7.26E+01	1.88	3.86E+03					
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Vanadium	7.16E+01	3.34	2.14E+03					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Vanadium	7.15E+01	1.47	4.86E+03					
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Vanadium	7.10E+01	2.1	3.38E+03					
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Vanadium	7.03E+01	1.33	5.29E+03					
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Vanadium	6.95E+01	1.62	4.29E+03					
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Vanadium	6.80E+01	2.18	3.12E+03					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Vanadium	6.80E+01	1.81	3.76E+03					
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	2.8 - 4	Vanadium	3.61E+01	0.11	3.28E+04					
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	1 - 2	Zinc	2.87E+02	1.16		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	0 - 2	Zinc	2.36E+02	3.34		410	960	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-2	6/23/1995	0 - 5	Zinc	1.80E+02	1.8		410	960	mg/kg DW	<1	<1
Lone Star and Hardie Gypsum	c-1	6/23/1995	0 - 4	Zinc	1.70E+02	1.8		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 2	C	7/15/1999	0 - 3	Zinc	1.60E+02	1.9		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 2	D	7/15/1999	0 - 3	Zinc	1.60E+02	1.8		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	2 - 4	Zinc	1.60E+02	1.47		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	0 - 1.5	Zinc	1.43E+02	1.88		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	0 - 1	Zinc	1.39E+02	2.52		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC32	2/10/2006	0 - 1	Zinc	1.36E+02	1.81		410	960	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S6	8/26/1999	0 - 4	Zinc	1.34E+02	1.9		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31	2/16/2006	1 - 2.8	Zinc	1.31E+02	2.18		410	960	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Event Name	Location Name	Date Collected	Sample Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Hardie Gypsum Round 1	4	11/28/1998	0 - 4	Zinc	1.30E+02	2		410	960	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S8	8/26/1999	0 - 4	Zinc	1.24E+02	2.3		410	960	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S12	8/26/1999	0 - 4	Zinc	1.22E+02	2.4		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	4 - 6	Zinc	1.21E+02	2.1		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 1	3	11/28/1998	0 - 4	Zinc	1.20E+02	2.1		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 2	4	7/15/1999	0 - 3	Zinc	1.20E+02	1.9		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 1	5	11/28/1998	0 - 4	Zinc	1.20E+02	2.4		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 2	5.2	7/15/1999	0 - 3	Zinc	1.20E+02	1.9		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 2	E	7/15/1999	0 - 3	Zinc	1.20E+02	1.5		410	960	mg/kg DW	<1	<1
PSDDA Sediment Characterization	S10	8/26/1999	0 - 4	Zinc	1.15E+02	1.9		410	960	mg/kg DW	<1	<1
Hardie Gypsum Round 2	3	7/15/1999	0 - 3	Zinc	1.10E+02	1.5		410	960	mg/kg DW	<1	<1
PSDDA Sediment Characterization	B1	8/26/1999	4 - 8	Zinc	9.97E+01	1.5		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC201	2/10/2006	1.5 - 4	Zinc	9.80E+01	1.33		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC33	2/10/2006	2 - 4	Zinc	9.40E+01	1.62		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	0 - 2	Zinc	7.30E+01	1.82		410	960	mg/kg DW	<1	<1
EPA Site Inspection	DR101	9/21/1998	2 - 4	Zinc	5.90E+01	2.34		410	960	mg/kg DW	<1	<1
LDW Subsurface Sediment 2006	LDW-SC31 [a]	2/16/2006	2.8 - 4	Zinc	1.85E+01	0.11		1600	410	mg/kg DW	<1	<1

Table presents detected chemicals only. Sampling events are listed in Table 1.
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.

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

PAH - Polycyclic aromatic hydrocarbon
Total HPAH - Total high molecular weight PAH
Total LPAH - Total low molecular weight PAH
PCB - Polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
NA - Not Applicable

[a] Due to the high TOC in this sample, results were compared to the Lowest Apparent Effects Threshold (LAET) value rather than the SQS and/or CSL (Ecology 1996e). In most cases the Benthic LAET value replaced the CSL value and the Microtox LAET value replaced the SQS value. In some cases one or the other of these values was not available and therefore was not reported in the table.

Table A-3
Chemicals Detected in Seep Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Source	Sample Location	Date Collected	Chemical	Conc'n (ug/L)	Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	Sediment Screening Level (Based on CSL)[a]	GW-to-Sediment Screening Level Exceedance Factor
Filtered Samples									
Windward 2004	SP-82	7/1/2004	Arsenic	1.2	36	69	<1	370	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Arsenic	1.14	36	69	<1	370	<1
Windward 2004	SP-82	7/1/2004	Cadmium	0.513	9.3	42	<1	3.4	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Cadmium	0.503	9.3	42	<1	3.4	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Copper	8.27 J	3.1	4.8	2.7	120	<1
Windward 2004	SP-82	7/1/2004	Copper	8.22 J	3.1	4.8	2.7	120	<1
Windward 2004	SP-82	7/1/2004	Lead	0.206	8.1	210	<1	13	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Lead	0.201	8.1	210	<1	13	<1
Windward 2004	SP-82	7/1/2004	Mercury	0.0038	0.03	1.8	<1	0.0	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Mercury	0.003	0.03	1.8	<1	0.0	<1
Windward 2004	SP-82	7/1/2004	Nickel	3.56	8.2	74	<1		
Windward 2004	SP-82 (Dup)	7/1/2004	Nickel	3.36	8.2	74	<1		
Windward 2004	SP-82	7/1/2004	Silver	0.113	NA	1.9		1.5	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Silver	0.084	NA	1.9		1.5	<1
Windward 2004	SP-82	7/1/2004	Zinc	164	81	90	2.0	76	2.2
Windward 2004	SP-82 (Dup)	7/1/2004	Zinc	158	81	90	2.0	76	2.1
Unfiltered Samples									
Windward 2004	SP-82 (Dup)	7/1/2004	Arsenic	2.2	36	69	<1	370	<1
Windward 2004	SP-82	7/1/2004	Arsenic	1.55	36	69	<1	370	<1
Windward 2004	SP-82	7/1/2004	Arsenic	1.36	36	69	<1	370	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Cadmium	0.606	9.3	42	<1	3.4	<1
Windward 2004	SP-82	7/1/2004	Cadmium	0.569	9.3	42	<1	3.4	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Copper	13.4 J	3.1	4.8	4.3	120	<1
Windward 2004	SP-82	7/1/2004	Copper	10.9 J	3.1	4.8	3.5	120	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Lead	8.29	8.1	210	1.0	13	<1
Windward 2004	SP-82	7/1/2004	Lead	2.31	8.1	210	<1	13	<1
Windward 2004	SP-82	7/1/2004	Mercury	0.0168	0.03	1.8	<1	0.0074	2.3
Windward 2004	SP-82 (Dup)	7/1/2004	Mercury	0.0117	0.03	1.8	<1	0.0074	1.6
Windward 2004	SP-82 (Dup)	7/1/2004	Nickel	6.12	8.2	74	<1		

Table A-3
Chemicals Detected in Seep Samples
RM 1.7-2.0 East (Slip 2 to Slip 3)

Source	Sample Location	Date Collected	Chemical	Conc'n (ug/L)	Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	Sediment Screening Level (Based on CSL)[a]	GW-to-Sediment Screening Level Exceedance Factor
Windward 2004	SP-82	7/1/2004	Nickel	5.83	8.2	74	<1		
Windward 2004	SP-82 (Dup)	7/1/2004	Silver	0.126	NA	1.9		1.5	<1
Windward 2004	SP-82	7/1/2004	Silver	0.088	NA	1.9		1.5	<1
Windward 2004	SP-82 (Dup)	7/1/2004	Zinc	201	81	90	2.5	76	2.6
Windward 2004	SP-82	7/1/2004	Zinc	186	81	90	2.3	76	2.4

Table presents detected chemicals only.
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.

ug/L - Microgram per Liter
WQS - Water Quality Standards, November 2006
CSL - SMS Cleanup Screening Level
Dup - Laboratory Duplicate Sample
J - Estimated value between the method detection limit and the laboratory reporting limit
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Appendix B
Photographs

B–1. Historical Aerial Photograph Review (Figures B-1 through B-8)

B–2. Oblique Shoreline Photographs (Figures B-9 through B-11)
Source: Washington State Department of Ecology Coastal Atlas

B–3. Outfall 2018 (Glacier Northwest)
Source: Schmoyer 2008b

B–4. Seattle Biodiesel Spill and Cleanup (July 2007)
Source: Ecology 2007n

Appendix B-1
Historical Aerial Photograph Review

Appendix B1
Historical Aerial Photograph Review

Lower Duwamish Waterway
RM 1.7–2.0 East (Slip 2 to Slip 3)

In an effort to more thoroughly understand and evaluate historical facility operations and development in the RM 1.7–2.0 East source control area, SAIC reviewed historical aerial photographs from 1936 to 2002. At a minimum, these photographs represent conditions of roughly each decade. Additional photographs 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. The aerial photographs for the years 1936, 1946, 1956, 1969, 1980, 1990, and 2002 are described below.

For purposes of discussion, aerial photos are split up into four general locations using current-day street names as reference points. **Slip 2** is described as the wetted area bounded by shoreline inside the slip itself. **Glacier NW** consists of parcel 9075 and 4505 along the north and east sides of Slip 2. **The Duwamish Marine Center** is bordered by Glacier NW and Slip 2 on the northwest, the LDW on the southwest and south, and East Marginal Way on the east. **Upland Properties** are considered to be the area south of S Fidalgo St, east of East Marginal Way, north of 1st Ave S NE off-ramp/ S Michigan Street, and west of 4th Ave S.

1936

Slip 2 is already well defined with clear shoreline definition. Timber rafts are stored on the north side and numerous small docks and above-water structures, possibly used to house small boats, are located along the south side of the slip. 1st Ave S is relatively close to the east side of Slip 2. There is either the early development or decaying remains of a structure resembling a pier along the north side of the slip.

Glacier NW is virtually undeveloped and consists of possible grassland and/or floodplain. A long narrow building of unknown use or identity is located adjacent to the northeast side of Slip 1 and has a smaller adjacent building. East Marginal Way runs north and south through the middle of parcel 4505 fairly close to the east side of Slip 2.

The Duwamish Marine Center property is also relatively undeveloped. Several roads are located on the property. The only structural development is in the northwest area where the aforementioned overwater buildings are located. Several small docks appear to extend a short way out into the LDW. A feature resembling an open ditch appears to run from the Upland Properties area under 1st Ave S and likely connects to Slip 2. This is in the same general location as the 2021 Gilmore James Bldg. outfall.

The **Upland Properties** appear to consist of mostly farmland or undeveloped grassland. East Marginal Way bisects this area but there is no other road development within this specific location. Several small buildings, possibly residential in nature, are located near the northern and southern edges.

1946

Slip 2 underwent significant changes due to the apparent filling and subsequent reduction in size of approximately one third of the original open surface-water area. There appears to be a small dock or log boom present along the north and east sides of the slip.

Glacier NW appears to be in the early stages of development. Several buildings underwent construction including cylindrical silos on the northwest side of the property. The long narrow building adjacent to Slip 2 has been removed and replaced by an access road.

The Duwamish Marine Center gained a considerable amount of property as a result of the filling process, which took place within Slip 2. Several additional buildings are located along the west and south sides of the area. It appears that the structural remains of a wharf remain on the northwest side. Two barges are docked on the east side of the LDW along the west side of the Duwamish Marine Center. The ditch-like feature can still be observed; however, the discharge into Slip 2 is obscured by the fill material.

The **Upland Property** area underwent the most drastic change due to the development of the 901-unit Duwamish Bend housing project and associated school buildings. Developed streets and alleyways are in place. The area to the southwest remains fairly undeveloped with just the addition of a few buildings in the north.

1956

Slip 2 has two long docks paralleling the north and south sides. The primary purpose of the north dock appears to be for ship mooring. The function of the south dock is unknown. The south side of the slip remains mostly mudflats from when the slip shape was reconfigured and filled.

Glacier NW underwent the development and construction of various small buildings and roads, which is similar to the modern-day configuration. A dock which extends into the east side of the LDW is present.

The Duwamish Marine Center has increased development of small buildings. Most notably is the early stages of rerouting of the 1st Ave Bridge, which moves the roadway to the east. The ditch-like feature appears to have been filled or covered and is no longer present on the landscape. However, there is discoloration in the water of Slip 2 near where the 2021 Gilmore James Bldg. outfall is located. This may indicate water oxygenation from churning water associated with an outflow of some type.

The **Upland Properties** underwent the demolition of the Duwamish Bend housing project; only the footprints of buildings remain visible. Two exceptions include a large building located towards the north of the area and another long narrow building to the south. The property between East Marginal Way and where the new 1st Ave Bridge currently is located appears to be under development for road use.

1969

Slip 2 remains generally the same shape with some increased definition along the southern shoreline, which shifts from mudflats to usable developable land. Boat moorage appears to be the primary function of the slip.

The **Glacier NW** parcel 9075 located to the north remains virtually unchanged. However, the usable space for parcel 4505 increased due to the relocation of East Marginal Way farther to the east. No buildings or other infrastructure is present on this parcel.

The Duwamish Marine Center has more overwater structures on the south end and various larger buildings have been constructed within the area.

The **Upland Properties** underwent substantial redevelopment, which included many large buildings and warehouses. The two buildings from the Duwamish Bend housing project still remain but now appear dwarfed in comparison.

1980

Slip 2 underwent the removal of the southern dock. Two large barges were moored on the north side of the slip. A small pier located on the south side of the slip near the mouth was also constructed.

Glacier NW parcel 9075 remains unchanged whereas parcel 4505 underwent the construction of a large warehouse-type building that covers most of the parcel.

The Duwamish Marine Center area had numerous small buildings and structures removed.

The **Upland Properties** underwent no obvious changes or development.

1990

Slip 2 continues to accommodate large barge moorage along the north side. The pier located on the south side underwent the addition of a wharf at the end, which facilitated large barge moorage.

Glacier NW appears relatively unchanged with the exception of removing a small building located on the south side of parcel 9075.

The Duwamish Marine Center had an additional wharf constructed just outside the mouth of Slip 2 on the east side of the LDW. An additional building was built on the southern end of the area.

The **Upland Properties** appear unchanged.

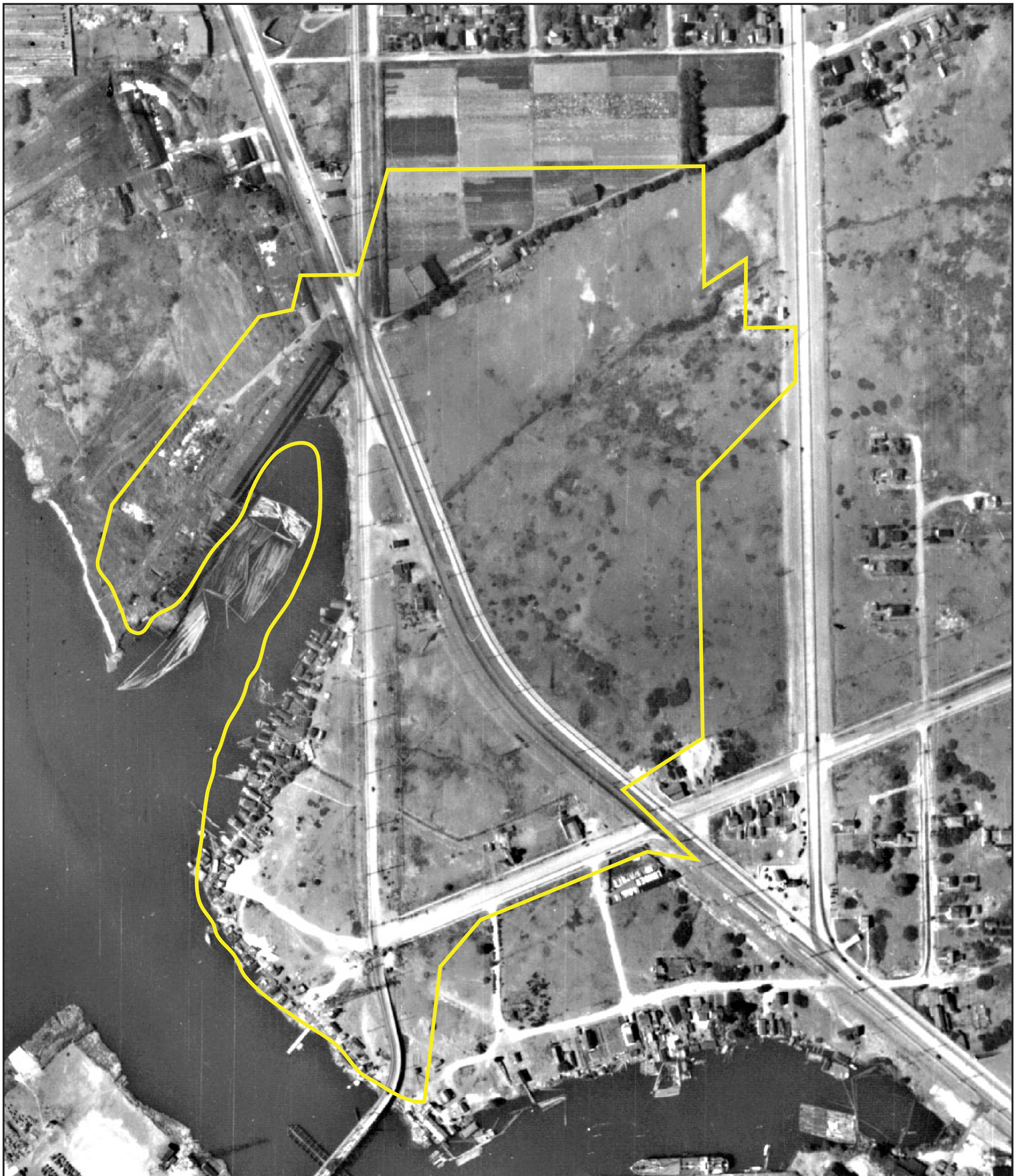
2002

No significant changes were visible to **Slip 2**.

Glacier NW continues to have undergone little to no change and is very similar to modern day design.

The Duwamish Marine Center appears to have undergone no observable changes.

The **Upland Properties** also appear to have had relatively little changes made with regard to development. Site reconnaissance indicates that the large rectangular building located on parcel 4646 was demolished and removed sometime between 2002, when this photo was taken, and April 2008.



Legend

Drainage Basin Boundary

Figure B–1. RM 1.7–2.0 East (Slip 2 to Slip 3): 1936

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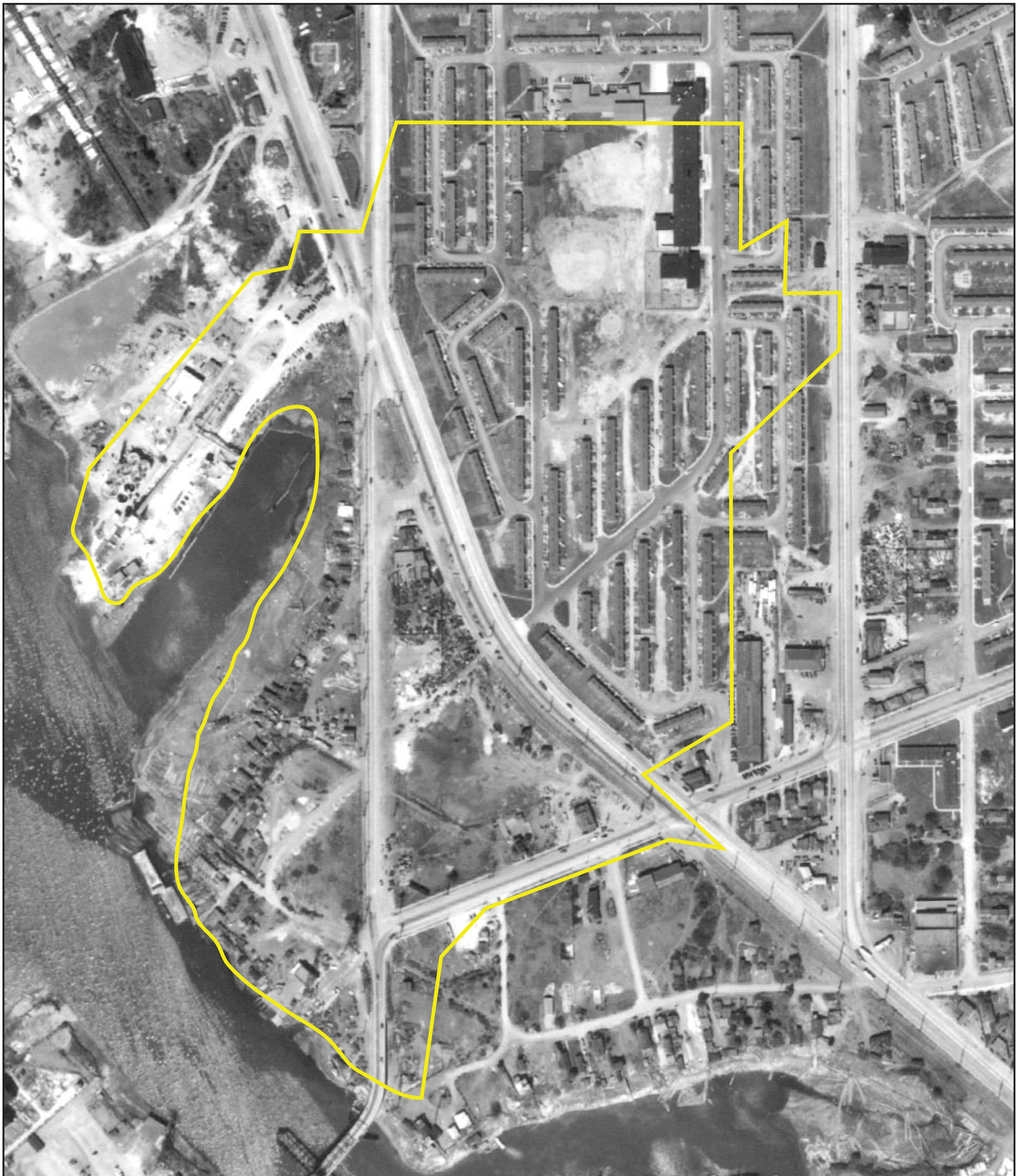

Legend

Drainage Basin Boundary

Figure B–2. RM 1.7–2.0 East (Slip 2 to Slip 3): 1946

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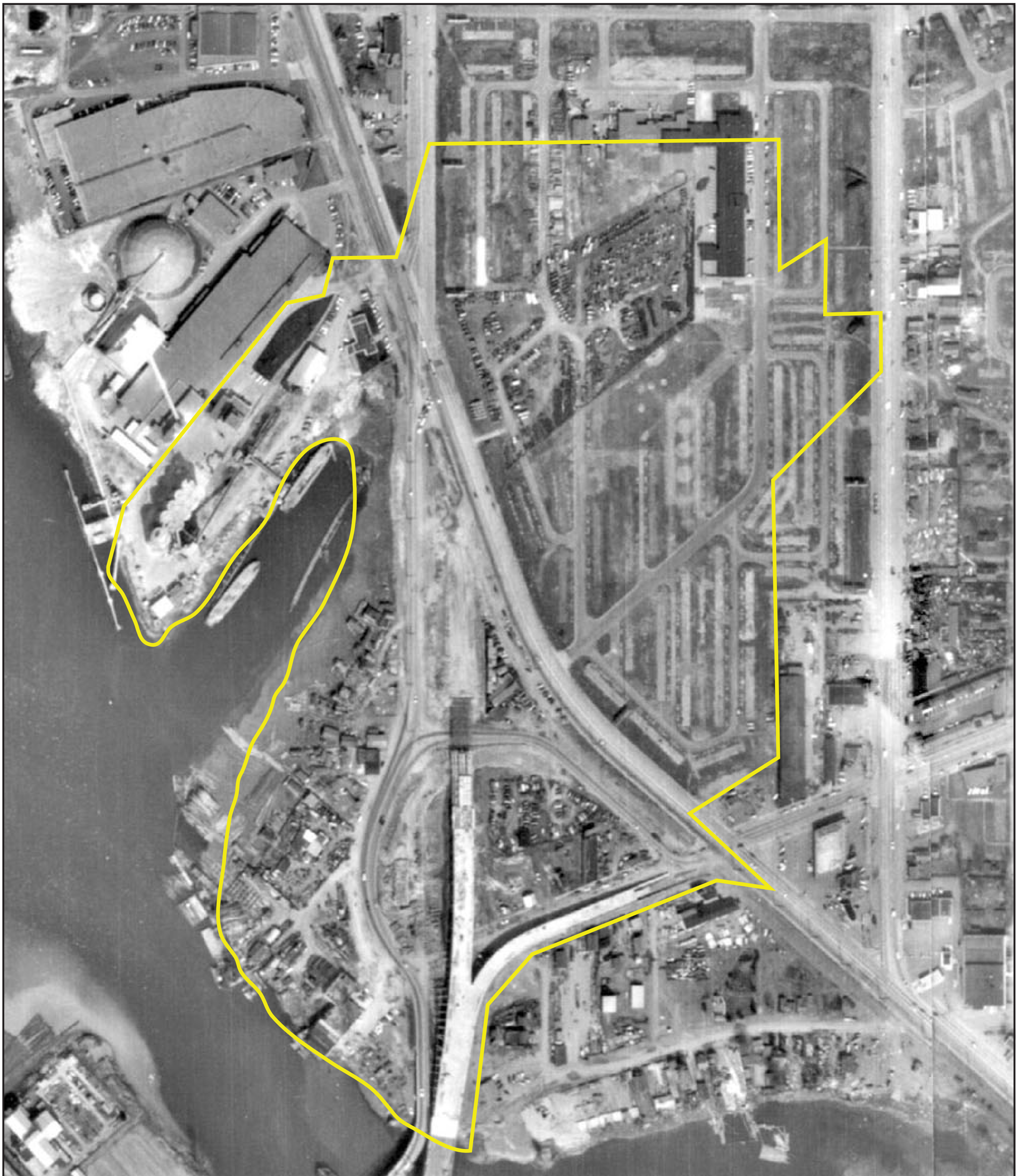

Legend

Drainage Basin Boundary

Figure B–3. RM 1.7–2.0 East (Slip 2 to Slip 3): 1956

SAIC
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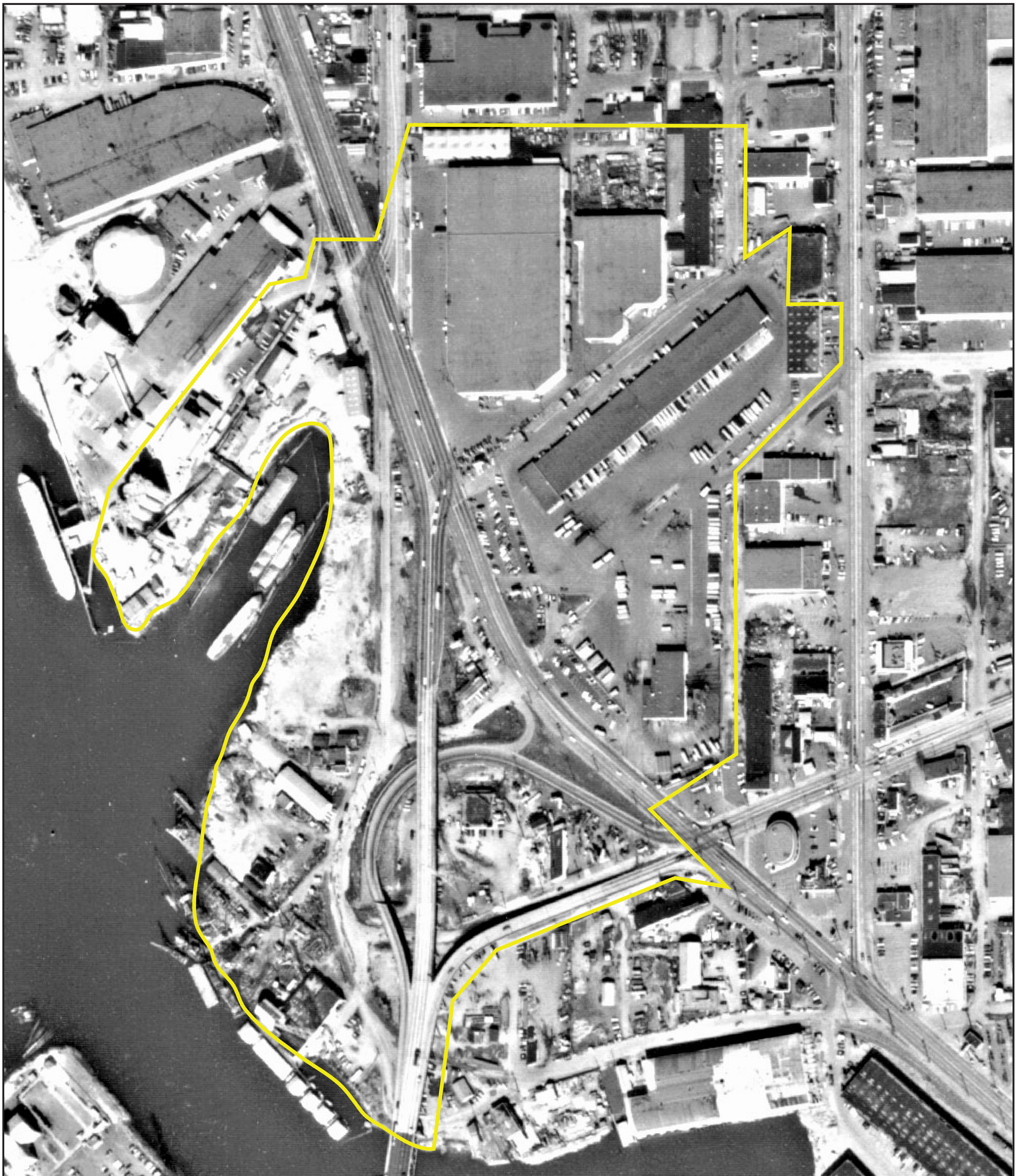

Legend

Drainage Basin Boundary

Figure B–4. RM 1.7–2.0 East (Slip 2 to Slip 3): 1969

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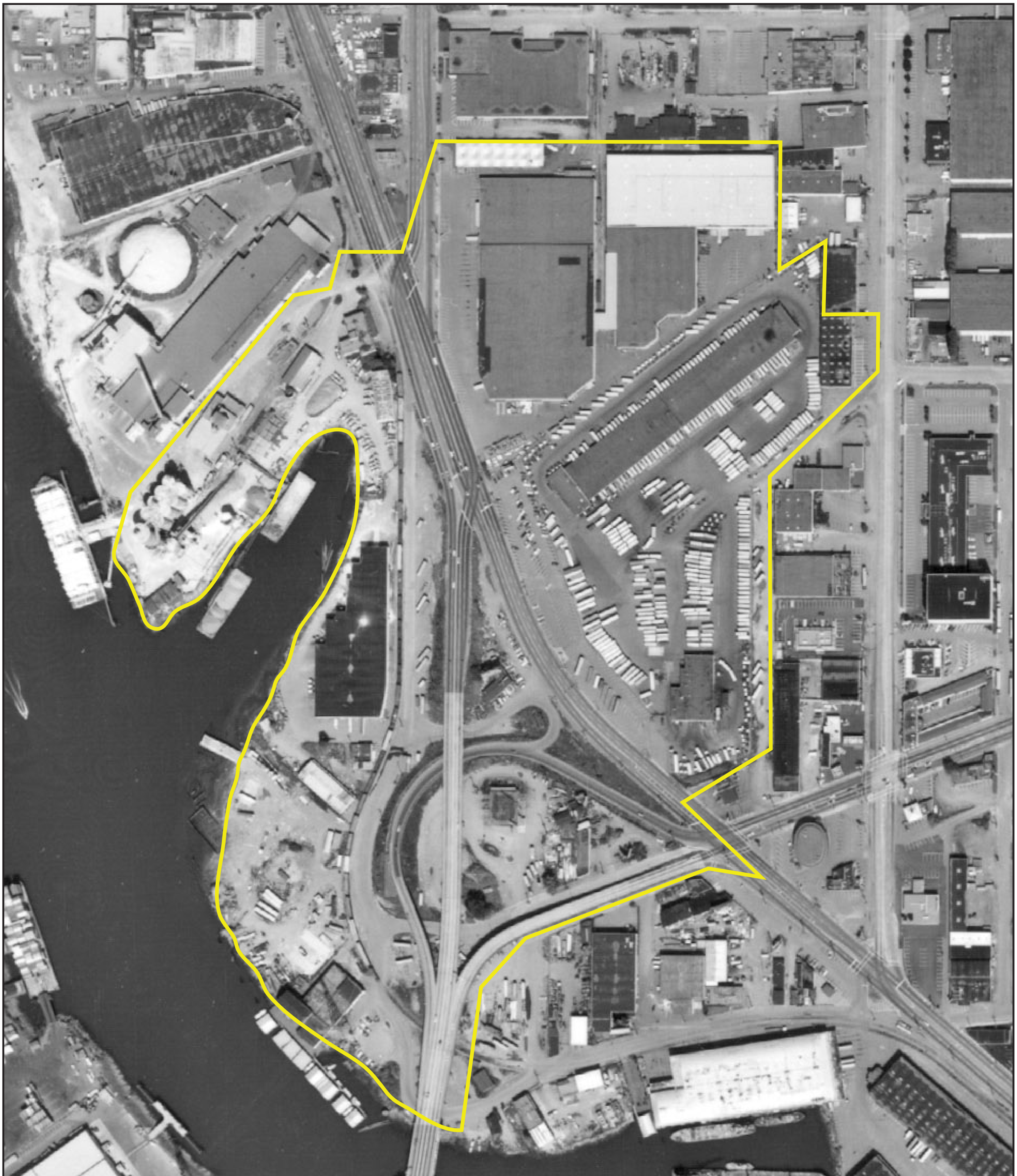
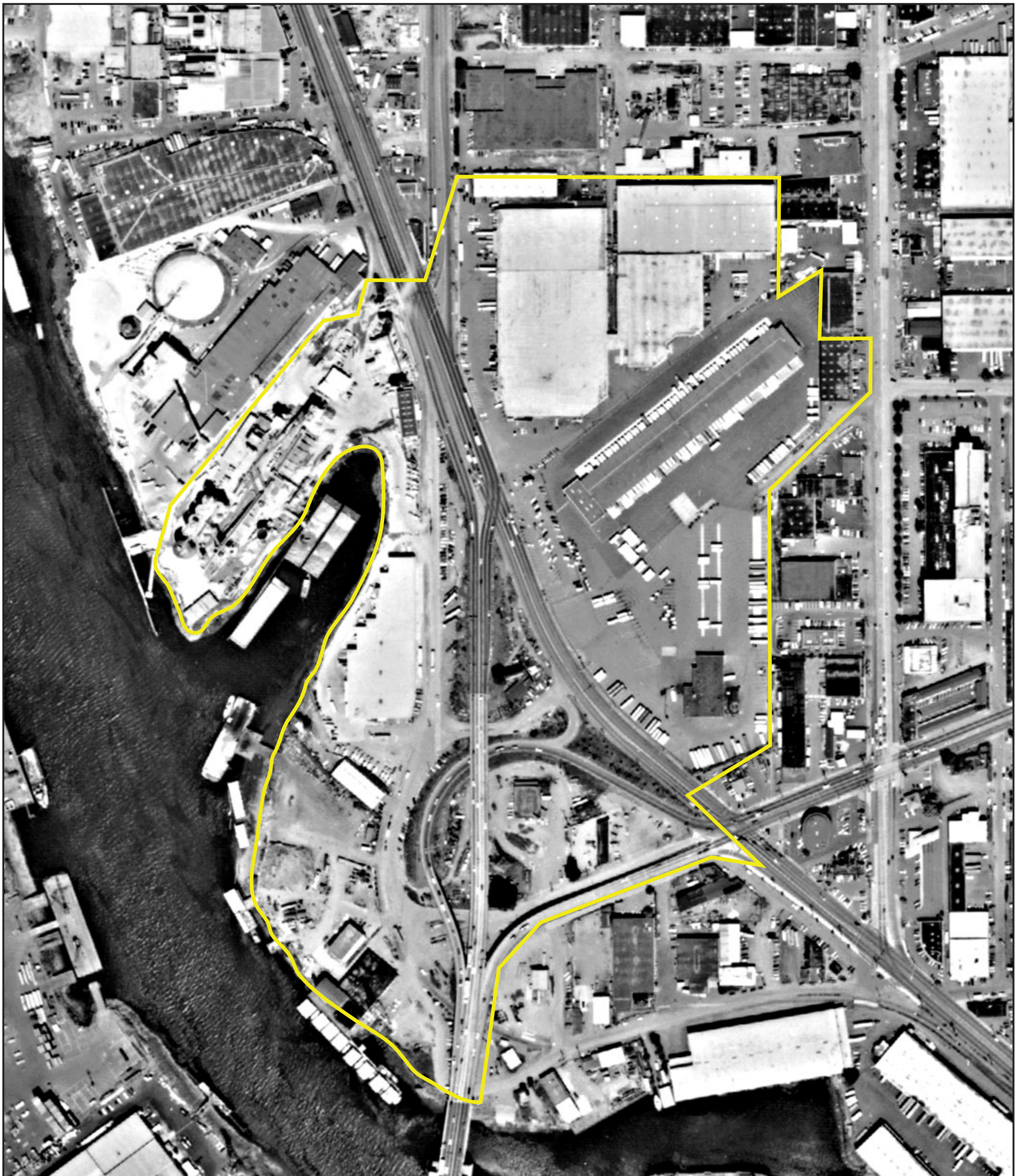


Legend

Drainage Basin Boundary

Figure B–5. RM 1.7–2.0 East (Slip 2 to Slip 3): 1980

SAIC From Science to Solutions



Legend

Drainage Basin Boundary

Figure B–6. RM 1.7–2.0 East (Slip 2 to Slip 3): 1990

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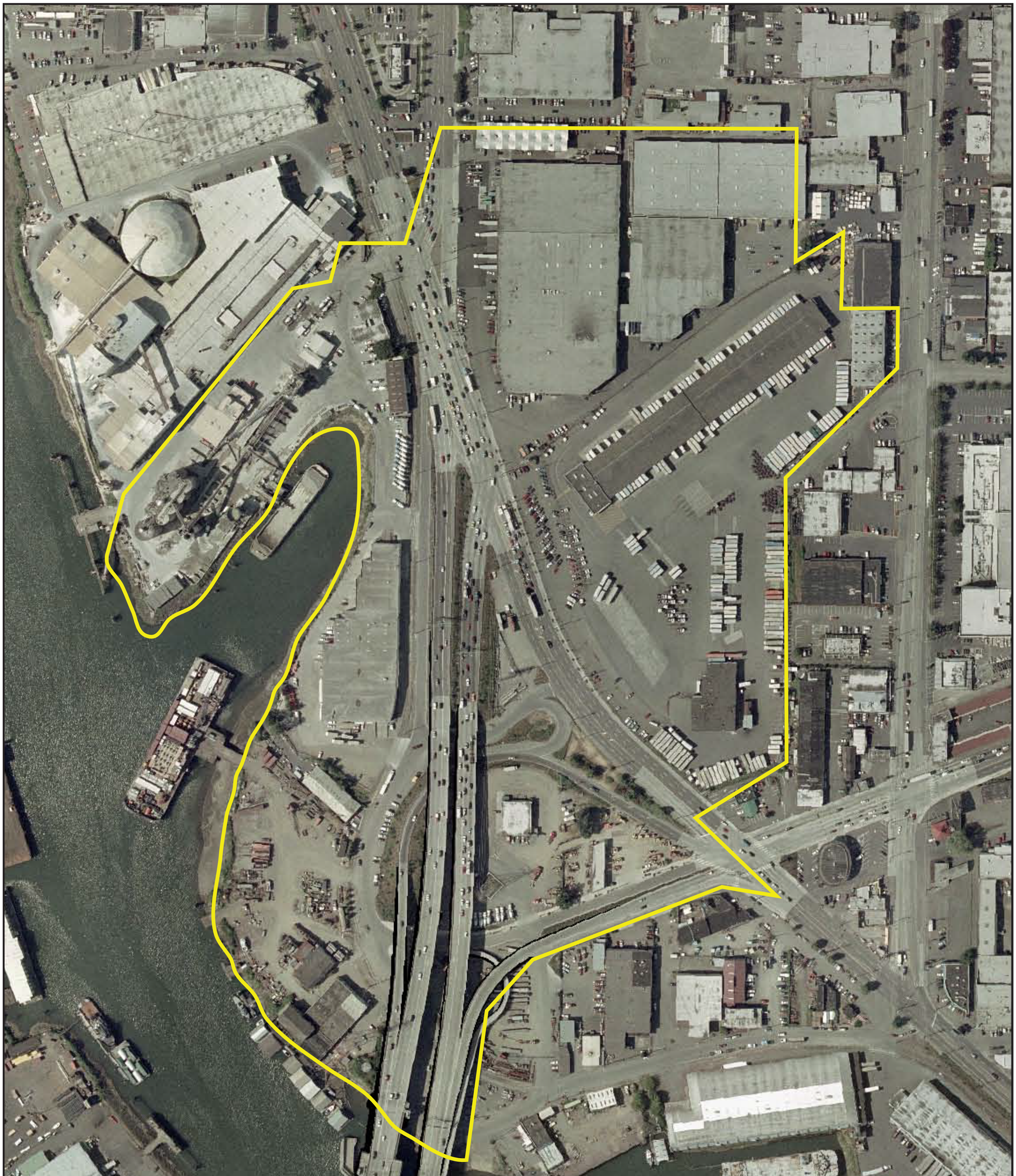
Legend

Drainage Basin Boundary

Figure B–7. RM 1.7–2.0 East (Slip 2 to Slip 3): 2000

From Science to Solutions



Legend

Drainage Basin Boundary

Figure B–8. RM 1.7–2.0 East (Slip 2 to Slip 3): 2002

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Appendix B-2
Oblique Shoreline Photographs

(Source: Washington State Department of Ecology Coastal Atlas)

Figure B–9. RM 1.7–1.9 East (Slip 2): 2001

Figure B–10. RM 1.7–2.0 East (Slip 2 to Slip 3): 2006

Figure B–11. RM 1.9–2.0 East: 2006

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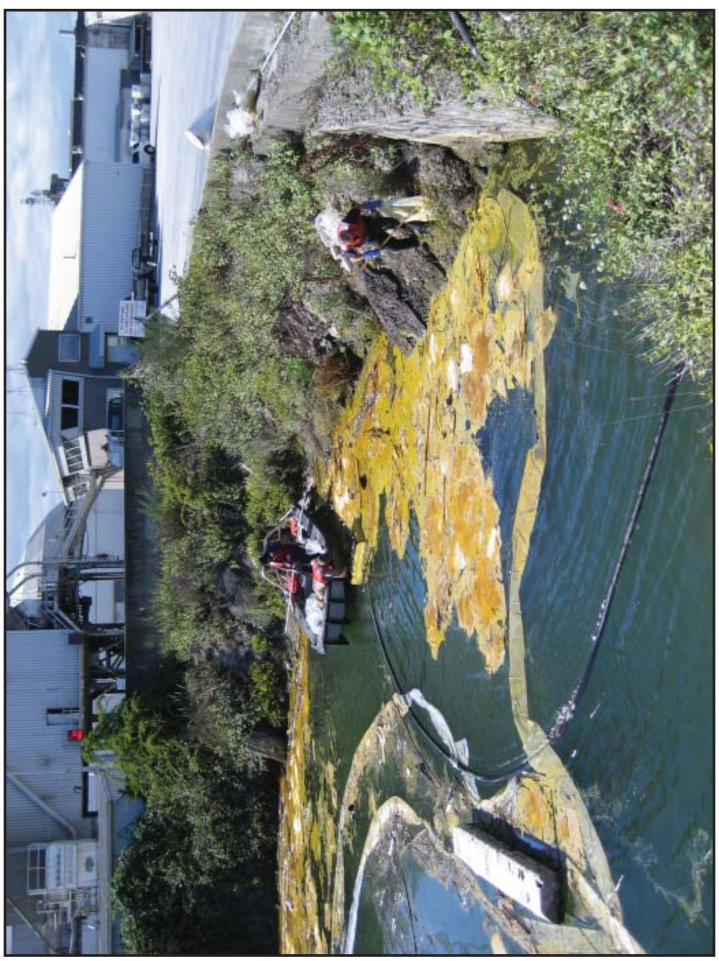
Appendix B-3
Outfall 2018 (Glacier Northwest)

(Source: Schmoyer 2008b)

Outfall 2018, west side of Glacier Northwest, Inc., 5975 East Marginal Way S. (Schmoyer 2008b)

Appendix B-4
Seattle Biodiesel Spill and Cleanup (July 2007)

(Source: Ecology 2007n)



Appendix C
Michigan Street CSO Maps
and Facility Information

C–1. Michigan Street CSO Drainage Maps

C–2. Michigan Street CSO Basin Facilities

C–3. Philips Services Company Historical Data

C–4. Kelly Moore Historical Data

C–5. Former Unocal Service Station No. 0907 Historical Data

C-6. VIOX Corporation Historical Data

C-7. Riveretz’s Auto Care Historical Data

Appendix C
Michigan Street CSO Basin
Maps and Facility Information

The Michigan Street Combined Sewer Overflow (CSO) basin covers approximately 1,900 acres, spanning west-to-east from the LDW to Beacon Avenue S. and north-to-south from S. Bradford Street (approximately two blocks south of Spokane Street) to S. Norfolk Street. Land uses within the CSO basin include industrial, residential, and commercial properties and the King County International Airport.

Sanitary, storm, and combined sewer lines within the Michigan Street CSO basin are shown on the figures included as Appendix C-1. The locations of facilities within the CSO basin with Ecology Facility/Site Identification Numbers are shown on these maps.

From 2000 to 2007, combined wastewater and stormwater overflows were discharged through the Michigan Street CSO on average eleven (11) times per year, with an annual average volume of approximately 17.6 mgy. Equipment malfunctions have led to three discharges through the Michigan CSO, in 1992, 2004, and 2006 (Tiffany 2008b).

Although COCs from individual industrial and commercial facilities within the CSO basin are significantly diluted, the cumulative effects of CSO events could contribute to recontamination of sediments associated with the Slip 2 to Slip 3 source control area. Industrial and commercial facilities discharging industrial wastes and/or stormwater to the combined sewer system are therefore considered to represent potential but relatively minor sources of sediment recontamination.

A map showing the locations and tables summarizing information regarding all facilities within the Michigan Street CSO Basin are included in Appendix C-2. Facilities within the Michigan Street CSO Basin have been identified as follows:

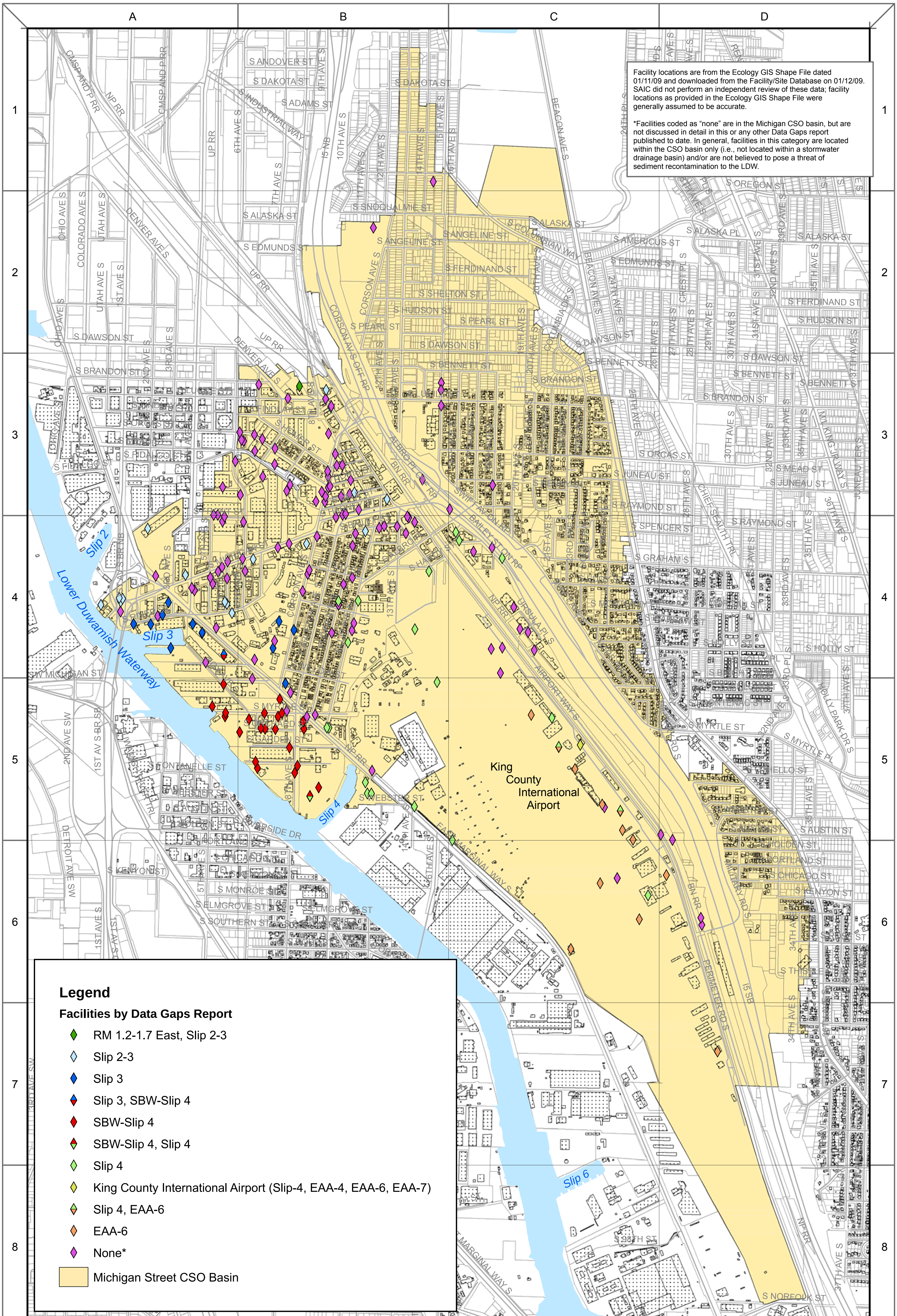
- There are 206 facilities within the Michigan Street CSO Basin that have been assigned Ecology Facility/Site ID numbers (Table C-1);
- 40 of these facilities have active EPA ID numbers (Table C-2);
- 22 of these facilities are listed on Ecology's Confirmed or Suspected Contaminated Sites List (CSCSL) (Table C-3);
- 22 of the facilities hold NPDES permits (Table C-4)
- 14 of these facilities have King County Industrial Waste (KCIW) discharge authorizations or permits (Table C-5);
- 77 of these facilities have or have had USTs or LUSTs (Table C-6)
- 22 of these facilities are on the CSCSL, not including the LDW and Slip 4 (Table C-6) and
- 15 of these facilities have been granted an NFA (Table C-7).

The SIC and NAICS codes for all 206 facilities are listed in Table C-8.

Seventy seven of the 206 facilities are included in source control area for which a Data Gaps report has been prepared, as indicated on Table C-1. Seventeen of the 206 facilities are located within the Slip 2 to Slip 3 source control area, and are discussed in Sections 4 and 5 of the current Data Gaps report. Eight facilities that are within the Michigan CSO basin are discussed in Section 6.

Appendices C-3 through C-7 provide relevant historical information for the facilities within the Michigan CSO basin that are discussed in Section 6 of this Data Gaps report.

Appendix C–1
Michigan Street CSO Drainage Maps



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Michigan Street CSO Drainage Features - Index Map

0 500 1,000 2,000 3,000 4,000 Feet

SAIC From Science to Solutions

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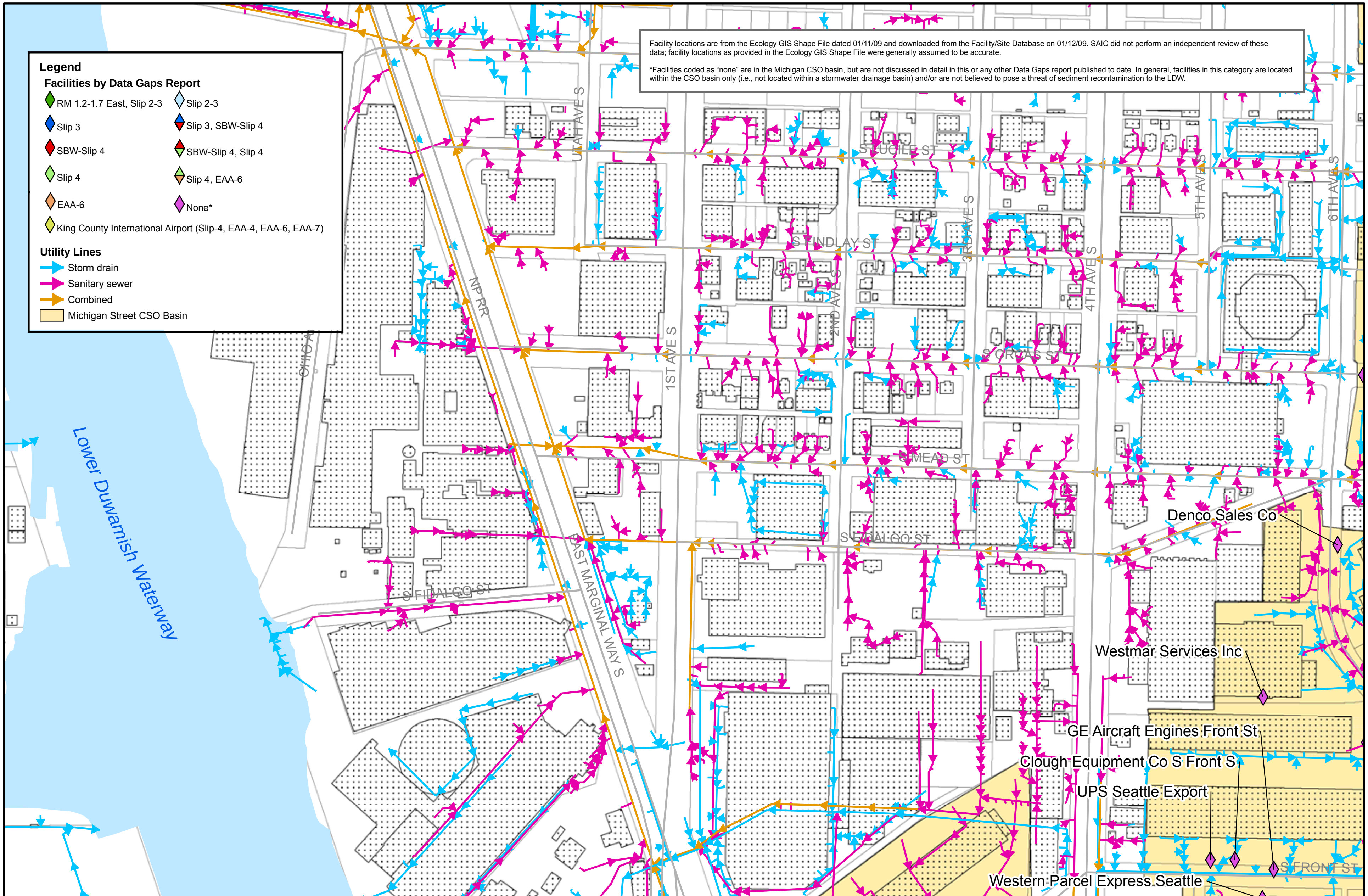

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Michigan Street CSO Drainage Features - A3

0 125 250 500 750 1,000 Feet

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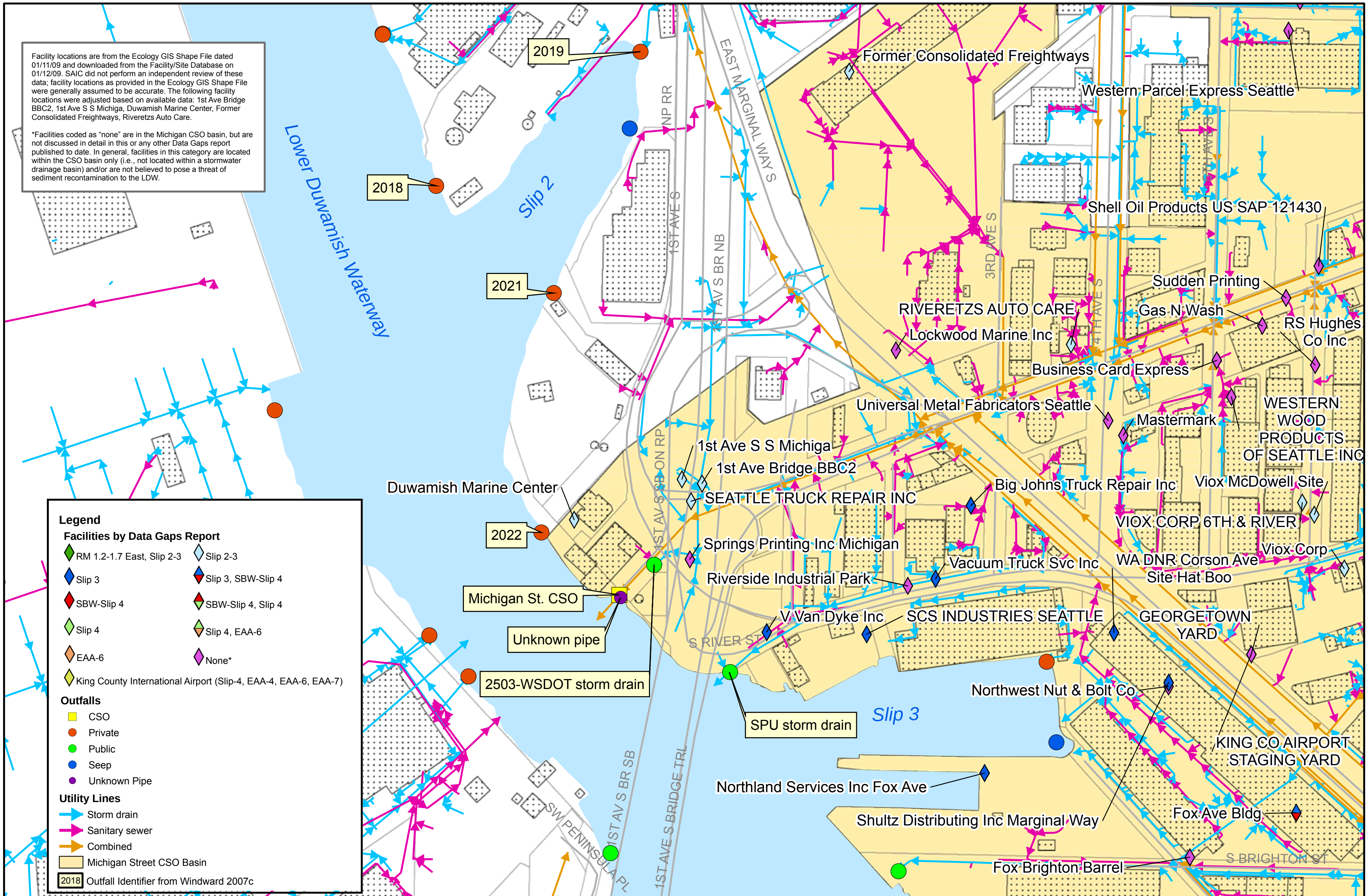

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Michigan Street CSO Drainage Features - A4

0 125 250 500 750 1,000 Feet

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SAIC From Science to Solutions

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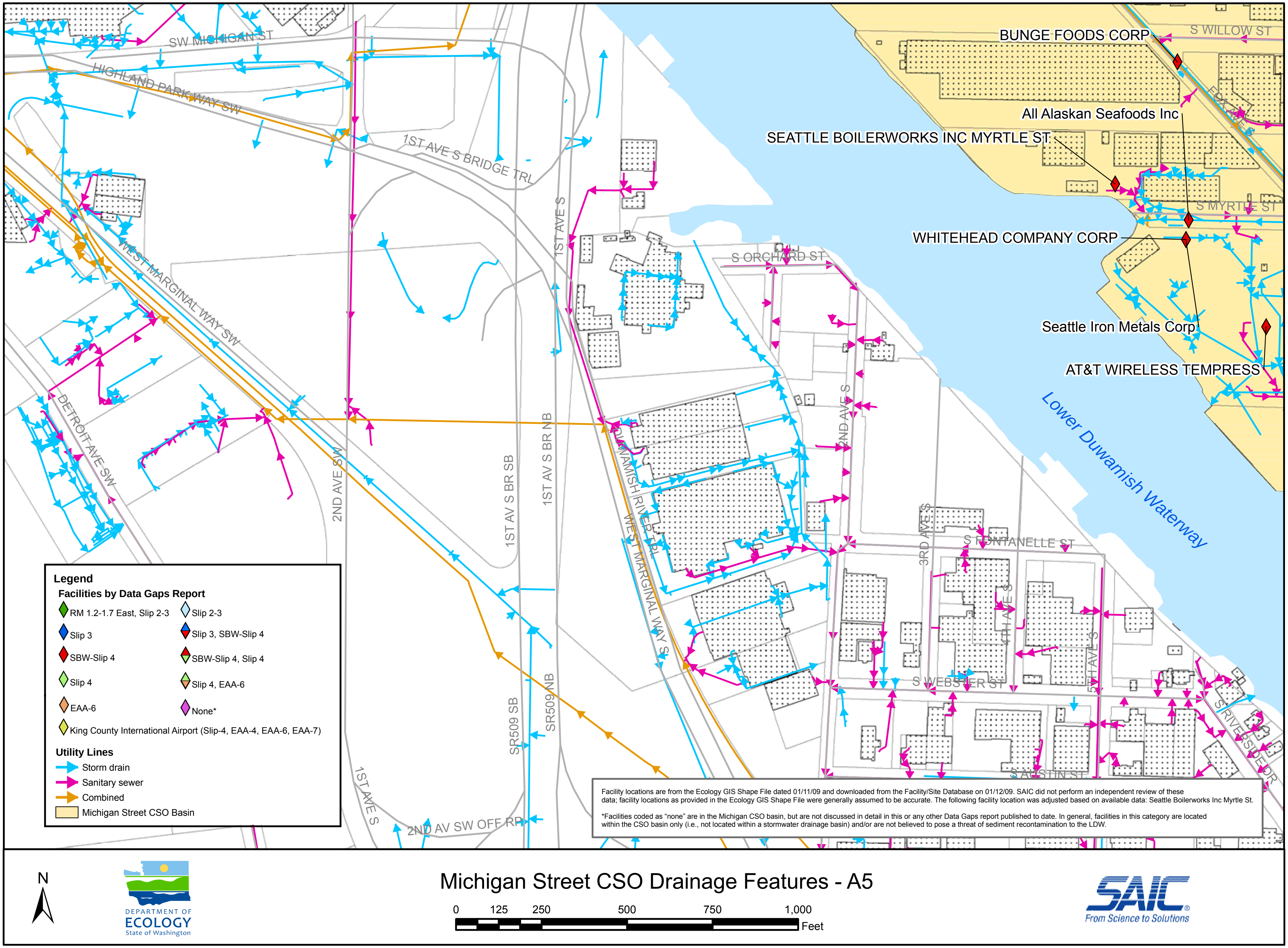

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Michigan Street CSO Drainage Features - A5

SAIC From Science to Solutions

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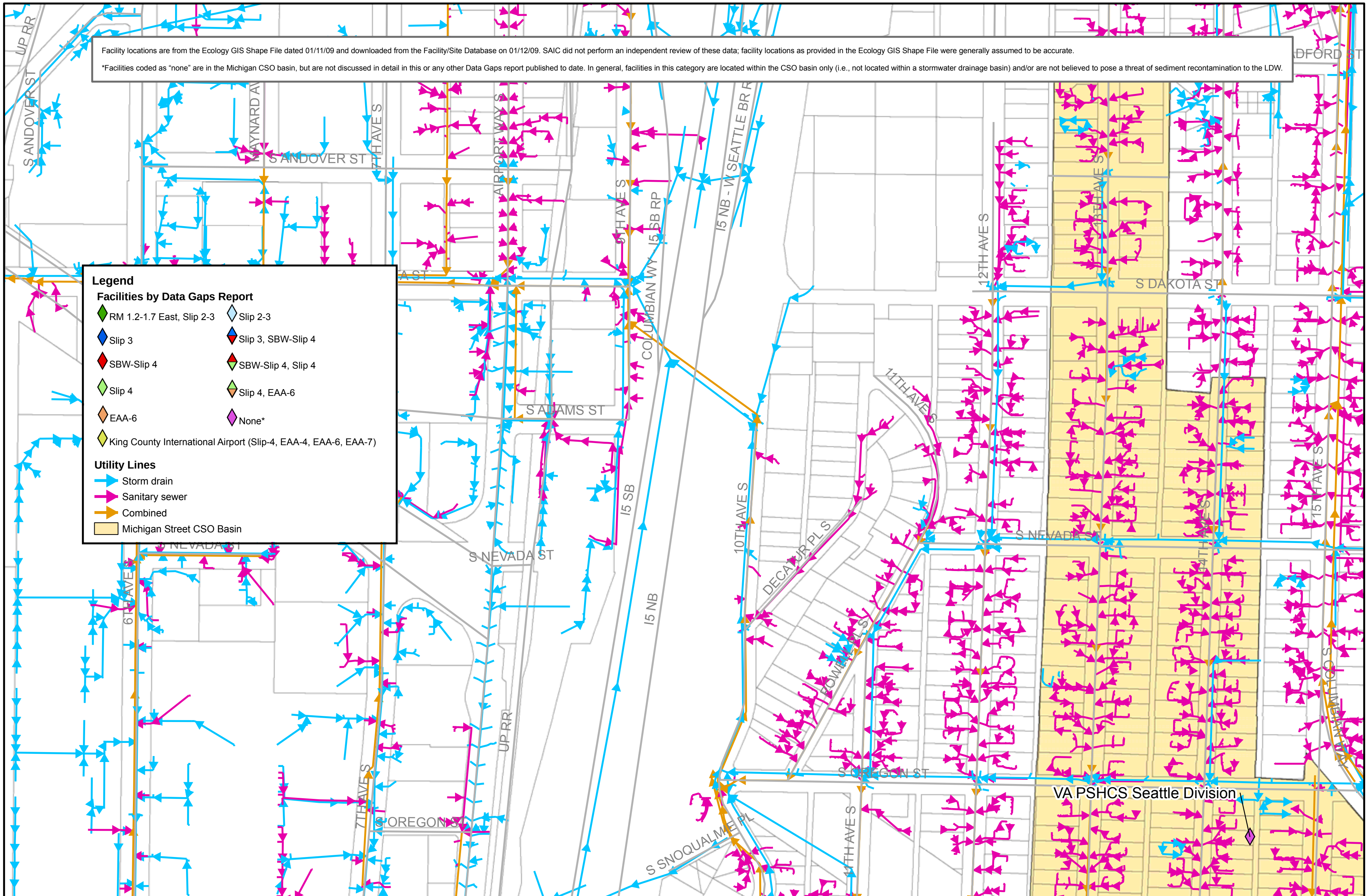
Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate.

*Facilities coded as "none" are in the Michigan CSO basin, but are not discussed in detail in this or any other Data Gaps report published to date. In general, facilities in this category are located within the CSO basin only (i.e., not located within a stormwater drainage basin) and/or are not believed to pose a threat of sediment recontamination to the LDW.



Michigan Street CSO Drainage Features - B1

N

0 125 250 500 750 1,000 Feet

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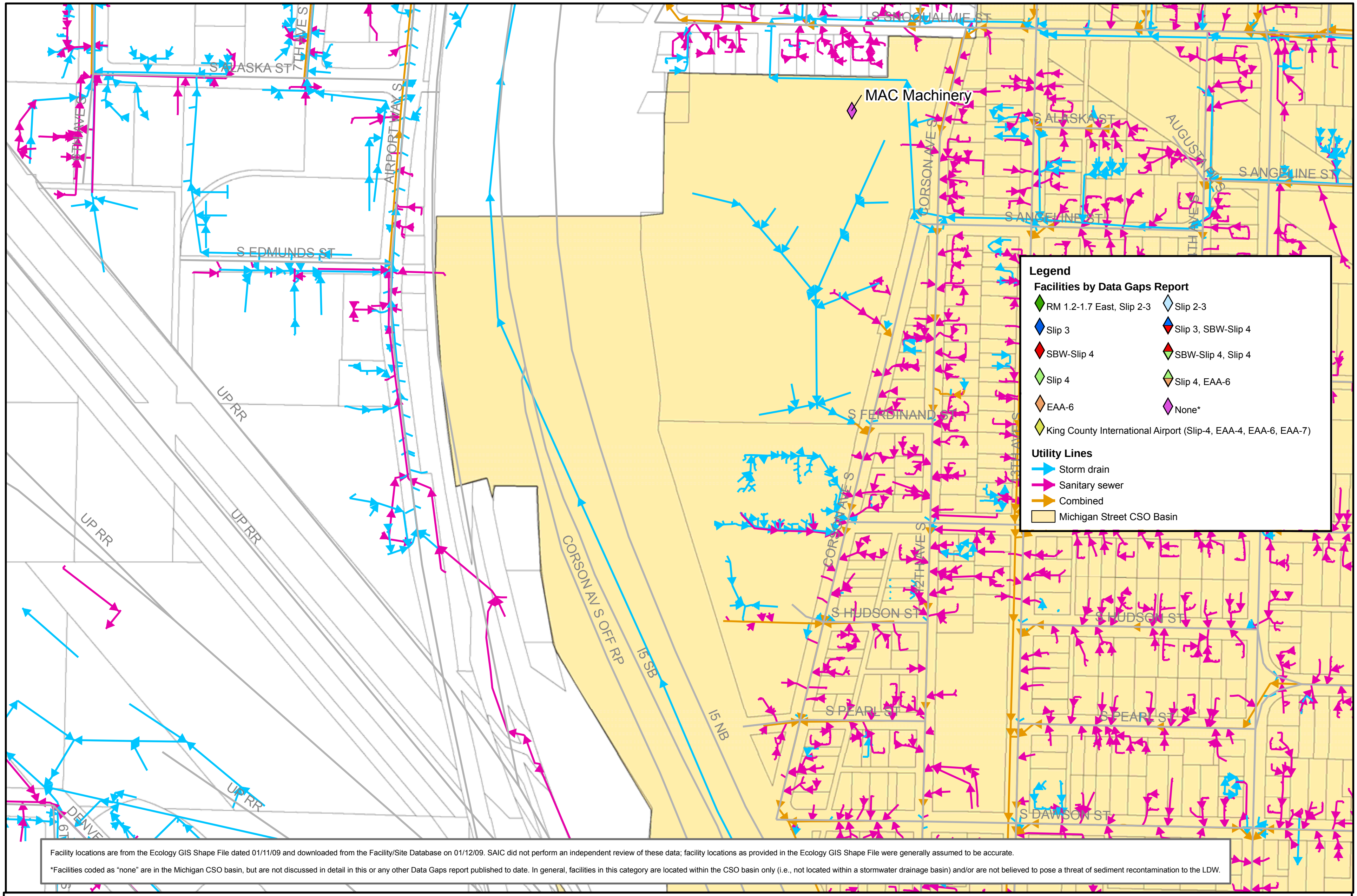
SAIC From Science to Solutions



Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate.

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Michigan Street CSO Drainage Features - B2

SAIC From Science to Solutions

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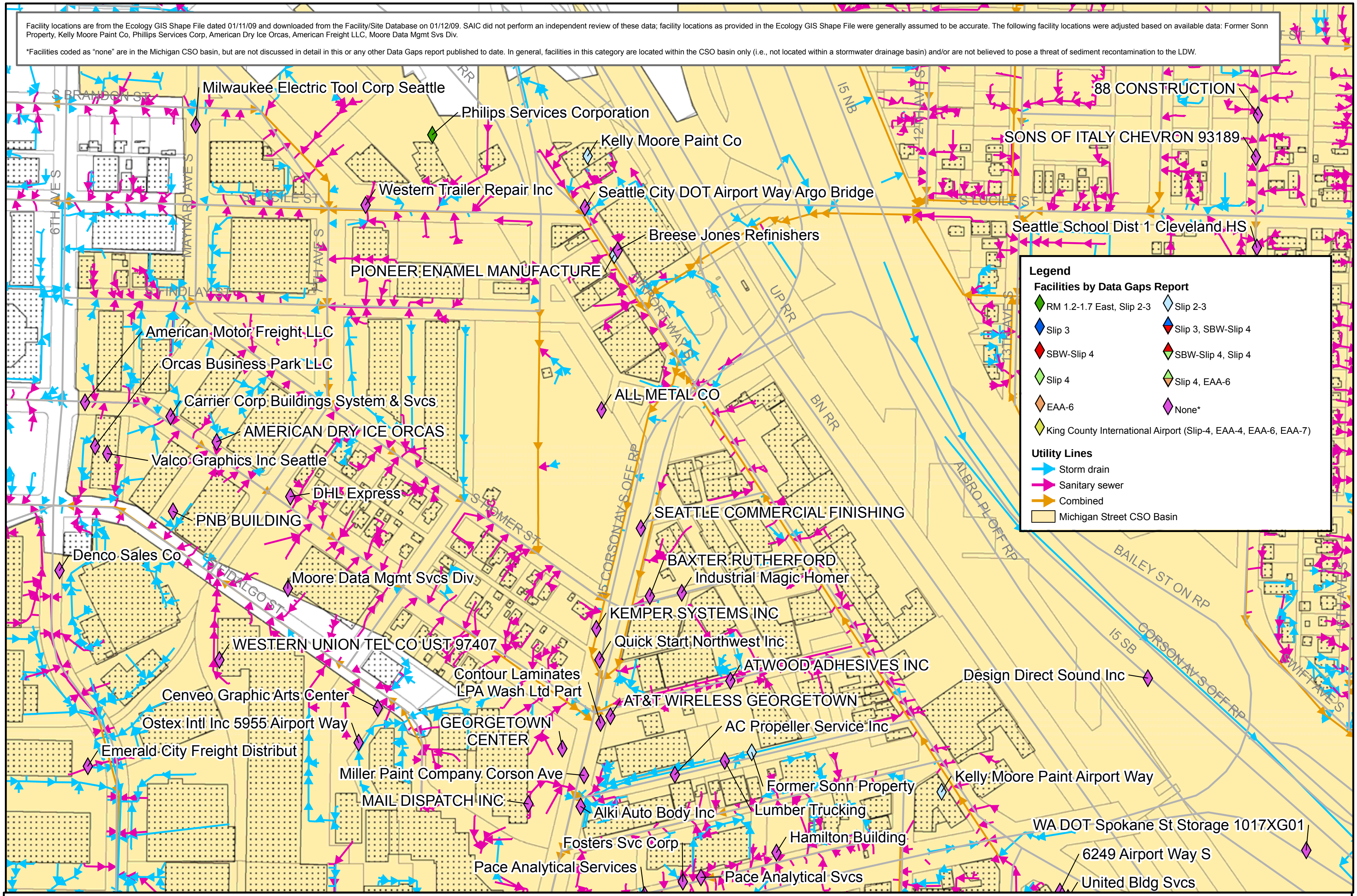
Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate. The following facility locations were adjusted based on available data: Former Sonn Property, Kelly Moore Paint Co, Phillips Services Corp, American Dry Ice Orcas, American Freight LLC, Moore Data Mgmt Svs Div.

*Facilities coded as "none" are in the Michigan CSO basin, but are not discussed in detail in this or any other Data Gaps report published to date. In general, facilities in this category are located within the CSO basin only (i.e., not located within a stormwater drainage basin) and/or are not believed to pose a threat of sediment recontamination to the LDW.



Michigan Street CSO Drainage Features - B3

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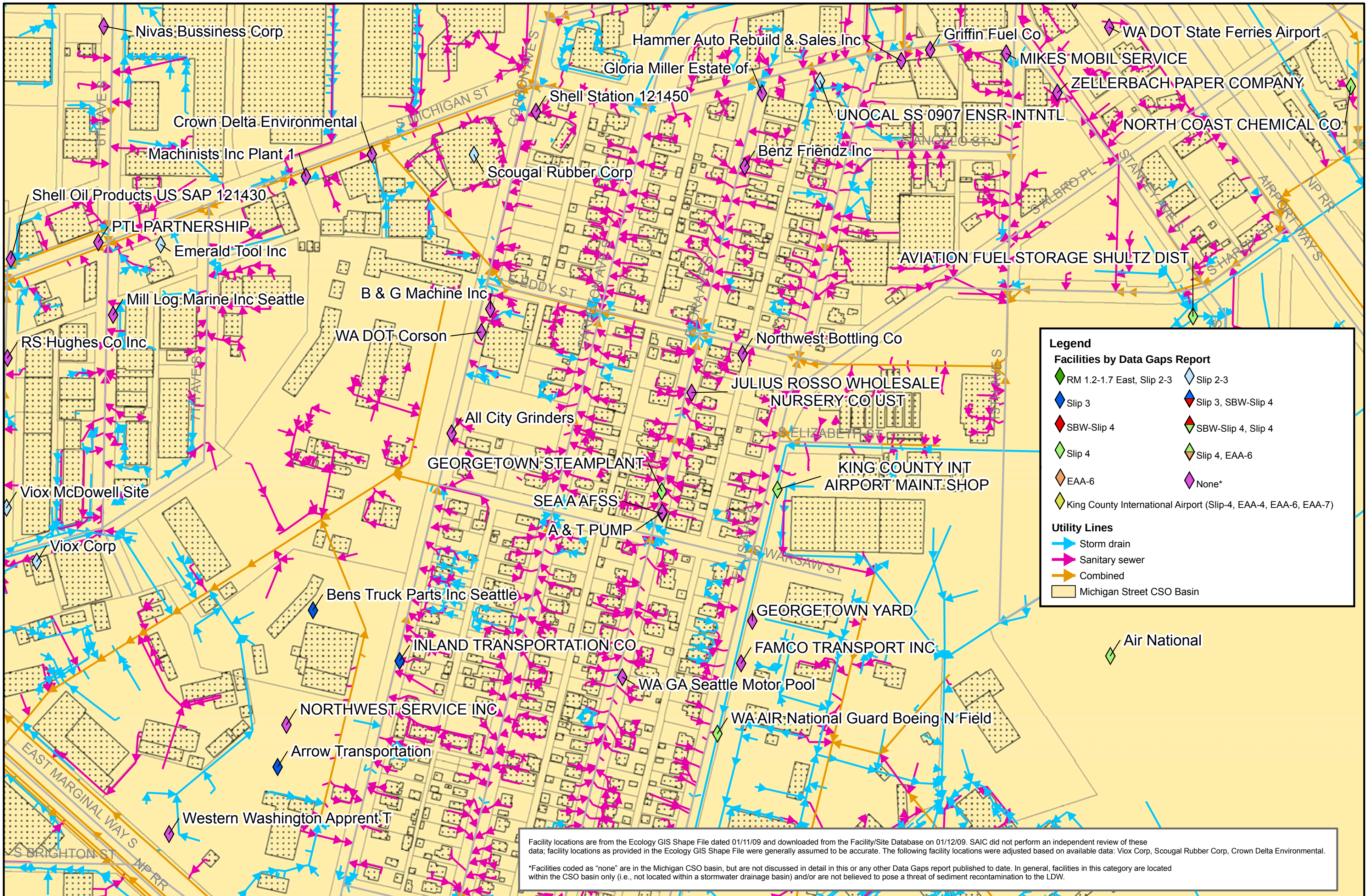

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Michigan Street CSO Drainage Features - B4

0 125 250 500 750 1,000 Feet

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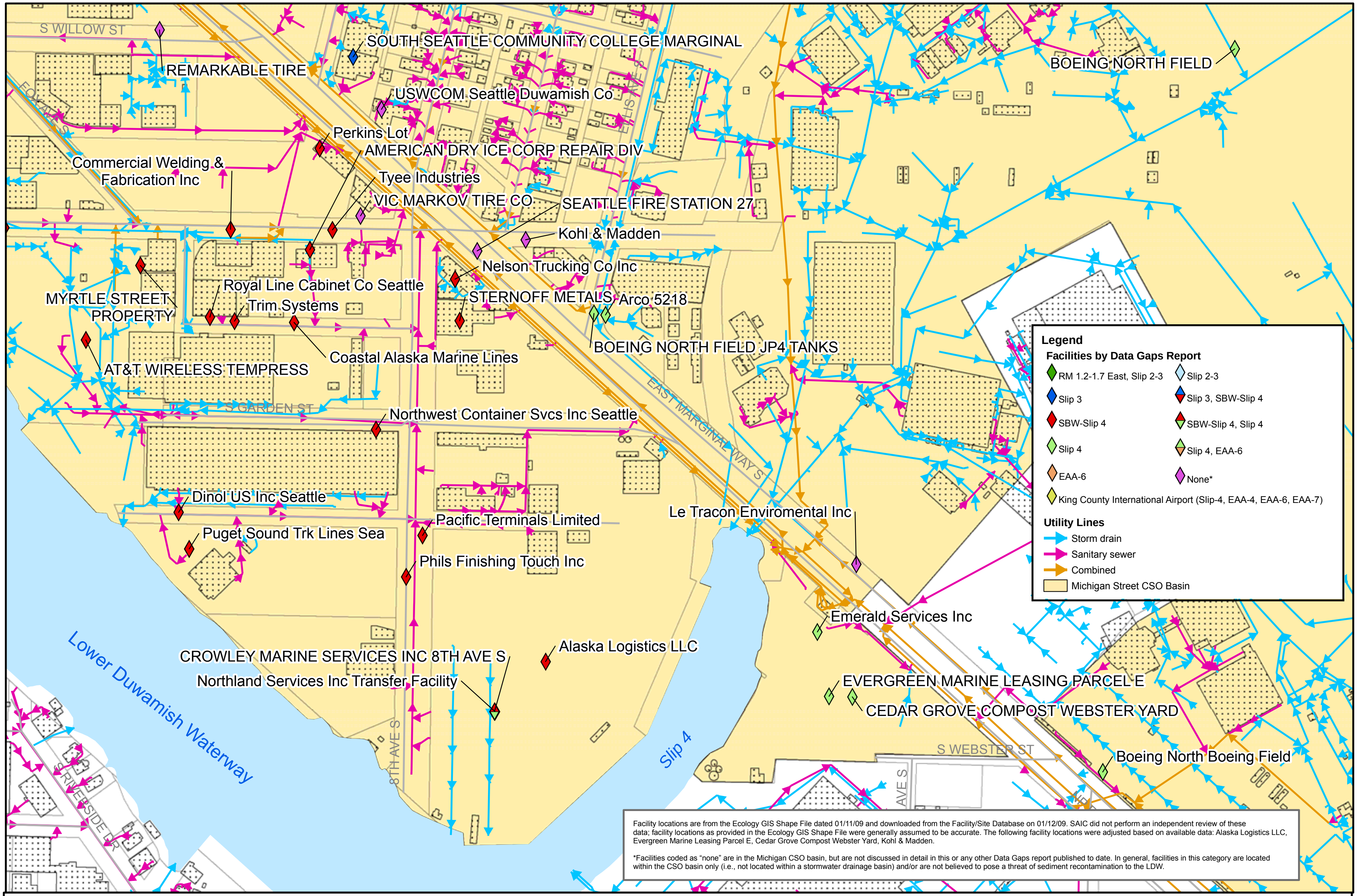

Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate. The following facility locations were adjusted based on available data: Alaska Logistics LLC, Evergreen Marine Leasing Parcel E, Cedar Grove Compost Webster Yard, Kohl & Madden.

*Facilities coded as "none" are in the Michigan CSO basin, but are not discussed in detail in this or any other Data Gaps report published to date. In general, facilities in this category are located within the CSO basin only (i.e., not located within a stormwater drainage basin) and/or are not believed to pose a threat of sediment recontamination to the LDW.

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Michigan Street CSO Drainage Features - B5

0 125 250 500 750 1,000 Feet

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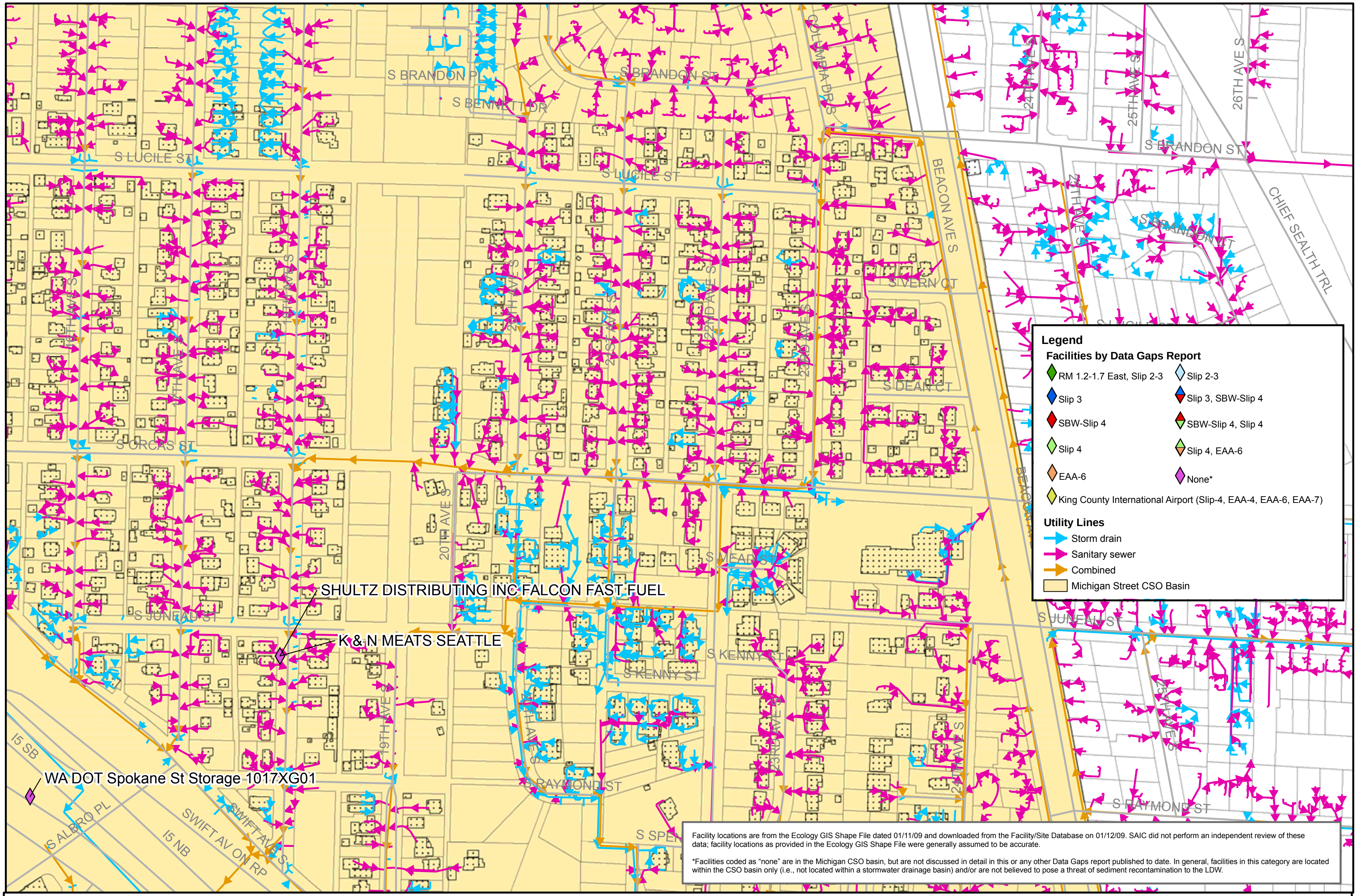

Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate.

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Michigan Street CSO Drainage Features - C3

0 125 250 500 750 1,000 Feet

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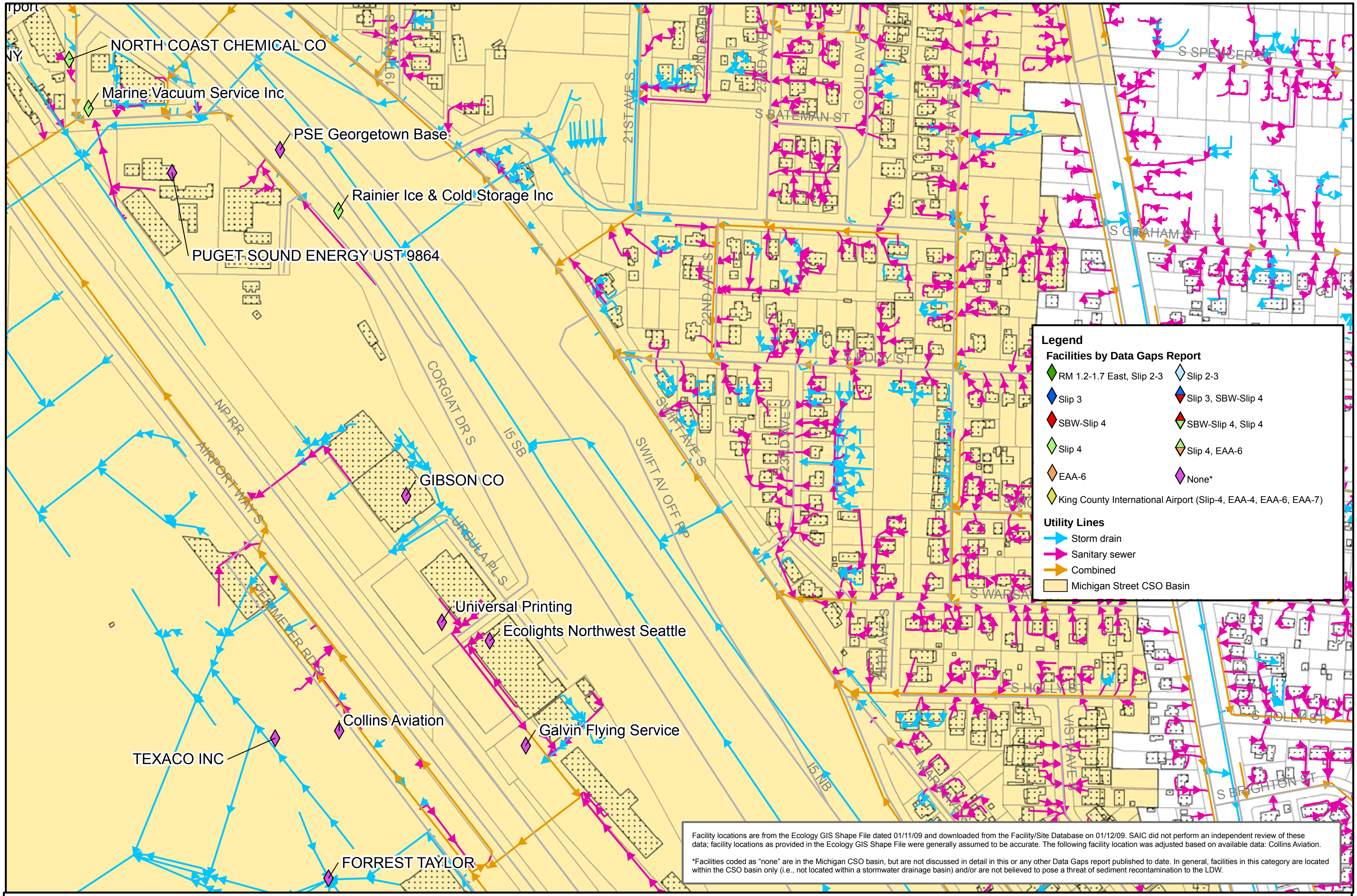

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Michigan Street CSO Drainage Features - C4

0 125 250 500 750 1,000 Feet

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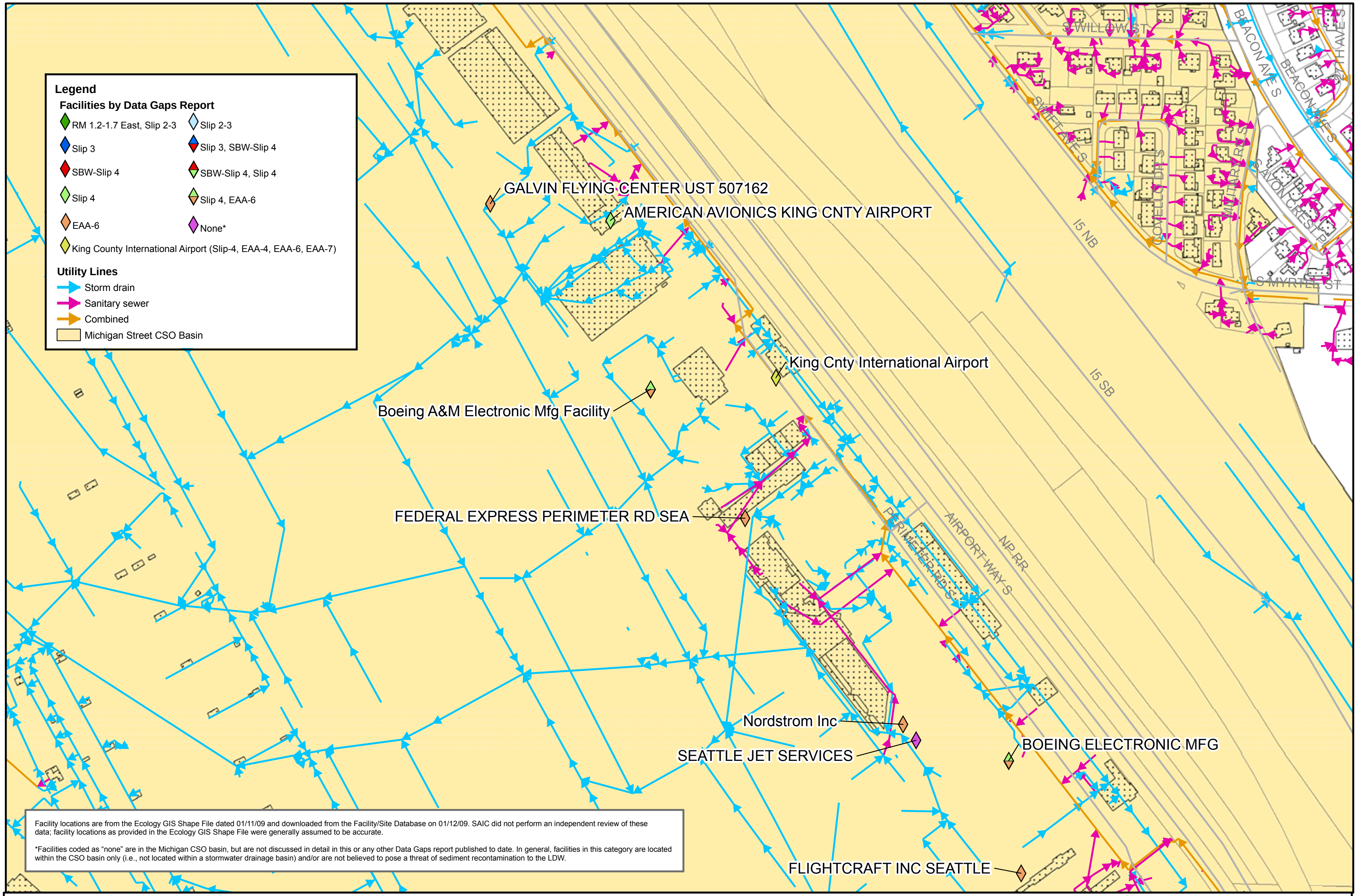

Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate.

*Facilities coded as "none" are in the Michigan CSO basin, but are not discussed in detail in this or any other Data Gaps report published to date. In general, facilities in this category are located within the CSO basin only (i.e., not located within a stormwater drainage basin) and/or are not believed to pose a threat of sediment recontamination to the LDW.

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Michigan Street CSO Drainage Features - C5

0 125 250 500 750 1,000 Feet

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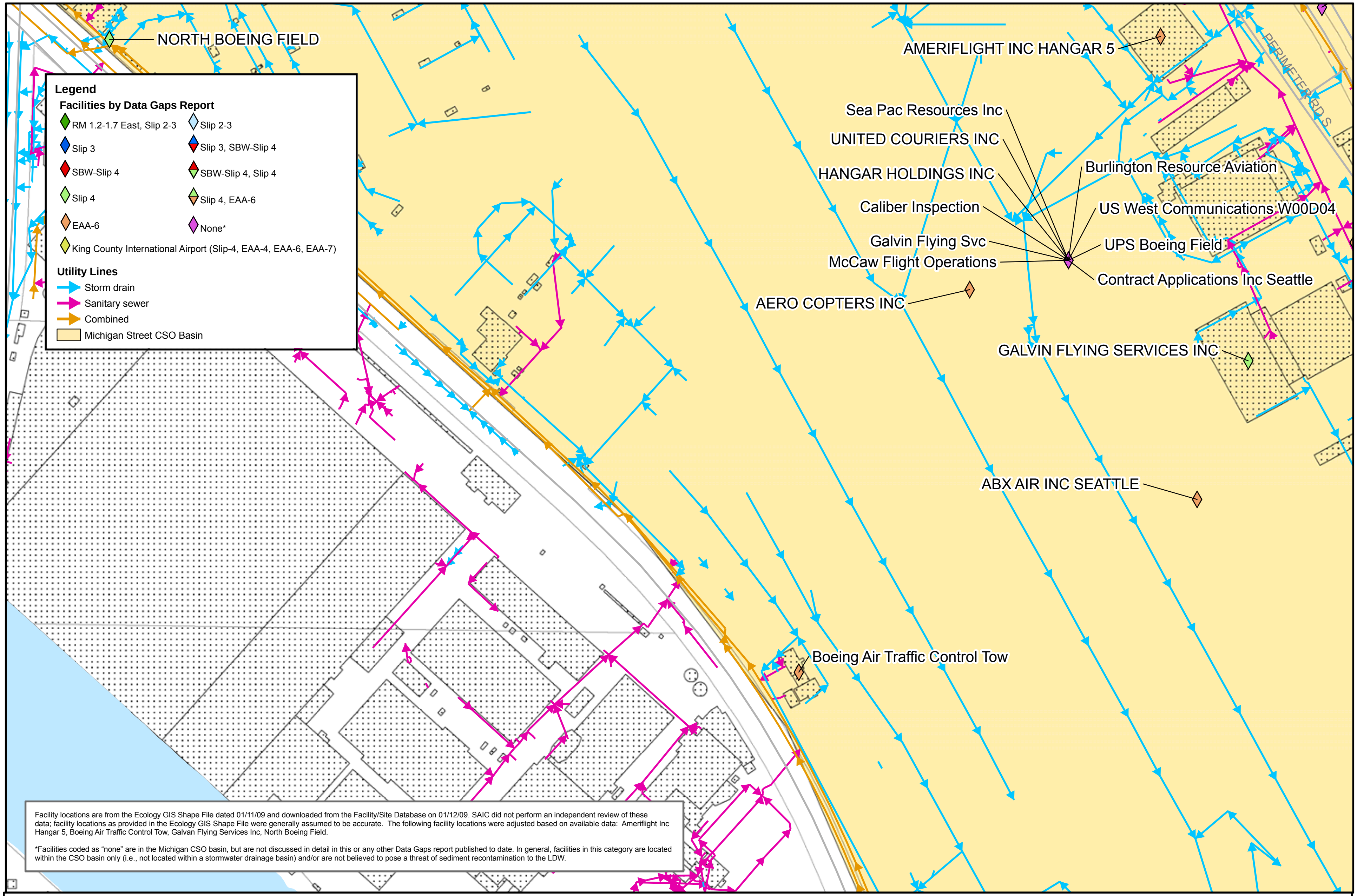

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Michigan Street CSO Drainage Features - C6

0 125 250 500 750 1,000 Feet

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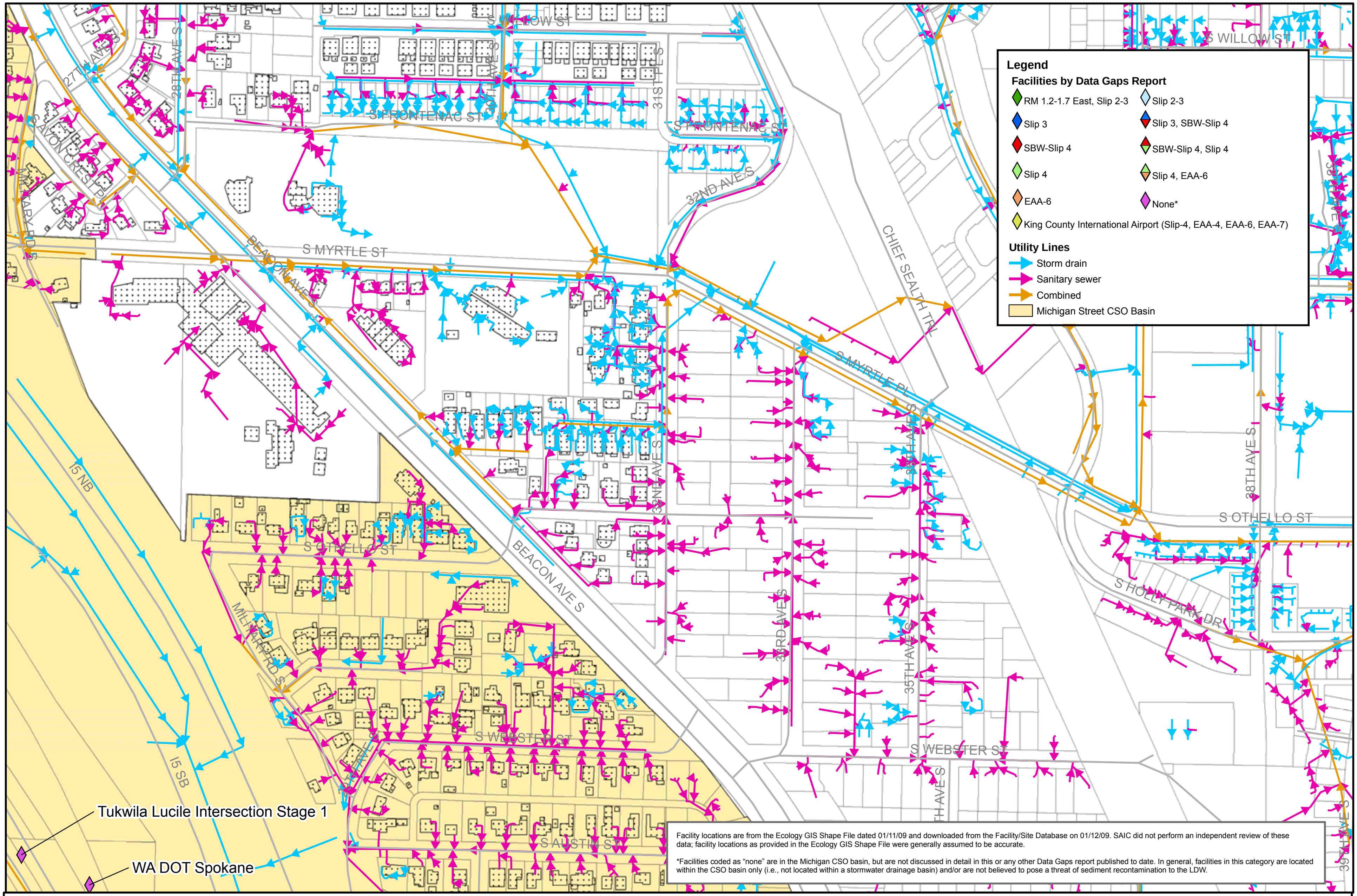

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Michigan Street CSO Drainage Features - D5

0 125 250 500 750 1,000 Feet

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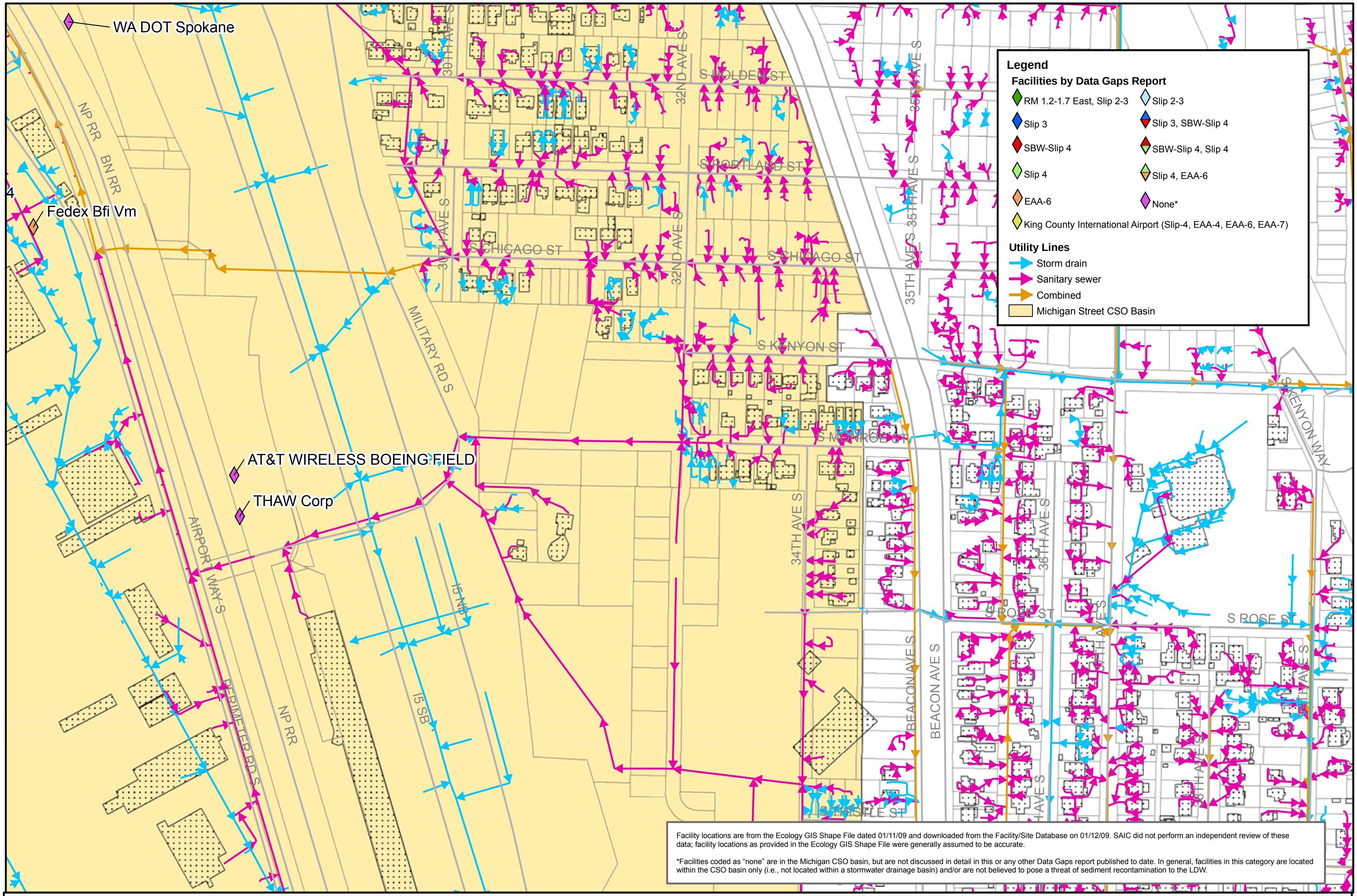

Facility locations are from the Ecology GIS Shape File dated 01/11/09 and downloaded from the Facility/Site Database on 01/12/09. SAIC did not perform an independent review of these data; facility locations as provided in the Ecology GIS Shape File were generally assumed to be accurate.

*Facilities coded as "none" are in the Michigan CSO basin, but are not discussed in detail in this or any other Data Gaps report published to date. In general, facilities in this category are located within the CSO basin only (i.e., not located within a stormwater drainage basin) and/or are not believed to pose a threat of sediment recontamination to the LDW.

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Michigan Street CSO Drainage Features - D6

0 125 250 500 750 1,000 Feet

SAIC From Science to Solutions

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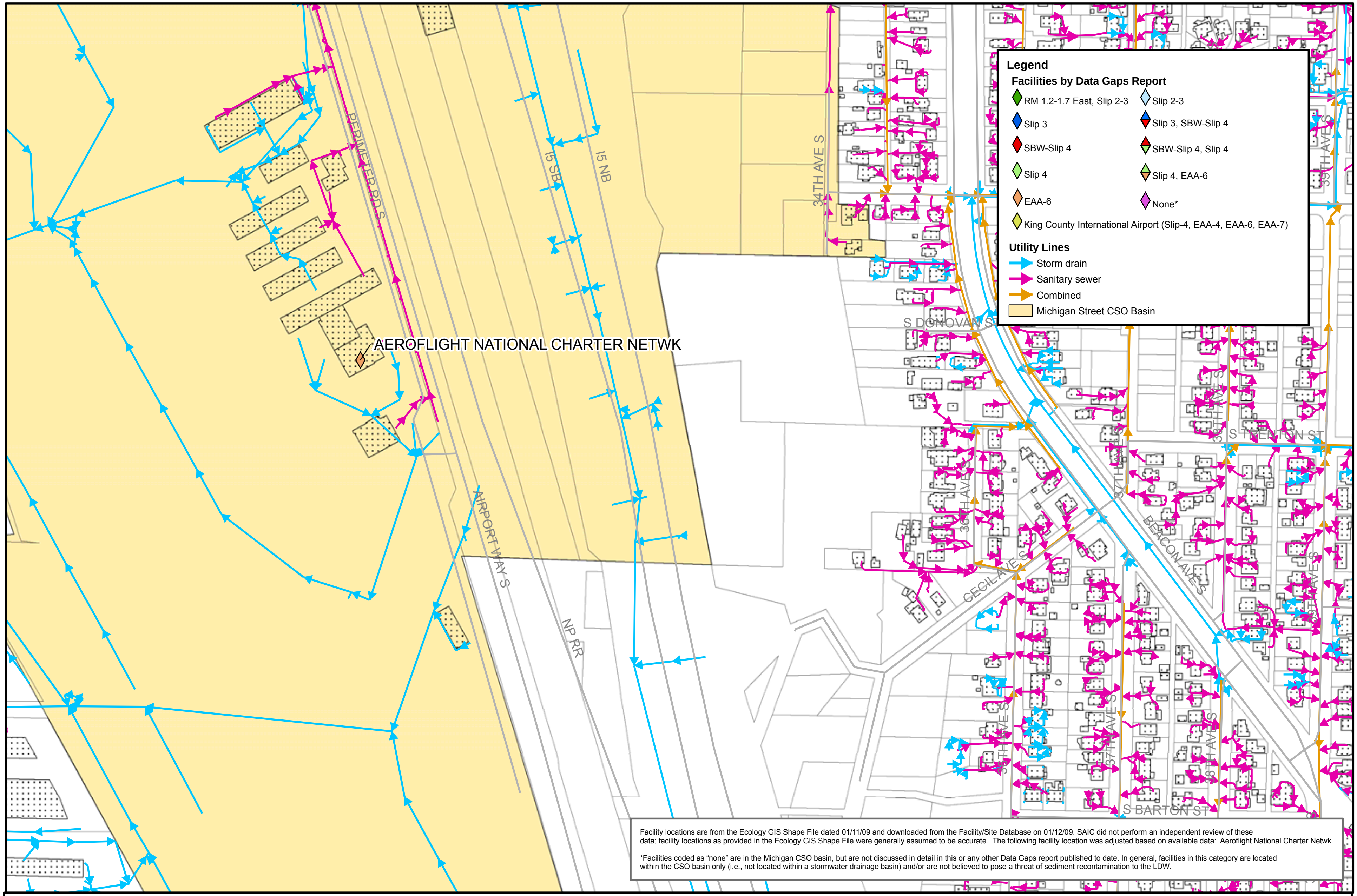

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DEPARTMENT OF ECOLOGY
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Michigan Street CSO Drainage Features - D7

0 125 250 500 750 1,000 Feet

SAIC
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Appendix C–2
Michigan Street CSO Basin Facilities

Table C-1: Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Table C-2: Facilities in the Michigan Street CSO Basin with Active EPA Identification Numbers

Table C-3: Facilities within the Michigan Street CSO Basins Listed on Ecology’s Confirmed or Suspected Contaminated Site List

Table C-4: Facilities in the Michigan Street CSO Basin with NPDES Permits

Table C-5: Facilities in the Michigan Street CSO Basin with KCIW Discharge Authorizations or Permits

Table C-6: Facilities in the Michigan Street CSO Basin with Underground Storage Tanks or Leaking Underground Storage Tanks

Table C-7: Facilities in the Michigan Street CSO Basin that are Listed on Ecology’s No Further Action List

Table C-8: SIC and NAICS Codes for Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database and Not Included in Another Source Control Area

Facility Locations Maps:

Michigan Street CSO Basin Facilities Included in Previously Published Data Gaps Reports

Michigan Street CSO Basin Facilities Included in the Slip 2 to Slip 3 Data Gaps Report

Table C-1
Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization or Permit	Ecology UST/ LUST List	Ecology NFA Determination
11634416	1st Ave Bridge BBC2	NE Corner of S Michigan Street & 1st Avenue S	Slip 2-3						
44977427	1st Avenue South and South Michigan Street	NW Corner of 1st Avenue S & S Michigan Street	Slip 2-3						
9169543	6249 Airport Way S	6249 Airport Way S							
4784534	88 Construction	5338 15th Avenue S						●	
7723743	ABX Air Inc., Seattle	8075 Perimeter Road S	EAA-6			●			
75472189	AC Propeller Service Inc	925 S Nebraska		●					
1078998	Aero Copters, Inc.	8013 Perimeter Road S	EAA-6			●			
7318944	Aeroflight National Charter Network	8535 Permieter Road S	EAA-6					●	
59377658	Air National	7277 Perimeter Road S and 215 Main Street	Slip 4		●				
63123962	Alaska Logistics LLC	7400 8th Avenue S	SBW-Slip 4		●				
58266151	Alki Auto Body Inc	5958 Corson Avenue S							
6368989	All Alaskan Seafoods Inc	501 S Myrtle Street	SBW-Slip 4						
61468944	All City Grinders	9401 Carleton Avenue S							
5274463	All Metal Company	5610 Airport Way S							
39659753	American Avionics King County Airport	7023 Perimeter Road S	Slip 4						●
29782814	American Dry Ice Corporation Repair Division	745 S Myrtle Street	SBW-Slip 4						
47512364	American Dry Ice Orcas	672 S Orcas Street		●					
6346940	American Motor Freight LLC	5700 6th Avenue S, Suite 203		●					
8137128	Ameriflight Inc. Hangar 5	7585 Perimeter Road S	EAA-6			●			
63713485	Arco 5218	7200 East Marginal Way S	Slip 4					●	
69693852	Arrow Transportation	6737 Corson Avenue S	Slip 3					●	
64987158	AT&T Pump	6525 Ellis Avenue S						●	
9970306	AT&T Wireless Boeing Field	8300 Military Road							
7411374	AT&T Wireless Georgetown	945 A S Doris Street		●					
6254510	AT&T Wireless Tempress	701 S Orchard Street	SBW-Slip 4						
51878272	Atwood Adhesives, Inc.	945 S Doris Street		●					
44648718	Aviation Fuel Storage, Shultz Distributing	1495 S Hardy Street	Slip 4			●		●	
47726656	B & G Machine Inc	6400 Corson Avenue S							
4738343	Baxter Rutherford	911 S Homer Street						●	
74169521	Bens Truck Parts Inc Seattle	6655 Corson Avenue S	Slip 3					●	●
52822581	Benz Friendz Inc	6249 Flora Avenue S							
44383713	Big Johns Truck Repair Inc	6533 3rd Avenue S	Slip 3		●				
73142589	Boeing A&M Electronic Mfg Facility	7355 Perimeter Road S	Slip 4, EAA-6	●	●			●	
76249648	Boeing Air Traffic Control Tower	8200 East Marginal Way S	EAA-6						
63879778	Boeing Electronic Manufacturing	7300 Perimeter Road S	Slip 4, EAA-6		●				
2050	Boeing-North Boeing Field	7370 East Marginal Way S	Slip 4		●				
2753918	Boeing-North Boeing Field	7500 East Marginal Way S	Slip 4	●			●	●	
2053	Boeing-North Boeing Field, JP4 Tanks	Ellis Avenuenue & East Marginal Way S	Slip 4		●				
72432377	Breese Jones Refinishers	5626 Airport Way S							
57331171	Bunge Foods Corporation	6901 Fox Avenue S	SBW-Slip 4	●			●		
33269789	Burlington Resource Aviation	7777 Perimeter Road Hangar B	EAA-6						
95419266	Business Card Express	6510 5th Avenue S							

Table C-1
Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization or Permit	Ecology UST/ LUST List	Ecology NFA Determination
18182664	Caliber Inspection	7500 Perimeter Road Boeing Field	EAA-6	●			●		
12872193	Carrier Corp Buildings System & Svcs	655 S Orcas Street Ste 100							
3338163	Cedar Grove Compost, Webster Yard	7343 East Marginal Way S	Slip 4			●	●		
99747798	Cenveo Graphic Arts Center	832 S Fidalgo Street							
83494216	Clough Equipment Co S Front S	515 S Front Street							
67744521	Coastal Alaska Marine Lines	745 S Orchard Street	SBW-Slip 4						
26167272	Collins Aviation	6660 Perimeter Road S							
56476471	Commercial Welding & Fabrication Inc	711 S Myrtle Street	SBW-Slip 4						
85969894	Contour Laminates LPA Wash Ltd Part	5910 Corson Avenue S							
39361526	Contract Applications Inc Seattle	7600 Perimeter Road	EAA-6						
1940187	Crowley Marine Services	7400 8th Avenue S	SBW-Slip 4, Slip 4		●				
60563321	Crown Delta Environmental	792 S Michigan Street							
343781	Denco Sales Co	711 Fidalgo Street							
43327381	DHL Express	707 S Orcas Street							
76518153	Dinol US Inc Seattle	650 S Othello Street	SBW-Slip 4						
71371939	Duwamish Marine Center	16 S Michigan Street	Slip 2-3	●					
21945598	Duwamish Marine Center	6365 1st Avenue S	Slip 2-3		●				
3856442	Ecolights Northwest Seattle	1915 S Corgiat Drive							
78563473	Emerald City Freight Distribut	6003 6th Avenue S							
89553582	Emerald Services Inc	7343 East Marginal Way S	Slip 4				●		
2084	Emerald Tool Inc	6332 6th Avenue S	Slip 2-3	●	●				
23176116	Estate of Gloria Miller	1226 S Bailey Street							
2462	Evergreen Marine Leasing, Parcel E	7343 East Marginal Way S	Slip 4					●	●
94389497	FAMCO Transport, Inc.	6640 Ellis Avenue S							
75575157	Federal Express Perimeter Road, Seattle	7607 Perimeter Road	EAA-6					●	
54361353	Fedex Bfi Vm	7440 Perimeter Road S	EAA-6						
6436627	Flightcraft, Inc., Seattle	8285 Perimeter Road S	EAA-6					●	●
54757868	Former Consolidated Freightways	6050 East Marginal Way S	Slip 2-3		●			●	
2825755	Former UNOCAL Service Station 0907	1121 S Bailey Street	Slip 2-3					●	
48956635	Forrest Taylor	6505 Perimeter Road Boeing Field						●	
95644588	Fosters Service Corporation	934 S Harney Street						●	
2282	Fox Ave Bldg (Former Great Western Chemical)	6900 Fox Avenue S	Slip 3, SBW-Slip 4	●	●			●	
97897644	Fox Brighton Barrel	Fox Avenue S and S Brighton Street							
74428866	Galvin Flying Center UST 507162	7675 Perimeter Road S	EAA-6					●	
71267563	Galvin Flying Service	6987 Perimerter Road S	Slip 4						
13168148	Galvin Flying Services, Inc.	7149 Perimeter Road S	Slip 4			●			
50426433	Galvin Flying Svc	7205 Perimeter Road S							
64981477	Gas N Wash	551 S Michigan Street						●	●
95662832	GE Aircraft Engines Front St	540 S Front St							
96679259	Georgetown Center	NW Corner of Corson Avenue S & S Michigan							●
63485131	Georgetown Steamplant	1131 S Elizabeth Street	Slip 4					●	

Table C-1
Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization or Permit	Ecology UST/ LUST List	Ecology NFA Determination
7465257	Georgetown Yard	6640 Ellis Avenue				●			
2817992	Gibson Company	1900 S Corgiat Drive						●	
68985258	Griffin Fuel Co	1210 S Bailey Street						●	
92551337	Hamilton Building	6007 12th Avenue S							
29651292	Hammer Auto Rebuild & Sales Inc	1209 S Bailey Street							
72811433	Hangar Holdings, Inc.	7675 Perimeter Road S	EAA-6		●			●	
38639721	Industrial Magic Homer	927 S Homer Street							
2134	Inland Transporation Company	6737 Corson Avenue S	Slip 3						●
76388258	Julius Rosso Wholesale Nursery Co. UST	6404 Ellis Avenue S						●	
77227688	K&N Meats Seattle	2900 4th Avenue							
2593632	Kelly Moore Paint Airport Way	6101 Airport Way S	Slip 2-3	●					
2163	Kelly Moore Paint Co	5410 Airport Way S	Slip 2-3	●	●			●	
41478228	Kemper Systems, Inc.	5810 Airport Way S		●					
3210980	King County Airport Staging Yard	6640 Ellis Avenue	Slip 4			●			
2051	King County International Airport	6518 Ellis Avenue	Slip 4, EAA-4, EAA-6, Slip 6, EAA-7			●	●	●	●
2387398	King County International Airport	7299 Perimeter Road S	Slip 4, EAA-4, EAA-6, Slip 6, EAA-7						
76197432	Kohl & Madden	1017 S Myrtle Street		●					
89285628	Laucks Testing Laboratories	940 S Harney Street		●					
32245858	Laucks Testing Laboratories Harney St	921 S Harney Street		●					
74836763	Le Tracon Enviromental Inc	7343 East Marginal Way S		●					
71277652	Lockwood Marine Inc	6502 East Marginal Way S							
95841929	Lumber Trucking	943 S Nebraska Avenue							
35945241	MAC Machinery	4239 Corson Avenue S							
95712969	Machinists Inc Plant 1	751 S Michigan Street		●					
13593282	Mail Dispatch, Inc.	917 S Nebraska Avenue						●	
2216	Marine Vacuum Service Inc	1516 S Graham Street	Slip 4	●	●		●		
24632415	Mastermark	6550 4th Avenue S							
62364372	McCaw Flight Operations	7777 Perimeter Road S							
6924961	Mike's Mobil Service	6235 Airport Way S						●	
97999646	Mill Log Marine Inc Seattle	6345 6th Avenue S							
51945779	Miller Paint Company Corson Ave	5959 Corson Avenue S						●	
38243619	Milwaukee Electric Tool Corp Seattle	5419 Maynard Avenue S							
46977612	Moore Data Management Services Division	725 S Fidalgo Street							
12153465	Myrtle Street Property	606 S Myrtle Street	SBW-Slip 4						●
66879333	Nelson Trucking Co Inc	7130 8th Avenue S	SBW-Slip 4						
19371183	Nivas Bussiness Corp	6100 6th Avenue S							
36699669	Nordstrom Inc	7979 Perimeter Road S	EAA-6	●				●	
2117	North Boeing Field	7700 East Marginal Way S	Slip 4			●			
2153	North Coast Chemical Company	1615 S Graham Street	Slip 4	●	●	●		●	
22653378	Northland Services Inc	6701 Fox Avenue S.	Slip 3	●					

Table C-1
Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization or Permit	Ecology UST/ LUST List	Ecology NFA Determination
22653378	Northland Services Inc Fox Ave	6701 Fox Avenue S.	Slip 3	●		●		●	
42824221	Northland Services Inc Transfer Facility	7400 8th Avenue S	SBW-Slip 4			●			
1565848	Northwest Bottling Co	1136 Albro Place S		●				●	
4524834	Northwest Container Svcs Inc Seattle	600 S Garden Street	SBW-Slip 4			●	●		
96854446	Northwest Nut & Bolt Co	6795 East Marginal Way S							
55473184	Northwest Service, Inc.	6715 Corson Avenue S						●	
29775533	Orcas Business Park LLC	650 S Orcas Street							
12545978	Ostex Intl Inc 5955 Airport Way	5955 Airport Way S							
41689573	Pacific Terminals Limited	660 S Othello Street	SBW-Slip 4						
43114188	Perkins Lot	719 S Myrtle Street	SBW-Slip 4					●	●
47779679	Philips Services Corporation	734 S Lucile Street	RM 1.2-1.7 East, Slip 2-3	●	●		●	●	
26468911	Phils Finishing Touch Inc	7401 8th Avenue S	SBW-Slip 4						
2161	Pioneer Enamel Manufacture	5531 Airport Way S	Slip 2-3		●		●		
27585467	PNB Building	707 S Orcas Street						●	
38171386	PSE Georgetown Base	6500 Ursula Place S		●					
73263954	PTL Partnership	6314 7th Avenue S						●	
51647545	Puget Sound Energy UST 9864	6349 18th Avenue S						●	
41684823	Puget Sound Trk Lines Sea	7303 8th Avenue S	SBW-Slip 4			●		●	
4581549	Quick Start Northwest Inc	913 S Doris Street							
65877631	Rainier Ice & Cold Storage Inc	6004 Airport Way S	Slip 4			●		●	
65141181	Remarkable Tire	7115 East Marginal Way S						●	
55698119	Riveretz's Auto Care	6185 4th Avenue S	Slip 2-3					●	
65495133	Royal Line Cabinet Co Seattle	700 S Orchard Street	SBW-Slip 4						
13751941	RS Hughes Co Inc	6530 5th Place S							
93637295	Scougal Rubber Corp	6239 Corson Avenue S	Slip 2-3	●	●			●	
34383748	SCS Industries, Seattle	303 S River Street	Slip 3	●		●			
4522442	SEA A AFSS	6526 Ellis Avenue S						●	
14811879	Sea Pac Resources Inc	8465 Perimeter Road S							
17577864	Seattle Boiler Works	500 S Myrtle Street	SBW-Slip 4			●		●	
7107057	Seattle City DOT Airport Way Argo Bridge	Airport Way S between Summerville Place							
6487827	Seattle City Light, Georgetown Steamplant	6700 13th Avenue S	Slip 4		●				
2309	Seattle Commercial Finishing	5700 Corson Avenue S							●
72625161	Seattle Fire Station 27	1000 S Myrtle Street						●	
94727791	Seattle Iron Metals Corp	601 S Myrtle Street	SBW-Slip 4	●		●	●	●	
55416995	Seattle Jet Services	8013 Perimeter Road S						●	
17819358	Seattle School Dist 1 Cleveland HS	5511 15th Avenue S							
24471658	Seattle Truck Repairs, Inc.	6401 Occidental Avenue S	Slip 2-3					●	
11354986	Shell Station 121450	6200 Corson Avenue S						●	
95498891	Shultz Distributing Inc Marginal Way	6851 East Marginal Way S	Slip 3	●		●		●	
94368646	Shultz Distributing, Inc., Falcon Fast Fuel	6760 West Marginal Way		●				●	
745462	Sonn Property	950 S Nebraska Street	Slip 2-3		●				

Table C-1
Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization or Permit	Ecology UST/ LUST List	Ecology NFA Determination
2563	Sons of Italy Chevron 93189	5337 15th Avenue S						●	●
11887871	South Seattle Community College	6770 East Marginal Way S	Slip 3					●	
84173356	Springs Printing Inc Michigan	151 S Michigan Street							
2057	Sternoff Metals	7201 East Marginal Way S	SBW-Slip 4		●				
41677496	Sudden Printing	571 S Michigan Street							
19688471	Texaco 121430	600 S Michigan Street						●	
33732426	TEXACO INC	7000 Airport Road S						●	
15318746	THAW Corp	8300 Military Road S							
93184477	Trim Systems	701 S Orchard Street	SBW-Slip 4	●					
93694734	Tukwila Lucile Intersection Stage 1	MP 158							
48578491	Tyee Industries	765 S Myrtle Street	SBW-Slip 4						
4151794	United Bldg Svcs	6259 Airport Way S							
59737155	United Couriers, Inc.	7595 Perimeter Road							
58169621	Universal Metal Fabricators Seattle	6553 5th Avenue S							
62411353	Universal Printing	6600 Ursula Place S						●	
15215836	UPS Boeing Field	7575 Perimeter Road S	EAA-6	●		●	●		
33482323	UPS Seattle Export	500 S Front Street							
16264836	US West Communications W00D04	7679 Perimeter Road S							
64775371	USWCOM Seattle Duwamish Co	7000 E Marginal Way S						●	
68427684	V Van Dyke Inc	150 S River Street	Slip 3	●		●		●	
9726741	VA PSHCS Seattle Division	1660 S Columbian Way		●				●	
37289288	Vacuum Truck Svc Inc	220 S River Street	Slip 3					●	
21468652	Valco Graphics Inc Seattle	674 S Orcas Street							
4256186	Vic Markov Tire Company	7300 East Marginal Way S						●	
3856995	Viox Corporation	6701 6th Avenue S	Slip 2-3	●			●		●
62732399	Viox Corporation 6th & River	6701 6th Avenue S	Slip 2-3				●	●	
2260	Viox McDowell Site	551 S River Street	Slip 2-3						●
3796155	WA Air National Guard, North Boeing Field	7277 Perimeter Road S and 215 Main Street	Slip 4	●				●	
61845527	WA DNR Corson Avenue Site Hats and Boots	6800 East Marginal Way S	Slip 3					●	
82347852	WA DOT Corson	6431 Corson Avenue S		●				●	
73975933	WA DOT Spokane	I5 S MP 160.1							
5972170	WA DOT Spokane St Storage 1017XG01	Airport Way and Diagonal Avenue S							
11546487	WA DOT State Ferries Airport	6301 Airport Way S							
63579524	WA GA Seattle Motor Pool	6650 Ellis Avenue S						●	
39352815	Western Parcel Express Seattle	525 S Front Street						●	●
3895194	Western Trailer Repair Inc	707 S Lucile Street							
33942516	Western Union Tel Co. UST 97407	808 S Fildalgo Street						●	
18985948	Western Washington Apprent T	6770 East Marginal Way S Bldg D							
97262395	Western Wood Products of Seattle, Inc.	6520 5th Avenue S							
56533162	Westmar Services Inc	5930 6TH Avenue S						●	
9872313	Whitehead Company Corporation	600 S Myrtle Street	SBW-Slip 4					●	
17791926	Zellerbach Paper Company	6301 Airport Way S						●	

Table C-1
Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization or Permit	Ecology UST/ LUST List	Ecology NFA Determination

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4
EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

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

EPA - U.S. Environmental Protection Agency
UST - Underground Storage Tank
LUST - Leaking Underground Storage Tank
CSCSL - Confirmed or Suspected Contaminated Sites List
NFA - No Further Action
KCIW - King County Industrial Waste
RM - River Mile
EAA - Early Action Area
CSO - Combined sewer overflow

Table C-2
Facilities in the Michigan Street CSO Basin with Active EPA Identification Numbers

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	EPA ID No(s)	Hazardous Waste Classification(s)				
					HWG	HW OTHER	HWP	Tier2	TRI
75472189	AC Propeller Service Inc	925 S Nebraska		WAD044041259	●				
47512364	American Dry Ice Orcas	672 S Orcas Street		CRK000023250				●	
6346940	American Motor Freight LLC	5700 6th Avenue S, Suite 203		WAH000034000		●			
7411374	AT&T Wireless Georgetown	945 A S Doris Street		CRK000060160				●	
51878272	Atwood Adhesives, Inc.	945 S Doris Street		CRK000001650				●	
73142589	Boeing A&M Electronic Mfg Facility	7355 Perimeter Road S	Slip 4, EAA-6	WAD980980270	●		●	●	
2753918	Boeing-North Boeing Field	7500 East Marginal Way S	Slip 4	WAD980982037	●		●	●	●
57331171	Bunge Foods Corporation	6901 Fox Avenue S	SBW-Slip 4	CRK000040450				●	
18182664	Caliber Inspection	7500 Perimeter Road Boeing Field	EAA-6	WAD000067686		●			
71371939	Duwamish Marine Center	16 S Michigan Street	Slip 2-3	WAD988504999		●			
2084	Emerald Tool Inc	6332 6th Avenue S	Slip 2-3	WAD042476788		●			
2593632	Former UNOCAL Service Station 0907	1121 S Bailey Street	Slip 2-3	WAH000030464	●				
2282	Fox Ave Bldg (Former Great Western Chemical)	6900 Fox Avenue S	Slip 3, SBW-Slip 4	WAD008957961				●	●
2163	Kelly Moore Paint Airport Way	6101 Airport Way S	Slip 2-3	WAD059315069	●	●		●	●
41478228	Kemper Systems, Inc.	5810 Airport Way S		CRK000041930				●	
76197432	Kohl & Madden	1017 S Myrtle Street		WAH000003780		●			
89285628	Laucks Testing Laboratories	940 S Harney Street		WAD027446608	●		●		
32245858	Laucks Testing Laboratories Harney St	921 S Harney Street		WAD981762024	●		●		
74836763	Le Tracon Enviromental Inc	7343 East Marginal Way S		WAD980723324		●			
95712969	Machinists Inc Plant 1	751 S Michigan Street		WAD981761075		●		●	
2216	Marine Vacuum Service Inc	1516 S Graham Street	Slip 4	WAD980974521		●			
36699669	Nordstrom Inc	7979 Perimeter Road S	EAA-6	WAD981773583	●				
2153	North Coast Chemical Company	1615 S Graham Street	Slip 4	WAH000020313, CRK000008800		●		●	
22653378	Northland Services Inc	6701 Fox Avenue S.	Slip 3	WAD981773005		●			
22653378	Northland Services Inc Fox Ave	6701 Fox Avenue S.	Slip 3	WAD980977128				●	
1565848	Northwest Bottling Co	1136 Albro Place S		WAD009259847				●	
47779679	Philips Services Corporation	734 S Lucile Street	RM 1.2-1.7 East, Slip 2-3	WAD000812909		●			
93637295	Pioneer Enamel Manufacture	5531 Airport Way S	Slip 2-3	WAD067159442	●				
38171386	PSE Georgetown Base	6500 Ursula Place S		WAD988481677	●				
34383748	SCS Industries, Seattle	303 S River Street	Slip 3	CRK000039130				●	
94727791	Seattle Iron Metals Corp	601 S Myrtle Street	SBW-Slip 4	WAH000010678		●			
95498891	Shultz Distributing Inc Marginal Way	6851 East Marginal Way S	Slip 3	WAD009492877				●	
94368646	Shultz Distributing, Inc., Falcon Fast Fuel	6760 West Marginal Way		CRK000044350				●	
93184477	Trim Systems	701 S Orchard Street	SBW-Slip 4	WAD004906376	●		●	●	●
15215836	UPS Boeing Field	7575 Perimeter Road S	EAA-6	WAD988521563	●			●	
68427684	V Van Dyke Inc	150 S River Street	Slip 3	WAD988516779	●				
9726741	VA PSHCS Seattle Division	1660 S Columbian Way		WA1390007313	●		●	●	
3856995	Viox Corporation	6701 6th Avenue S	Slip 2-3	WAD053814091	●		●	●	●

Table C-2
Facilities in the Michigan Street CSO Basin with Active EPA Identification Numbers

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	EPA ID No(s)	Hazardous Waste Classification(s)				
					HWG	HW OTHER	HWP	Tier2	TRI
3796155	WA Air National Guard, North Boeing Field	7277 Perimeter Road S and 215 Main Street	Slip 4	WAD147234637	●			●	
82347852	WA DOT Corson	6431 Corson Avenue S		WAD980981104			●	●	

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4
EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

HWG - Facilities that generate any quantity of hazardous waste
HW Other - Facilities that are required to have a RCRA Site ID, but do not generate or manage hazardous waste
HWP - Facilities that report under Section 313 of the Emergency Planning/Community Right-To-Know Act or that generate more than 2,640 pounds of hazardous waste per year.
Tier2 - Businesses that store 10,000 pounds or more of a hazardous chemical or 500 pounds or less, depending on the chemical, of an extremely hazardous chemical at any time must report annually.
TRI - Facilities in specific industries that manufacture, process or use more than the threshold amount of one or more of 600 listed toxic chemicals.

Table C-3
Facilities within the Michigan Street CSO Basin
Listed on Ecology's Confirmed or Suspected Contaminated Site List

Facililty/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Media and Contaminants				
				Soil	Groundwater	Sediment	Surface Water	Air
59377658	Air National	7277 Perimeter Road S and 215 Main Street	Slip 4	S - 7, 9	S - 7, 9			
63123962	Alaska Logistics LLC	7400 8th Avenue S	SBW-Slip 4	C - 1, 5, 7, 11, 18 S - 8	C - 1, 3, 11, 18	C - 1, 5, 11		
44383713	Big Johns Truck Repair Inc	6533 3rd Avenue S	Slip 3	C - 7	C - 9			
73142589	Boeing A&M Electronic Mfg Facility	7355 Perimeter Road S	Slip 4, EAA-6	S - 2	C - 2			
63879778	Boeing Electronic Manufacturing	7300 Perimeter Road S	Slip 4, EAA-6	C - 11				
2050	Boeing-North Boeing Field	7500 East Marginal Way S	Slip 4	C - 2, 3, 7, 9, 13, 16 S - 4, 5, 10	C - 2, 3, 7, 9, 13, 16 S - 4, 10	C - 2, 3, 5, 7, 9, 13, 16 S - 4, 10	S - 2, 3, 4, 5, 7, 9, 10, 13, 16	
2053	Boeing-North Boeing Field, JP4 Tanks	Ellis Avenue & East Marginal Way S	Slip 4	C - 7	C - 7			
1940187	Crowley Marine Services	7400 8th Avenue S	SBW-Slip 4, Slip 4	C - 1, 3, 5, 7, 11, 18 S - 8	C - 1, 3, 11, 18 S - 5, 7, 8	C - 1, 3, 5, 11 S - 7, 8		
21945598	Duwamish Marine Center	6365 1st Avenue S	Slip 2-3	C - 1, 3, 4, 5, 7, 11 S - 9	C - 7, 9 S - 11			
2084	Emerald Tool Inc	6332 6th Avenue S	Slip 2-3	C - 2, 3 S - 9, 13, 16	S - 2, 3, 9, 13, 16			
54757868	Former Consolidated Freightways	6050 East Marginal Way S	Slip 2-3	C - 7	C - 7 S - 9, 11			
2282	Fox Ave Bldg (Former Great Western Chemical)	6900 Fox Avenue S	Slip 3, SBW-Slip 4	C - 2, 7, 9, 11	C - 2, 7, 9, 11			
72811433	Hangar Holdings, Inc.	7675 Perimeter Road S	EAA-6	C - 7, 9 B - 7, 9, 11	C - 7 B - 2, 9, 11			
2163	Kelly Moore Paint Co	5410 Airport Way S	Slip 2-3	C - 9 S - 2, 3, 7	C - 9 S - 2, 3, 7			
2216	Marine Vacuum Service Inc	1516 S Graham Street	Slip 4	C - 3, 7 S - 15, 16	C - 3, 7		C - 3, 7 S - 15, 16	C - 3, 7 S - 15
2153	North Coast Chemical Company	1615 S Graham Street	Slip 4	C - 2, 3, 7, 8, 11	C - 2, 3, 7, 9 S - 11, 12, 13, 16		S - 2, 3, 7, 9, 11, 12, 13, 16	
47779679	Philips Services Corporation	734 S Lucile Street	RM 1.2-1.7 East, Slip 2-3	C - 1, 2, 3, 5, 8, 11, 18 S - 7, 9 B - 6, 12, 13, 14, 17	C - 2, 3, 5, 7, 8, 11 S - 1, 9, 18 B - 6, 12, 13, 14, 17, 19			C - 2, 9 B - 1, 3, 5, 6, 8, 11, 12, 13, 14, 17, 19
2161	Pioneer Enamel Manufacture	5531 Airport Way S	Slip 2-3	S - 3	C - 3		S - 3	
93637295	Scougal Rubber Corp	6239 Corson Avenue S	Slip 2-3	C - 2, 7, 9	C - 2, 7, 9			
6487827	Seattle City Light, Georgetown Steamplant	6700 13th Avenue S	Slip 4	C - 5, 7	C - 5 S - 7			
745462	Sonn Property	950 S Nebraska Street	Slip 2-3	S - 3, 4, 7, 11	S - 3, 4, 7		S - 3, 4, 7, 11	S - 7
2057	Sternoff Metals	7201 East Marginal Way S	SBW-Slip 4	C - 3, 5	C - 3, 5, 7		C - 3, 5	

Table C-3
Facilities within the Michigan Street CSO Basin
Listed on Ecology's Confirmed or Suspected Contaminated Site List

Facililty/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	Media and Contaminants				
				Soil	Groundwater	Sediment	Surface Water	Air

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4
EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

CONTAMINANT KEY
S - Suspected, C - Confirmed, R - Remediated, B - Below MTCA Cleanup Levels After Assessment
1 - Base/Neutral/Acid Organics: Hazardous substances typicall included in the EPA's priority pollutant compound list.
2 - Halogenated Organic Compounds: Organic compounds, typically solvents, with one or more of the halogens incorporated into their structure.
3 - EPA Priority Pollutants - Metals and Cyanide: Metals included in EPA's priority pollutant compounds list.
4 - Metals - Other: Other non-priority pollutant metals.
5 - Polychlorinated biphenyls (PCBs): A specific family of aromatic chlorinated organic compounds, also known as Aroclors.
6 - Pesticides: Chemical agents used to control pests such as: fungicides, herbicides and insecticides.
7 - Petroleum Products: Crude oil and any fraction thereof. Each of these materials may consist of many specific chemical compounds.
8 - Phenolic Compounds: Hazardous substances typically included in the acid extractable fraction of EPA's priority pollutant compound list.
9 - Non-Halogenated Solvents: Organic solvents, typically volatile or semi-volatile, not containing any halogens.
10 - Dioxin: A family of more than 70 compoundsof chlorinated dioxins.
11 - Polycyclic Aromatic Hydrocarbons (PAH): Hydrocarbons composed of two or more benzene rings.
12 - Reactive Wastes: Wastes that react violently upon contact with other substances (especially air or water) as defined by the Dangerous Waste Regulation (WAC 173-303-090(7)).
13 - Corrosive Wastes: Wastes that are highly corrosive as defined by the Dangerous Waste Regulation (WAC 173-303-090(6)).
14 - Radioactive Wastes: Wastes that emit more than background levels of radiation.
15 - Conventional Contaminants, Organic: Unspecified organic matter that imposes an oxygen demand during its decomposition.
16 - Conventional Contaminants, Inorganic: Non-metallic inorganic substances or indicator parameters that may indicate the existence of contamination if present at unusual levels.
17 - Asbestos: All forms of asbestos. Asbestos fibers have been used in products such as building materials, friction products and heat-resistant materials.
18 - Arsenic: A toxic heavy metal that may be absorbed via ingestion, inhalation, or by permeating skin or mucous membranes.
19 - Methyl tertiary-butyl ether (MTBE): MTBE is a volatile oxygen-containing organic compound that was formerly used as a gasoline additive to promote complete combustion and help reduce air pollution.
20 - Unexploded Ordnance (UXO): Weapons that failed to detonate or discarded shells containing volatile material.
21 - Tributyltin (TBT): The main active ingredients in biocides used to control a broad spectrum of organisms. Found in antifouling marine paint, antifungal action in textiles and industrial water systems.
22 - Bioassay Benthic Failures: A disparity between natural and contaminated sites having to due with animal population, diversity and their health.
23 - Wood Debris: Trash wood that has accumulated in an area.
24 - Other Deleterious Substances: Other contaminants that cause subtle or unexpected harm.

Table C-4
Facilities in the Michigan Street CSO Basin with NPDES Permits

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	NPDES Permit No.
7723743	ABX Air Inc., Seattle	8075 Perimeter Road S	EAA-6	SO3004602
1078998	Aero Copters, Inc.	8013 Perimeter Road S	EAA-6	SO3000311
8137128	Ameriflight Inc. Hangar 5	7585 Perimeter Road S	EAA-6	SO3002830
44648718	Aviation Fuel Storage, Shultz Distributing	1495 S Hardy Street	Slip 4	SO3000345
3338163	Cedar Grove Compost, Webster Yard	7343 East Marginal Way S	Slip 4	SO3002641
13168148	Galvin Flying Services, Inc.	7149 Perimeter Road S	Slip 4	SO3000607
7465257	Georgetown Yard	6640 Ellis Avenue		SO3010792A
3210980	King County Airport Staging Yard	6640 Ellis Avenue	Slip 4	SO3010792A
2051	King County International Airport	6518 Ellis Avenue	Slip 4, EAA-4, EAA-6, Slip 6, EAA-7	SO3000343
2117	North Boeing Field	7700 East Marginal Way S	Slip 4	SO3000226
2153	North Coast Chemical Company	1615 S Graham Street	Slip 4	Active[2]
22653378	Northland Services Inc Fox Ave	6701 Fox Avenue S.	Slip 3	SO3000962
42824221	Northland Services Inc Transfer Facility	7400 8th Avenue S	SBW-Slip 4	SO3003646
4524834	Northwest Container Svcs Inc Seattle	600 S Garden Street	SBW-Slip 4	Active[2]
41684823	Puget Sound Trk Lines Sea	7303 8th Avenue S	SBW-Slip 4	SO3000949
65877631	Rainier Ice & Cold Storage Inc	6004 Airport Way S	Slip 4	SO3001507
34383748	SCS Industries, Seattle	303 S River Street	Slip 3	SO3005565
17577864	Seattle Boiler Works	500 S Myrtle Street	SBW-Slip 4	SO3002208
94727791	Seattle Iron Metals Corp	601 S Myrtle Street	SBW-Slip 4	WA0031968
95498891	Shultz Distributing Inc Marginal Way	6851 East Marginal Way S	Slip 3	SO3002346
15215836	UPS Boeing Field	7575 Perimeter Road S	EAA-6	SO3000434
68427684	V Van Dyke Inc	150 S River Street	Slip 3	SO3000453

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4
EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

[2] - The Ecology Facility/Site Database indicates that the facility has an active NPDES permit; however, the permit number is not listed in the database.

Table C-5
Facilities in the Michigan Street CSO Basin with KCIW Discharge Authorizations or Permits

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	KCIW Discharge Authorization Number	KCIW Discharge Permit Number	Expiration Date	Description of Operation/ Nature of Wastewater
2753918	Boeing-North Boeing Field	7500 East Marginal Way S	Slip 4		7594	5/12/2010	Metal finishing
57331171	Bunge Foods Corporation	6901 Fox Avenue S	SBW-Slip 4		7043	7/28/2012	Food processing (flavorings)
18182664	Caliber Inspection	7500 Perimeter Road Boeing Field	EAA-6	781		3/19/2012	X-ray film processing
3338163	Cedar Grove Compost, Webster Yard	7343 East Marginal Way S	Slip 4	629	7652	4/11/2010	Leachate
89553582	Emerald Services Inc	7343 East Marginal Way S	Slip 4		7725	3/24/2010	Chemical toilet/holding tank waste
2051	King County International Airport	6518 Ellis Avenue	Slip 4, EAA-4, EAA-6, Slip 6, EAA-7	4109, 4129		10/29/2011, 9/1/2011	Airport operations-deicing, Groundwater remediation-petroleum
2216	Marine Vacuum Service Inc	1516 S Graham Street	Slip 4		7676	5/27/2011	Centralized waste treatment
4524834	Northwest Container Svcs Inc Seattle	600 S Garden Street	SBW-Slip 4	651		1/4/2010	Shipping container storage and cleaning
47779679	Philips Services Corporation	734 S Lucile Street	RM 1.2-1.7 East, Slip 2-3	769		4/16/2011	Groundwater remediation-organics
2161	Pioneer Enamel Manufacture	5531 Airport Way S	Slip 2-3		7723	7/13/2009	Metal finishing
94727791	Seattle Iron Metals Corp	601 S Myrtle Street	SBW-Slip 4	750		8/30/2009	Vehicle washing
15215836	UPS Boeing Field	7575 Perimeter Road S	EAA-6	717		6/18/2012	Vehicle washing
3856995	Viox Corporation	6701 6th Avenue S	Slip 2-3		7507	2/28/2011	Leaded glass manufacturing

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4

EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

KCIW - King County Industrial Waste

Table C-6
Facilities in the Michigan Street CSO Basin with
Underground Storage Tanks or Leaking Underground Storage Tanks

				UST Information									LUST Information			
Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	UST Site ID	Operational	Removed	Closed in Place	Change in Service	Unknown	Exempt	Closure in Process	Temp Closed	LUST Release ID	Media Affected	Status	Status Date
4784534	88 Construction	5338 15th Avenue S		619367			4									
7318944	Aeroflight National Charter Network	8535 Permieter Road S	EAA-6	447641		1							510248	Soil	Reported Cleaned Up	8/26/1996
63713485	Arco 5218	7200 East Marginal Way S	Slip 4	8788	3								4609	Soil/GW	Cleanup Started	2/8/1994
69693852	Arrow Transportation	6737 Corson Avenue S	Slip 3	1940		4										
64987158	AT&T Pump	6525 Ellis Avenue S		200154		1							3805	Soil	Reported Cleaned Up	12/10/2001
44648718	Aviation Fuel Storage, Shultz Distributing	1495 S Hardy Street	Slip 4	8336	9	2										
4738343	Baxter Rutherford	911 S Homer Street		436872		1							436880	Soil	Reported Cleaned Up	8/11/1997
74169521	Ben's Truck Parts Inc Seattle	6655 Corson Avenue S	Slip 3	396593		1										
73142589	Boeing A&M Electronic Mfg Facility	7355 Perimeter Road S	Slip 4, EAA-6	10416		1				1						
2753918	Boeing-North Boeing Field	7500 East Marginal Way S	Slip 4	8338	1	21	3			3		3	5628	Soil	Cleanup Started	2/1/1995
2753918	Boeing-North Boeing Field-Delivery	7500 East Marginal Way S	Slip 4										2558	Soil/GW	Reported Cleaned Up	5/10/1993
2753918	Boeing-North Boeing Field-F&G Facility	7370 East Marginal Way S	Slip 4										5290	Soil/GW	Reported Cleaned Up	6/1/1995
2753918	Boeing-North Boeing Field-Green Hornet Area	7500 East Marginal Way S	Slip 4										5292	Soil/GW	Cleanup Started	6/1/1995
2462	Evergreen Marine Leasing, Parcel E	7343 East Marginal Way S	Slip 4	6485			2									
75575157	Federal Express Perimeter Road, Seattle	7607 Perimeter Road	EAA-6	2392		1							1676	Soil/GW	Reported Cleaned Up	6/1/1995
6436627	Flightcraft, Inc., Seattle	8285 Perimeter Road S	EAA-6	8044	4	7										
54757868	Former Consolidated Freightways	6050 East Marginal Way S	Slip 2-3	11012	1	2						1	2626	Soil/GW	Cleanup Started	6/1/1995
48956635	Forrest Taylor	6505 Perimeter Road Boeing Field		8042		1										
95644588	Fosters Service Corporation	934 S Harney Street		11811			1									
2282	Fox Ave Bldg (Former Great Western Chemical)	6900 Fox Avenue S	Slip 3, SBW-Slip 4	3803		20	6						1819	Soil	Cleanup Started	6/1/1995
74428866	Galvin Flying Center UST 507162	7675 Perimeter Road S	EAA-6	507162			1						527809	Soil	Reported Cleaned Up	2/24/1999
64981477	Gas N Wash	551 S Michigan Street		5289	4											
63485131	Georgetown Steamplant	1131 S Elizabeth Street	Slip 4	8818		4							1612	Soil	Reported Cleaned Up	4/27/2000
2817992	Gibson Company	1900 S Corgiat Drive		10536		1										
68985258	Griffin Fuel Co	1210 S Bailey Street		1518			2									
72811433	Hangar Holdings, Inc.	7675 Perimeter Road S	EAA-6	484990	2	8							587690	Soil/GW	Cleanup Started	7/25/1997
76388258	Julius Rosso Wholesale Nursery Co. UST	6404 Ellis Avenue S		5609		1							490261	Soil	Reported Cleaned Up	1/7/1999
2163	Kelly Moore Paint Airport Way	6101 Airport Way S	Slip 2-3	1945	15	14	1	2					5203	Soil	Cleanup Started	6/1/1995
2051	King County International Airport	6518 Ellis Avenue	Slip 4, EAA-4, EAA-6, Slip 6, EAA-7	8341		6							4136	Soil/GW	Reported Cleaned Up	9/1/1998
13593282	Mail Dispatch, Inc.	917 S Nebraska Avenue		899					1							
6924961	Mike's Mobil Service	6235 Airport Way S		2711		4							2906	Soil	Reported Cleaned Up	4/17/2001
51945779	Miller Paint Company Corson Ave	5959 Corson Avenue S		7730		3										
36699669	Nordstrom Inc	7979 Perimeter Road S	EAA-6	8045	3											
2153	North Coast Chemical Company	1615 S Graham Street	Slip 4	200713		4							2682	Soil/GW	Cleanup Started	5/21/1995
22653378	Northland Services Inc Fox Ave	6701 Fox Avenue S.	Slip 3	11256		2				1						
1565848	Northwest Bottling Co	1136 Albro Place S		10933		2										

Table C-6
Facilities in the Michigan Street CSO Basin with
Underground Storage Tanks or Leaking Underground Storage Tanks

				UST Information									LUST Information			
Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	UST Site ID	Operational	Removed	Closed in Place	Change in Service	Unknown	Exempt	Closure in Process	Temp Closed	LUST Release ID	Media Affected	Status	Status Date
55473184	Northwest Service, Inc.	6715 Corson Avenue S		7256		1										
43114188	Perkins Lot	719 S Myrtle Street	SBW-Slip 4	522		3										
47779679	Philips Services Corporation	734 S Lucile Street	Slip 2-3, RM 1.2-1.7 East	7401			24									
93637295	Pioneer Enamel Manufacture	5531 Airport Way S	Slip 2-3	11320		6							1689	Soil/GW	Cleanup Started	6/1/1995
27585467	PNB Building	707 S Orcas Street		200597		3							3034	Soil/GW	Reported Cleaned Up	5/21/1995
73263954	PTL Partnership	6314 7th Avenue S		25		4							1579	Soil	Reported Cleaned Up	7/23/2002
51647545	Puget Sound Energy UST 9864	6349 18th Avenue S		9864		1							428895	Soil	Reported Cleaned Up	2/12/2003
41684823	Puget Sound Trk Lines Sea	7303 8th Avenue S	SBW-Slip 4	7820		4							2352	Soil	Reported Cleaned Up	9/27/1995
65877631	Rainier Ice & Cold Storage Inc	6004 Airport Way S	Slip 4	6526							2					
65141181	Remarkable Tire	7115 East Marginal Way S		2797		2										
55698119	Riveretz's Auto Care	6185 4th Avenue S	Slip 2-3	100530	3	1							592203	Soil	Reported Cleaned Up	7/25/2007
4522442	SEA A AFSS	6526 Ellis Avenue S		101061		1										
17577864	Seattle Boiler Works	500 S Myrtle Street	SBW-Slip 4	8147						1						
72625161	Seattle Fire Station 27	1000 S Myrtle Street		7886		1							549580	Soil	Reported Cleaned Up	5/31/2002
94727791	Seattle Iron Metals Corp	601 S Myrtle Street	SBW-Slip 4	10855			1			1						
55416995	Seattle Jet Services	8013 Perimeter Road S		9240								1				
24471658	Seattle Truck Repairs, Inc.	6401 Occidental Avenue S	Slip 2-3	1984		2										
11354986	Shell Station 121450	6200 Corson Avenue S	Slip 3	3347	4	6							2884	Soil/GW	Monitoring	6/1/1995
95498891	Shultz Distributing Inc Marginal Way	6851 East Marginal Way S	Slip 3	1391		1										
94368646	Shultz Distributing, Inc., Falcon Fast Fuel	6760 West Marginal Way		395043	3											
2825755	Sonn Property	950 S Nebraska Street	Slip 2-3	619093					1				591909	Soil/GW	Cleanup Started	3/21/2002
2563	Sons of Italy Chevron 93189	5337 15th Avenue S		309084		4				1						
11887871	South Seattle Community College	6770 East Marginal Way S	Slip 3	7405		1	1				1					
19688471	Texaco 121430	600 S Michigan Street		4487	4	1				1			309690	Soil/GW	Monitoring	1/20/2000
33732426	TEXACO INC	7000 Airport Road S		3435		5										
62411353	Universal Printing	6600 Ursula Place S		5355			2									
64775371	USWCOM Seattle Duwamish Co	7000 E Marginal Way S		10481	1	2										
68427684	V Van Dyke Inc	150 S River Street	Slip 3	12577		6										
9726741	VA PSHCS Seattle Division	1660 S Columbian Way		4268	2	3	1			4			2528	Soil/GW	Cleanup Started	9/28/1995
37289288	Vacuum Truck Svc Inc	220 S River Street	Slip 3	97212			3						499583	Soil/GW	Cleanup Started	10/26/1998
4256186	Vic Markov Tire Company	7300 East Marginal Way S		8342		5							4431	GW	Monitoring	6/1/1995
62732399	Viox Corporation 6th & River	601 S River Street	Slip 2-3	852			2									
3796155	WA Air National Guard, North Boeing Field	7277 Perimeter Road S and 215 Main Street	Slip 4	487		5										
61845527	WA DNR Corson Ave Site Hat and Boots	6800 East Marginal Way S	Slip 3	8914	3											
82347852	WA DOT Corson	6431 Corson Avenue S		12241	3	4							2165	Soil	Unknown	6/1/1995
63579524	WA GA Seattle Motor Pool	6650 Ellis Avenue S		8043		1							2713	Soil	Reported Cleaned Up	6/1/1995

Table C-6
Facilities in the Michigan Street CSO Basin with Underground Storage Tanks or Leaking Underground Storage Tanks

				UST Information									LUST Information			
Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	UST Site ID	Operational	Removed	Closed in Place	Change in Service	Unknown	Exempt	Closure in Process	Temp Closed	LUST Release ID	Media Affected	Status	Status Date
39352815	Western Parcel Express Seattle	525 S Front Street		97775		2							491225	Soil/GW	Reported Cleaned Up	8/7/2000
33942516	Western Union Tel Co. UST 97407	808 S Fildalgo Street		97407		1										
56533162	Westmar Services Inc	5930 6TH Avenue S		11537		2										
9872313	Whitehead Company Corporation	600 S Myrtle Street	SBW-Slip 4	9634		2										
17791926	Zellerbach Paper Company	6301 Airport Way S		3761		3							2463	Soil	Reported Cleaned Up	2/19/2002

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4
EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

GW - Groundwater
UST - Underground Storage Tank
LUST - Leaking Underground Storage Tank

Table C-7
Facilities in the Michigan Street CSO Basin that are Listed on Ecology's No Further Action List

Facility/ Site ID	Facility Name	Facility Address	Data Gaps Report[1]	NFA Date	NFA Type
39659753	American Avionics King County Airport	7023 Perimeter Road S	Slip 4	11/20/2001	NFA after assessment, IRAP, or VCP
74169521	Bens Truck Parts Inc Seattle	6655 Corson Avenue S		10/25/1997	NFA after assessment, IRAP, or VCP
2462	Evergreen Marine Leasing, Parcel E	7343 East Marginal Way S	Slip 4	10/21/1997	NFA after assessment, IRAP, or VCP
6436627	Flightcraft, Inc., Seattle	8285 Perimeter Road S	EAA-6	7/23/1996	NFA after assessment, IRAP, or VCP
64981477	Gas N Wash	551 S Michigan Street		6/28/2004	NFA after assessment, IRAP, or VCP
96679259	Georgetown Center	NW Corner of Corson Avenue S & S Michigan		12/20/2004	NFA after assessment, IRAP, or VCP
2134	Inland Transporation Company	6737 Corson Avenue S		11/23/1992	NFA after assessment, IRAP, or VCP
2051	King County International Airport	6518 Ellis Avenue	Slip 4, EAA-4, EAA-6, Slip 6, EAA-7	12/20/1989	Cleaned up under prior authority
12153465	Myrtle Street Property	606 S Myrtle Street	SBW-Slip 4	6/4/1998	NFA after assessment, IRAP, or VCP
43114188	Perkins Lot	719 S Myrtle Street	SBW-Slip 4	7/10/2006	NFA after assessment, IRAP, or VCP
2309	Seattle Commercial Finishing	5700 Corson Avenue S		7/10/1998	NFA after assessment, IRAP, or VCP
2563	Sons of Italy Chevron 93189	5337 15th Avenue S		4/30/1996	NFA after assessment, IRAP, or VCP
3856995	Viox Corporation	6701 6th Avenue S	Slip 2-3	8/2/2001	NFA after assessment, IRAP, or VCP
2260	Viox McDowell Site	551 S River Street	Slip 2-3	5/8/2002	NFA after assessment, IRAP, or VCP
39352815	Western Parcel Express Seattle	525 S Front Street		2/5/2002	Restrictive Covenant, Instutional Controls

[1] - This column indicates that a facility is discussed in the Data Gaps report associated with the listed source control area(s):

RM 1.2-1.7 East: St. Gobain to Glacier Northwest
Slip 2-3: RM 1.7-2.0 East, Slip 2 to Slip 3
Slip 3: RM 2.0-2.3 East, Slip 3 to Seattle Boiler Works
SBW-Slip 4: RM 2.3-2.8 East, Seattle Boiler Works to Slip 4
Slip 4: RM 2.8 East, Slip 4
EAA-4: RM 2.8-3.7 East, Boeing Plant 2 to Jorgensen Forge
EAA-6: RM 3.7-3.9 East, Boeing Isaacson/Central KCIA
Slip 6: RM 3.9-4.3 East, Slip 6
EAA-7: RM 4.3-4.9 East, Norfolk CSO/SD

NFA - No Further Action
IRAP - Independent Remedial Action Program
VCP - Voluntary Cleanup Program

Table C-8
SIC and NAICS Codes for Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database and Not Included in Another Source Control Area

Facility/Site ID	Facility Name	Facility Address	SIC Code	NAICS Code
9169543	6249 Airport Way S	6249 Airport Way S	9999: Nonclassifiable Establishments	Unknown
4784534	88 Construction	5338 15th Avenue S	Unknown	Unknown
75472189	AC Propeller Service Inc	925 S Nebraska	Unknown	Unknown
58266151	Alki Auto Body Inc	5958 Corson Avenue S	7532: Top and Body Repair and Paint Shops	Unknown
61468944	All City Grinders	9401 Carleton Avenue S	3728: Aircraft Parts and Equipment, NEC	33641: Aerospace Produt and Parts Manufacturing 336413: Other Aircraft Parts and Auxiliary
5274463	All Metal Company	5610 Airport Way S	5093: Scrap and Waste Materials	Unknown
47512364	American Dry Ice Orcas	672 S Orcas Street	5169: Chemicals and Allied Products, NEC	Unknown
6346940	American Motor Freight LLC	5700 6th Avenue S, Suite 203	484121: General Freight Trucking, Long-Distance	Unknown
64987158	AT&T Pump	6525 Ellis Avenue S	Unknown	Unknown
9970306	AT&T Wireless Boeing Field	8300 Military Road	4812: Radiotelephone Communications	Unknown
7411374	AT&T Wireless Georgetown	945 A S Doris Street	4812: Radiotelephone Communications	Unknown
51878272	Atwood Adhesives, Inc.	945 S Doris Street	2891: Adhesives and Sealants	Unknown
47726656	B & G Machine Inc	6400 Corson Avenue S	3519: Internal Combustion Engines, NEC	333619: Other Engine Equipment Manufacturing
4738343	Baxter Rutherford	911 S Homer Street	Unknown	Unknown
52822581	Benz Friendz Inc	6249 Flora Avenue S	7538: General Automotive Repair Shops	811111: General Automotive Repair
72432377	Breese Jones Refinishers	5626 Airport Way S	7641: Reupholstery and Furniture Repair	Unknown
95419266	Business Card Express	6510 5th Avenue S	9999: Nonclassifiable Establishments	Unknown
12872193	Carrier Corp Buildings System & Svcs	655 S Orcas Street Ste 100	7623: Refrigeration Service and Repair	Unknown
99747798	Cenveo Graphic Arts Center	832 S Fidalgo Street	2752: Commercial Printing, Lithographic	32311: Printing
83494216	Clough Equipment Co S Front S	515 S Front Street	9999: Nonclassifiable Establishments	Unknown
26167272	Collins Aviation	6660 Perimeter Road S	9999: Nonclassifiable Establishments	Unknown
85969894	Contour Laminates LPA Wash Ltd Part	5910 Corson Avenue S	2541: Wood Partitions and Fixtures	Unknown
60563321	Crown Delta Environmental	792 S Michigan Street	4225: General Warehousing & Storage	236220: Commercial & Institutional Buildings
343781	Denco Sales Co	711 Fidalgo Street	Unknown	Unknown
43327381	DHL Express	707 S Orcas Street	4513: Air Courier Services	488119: Other Airport Operations
3856442	Ecolights Northwest Seattle	1915 S Corgiat Drive	Unknown	423930: Recyclable Material Merchant Wholesale

Table C-8
SIC and NAICS Codes for Facilities within the Michigan Street CSO Basin that are Listed in the Ecology Facility/Site Database and Not Included in Another Source Control Area

Facility/Site ID	Facility Name	Facility Address	SIC Code	NAICS Code
78563473	Emerald City Freight Distribut	6003 6th Avenue S	9999: Nonclassifiable Establishments	484121: General Freight Trucking, Long Distance
23176116	Estate of Gloria Miller	1226 S Bailey Street	Unknown	Unknown
94389497	FAMCO Transport, Inc.	6640 Ellis Avenue S	4213: Trucking, Except Local	Unknown
48956635	Forrest Taylor	6505 Perimeter Road Boeing Field	Unknown	Unknown
95644588	Fosters Service Corporation	934 S Harney Street	9999: Nonclassifiable Establishments	Unknown
97897644	Fox Brighton Barrel	Fox Avenue S and S Brighton Street	Unknown	Unknown
50426433	Galvin Flying Svc	7205 Perimeter Road S	9999: Nonclassifiable Establishments	Unknown
64981477	Gas N Wash	551 S Michigan Street	5541: Gasoline Service Stations	Unknown
95662832	GE Aircraft Engines Front St	540 S Front St	3724: Aircraft Engines and Engine Parts	Unknown
96679259	Georgetown Center	NW Corner of Corson Avenue S & S Michigan	Unknown	Unknown
7465257	Georgetown Yard	6640 Ellis Avenue	4231: Trucking Terminal Facilities	Unknown
2817992	Gibson Company	1900 S Corgiat Drive	Unknown	Unknown
68985258	Griffin Fuel Co	1210 S Bailey Street	9999: Nonclassifiable Establishments	Unknown
92551337	Hamilton Building	6007 12th Avenue S	Unknown	53112: Lessor of Nonresidential Buildings
29651292	Hammer Auto Rebuild & Sales Inc	1209 S Bailey Street	7532: Top and Body Repair and Paint Shops	81121: Electronic and Precision Equipment
38639721	Industrial Magic Homer	927 S Homer Street	3672: Printed Circuit Boards	Unknown
76388258	Julius Rosso Wholesale Nursery Co. UST	6404 Ellis Avenue S	Unknown	Unknown
77227688	K&N Meats Seattle	2900 4th Avenue	5147: Meats and Meat Products	Unknown
41478228	Kemper Systems, Inc.	5810 Airport Way S	5169: Chemicals and Allied Products, NEC	Unknown
76197432	Kohl & Madden	1017 S Myrtle Street	2893: Printing Ink	32591: Printing Ink Manufacturing
89285628	Laucks Testing Laboratories	940 S Harney Street	8734: Testing Labratories	54138: Testing Labratories
32245858	Laucks Testing Laboratories Harney St	921 S Harney Street	8734: Testing Labratories	54138: Testing Labratories
74836763	Le Tracon Enviromental Inc	7343 East Marginal Way S	4212: Local Trucking, without Storage	562991: Septic Tank and Related Services
71277652	Lockwood Marine Inc	6502 East Marginal Way S	9999: Nonclassifiable Establishments	Unknown
95841929	Lumber Trucking	943 S Nebraska Avenue	9999: Nonclassifiable Establishments	Unknown
35945241	MAC Machinery	4239 Corson Avenue S	Unknown	Unknown
95712969	Machinists Inc Plant 1	751 S Michigan Street	3479: Metal Coating and Allied Services	33271: Machine Shops
13593282	Mail Dispatch, Inc.	917 S Nebraska Avenue	Unknown	Unknown

Table C-8
SIC and NAICS Codes for Facilities within the Michigan Street CSO Basin
that are Listed in the Ecology Facility/Site Database and Not Included in Another Source Control Area

Facility/Site ID	Facility Name	Facility Address	SIC Code	NAICS Code
24632415	Mastermark	6550 4th Avenue S	3953: Marking Devices	339943: Marking Device Manufacturing
62364372	McCaw Flight Operations	7777 Perimeter Road S	4522: Air Transportation, Nonscheduled	Unknown
6924961	Mike's Mobil Service	6235 Airport Way S	Unknown	Unknown
97999646	Mill Log Marine Inc Seattle	6345 6th Avenue S	9999: Nonclassifiable Establishments	Unknown
51945779	Miller Paint Company Corson Ave	5959 Corson Avenue S	9999: Nonclassifiable Establishments	444120: Paint and Wallpaper Stores
38243619	Milwaukee Electric Tool Corp Seattle	5419 Maynard Avenue S	3546: Power Driven Handtools	Unknown
46977612	Moore Data Management Services Division	725 S Fidalgo Street	9999: Nonclassifiable Establishments	Unknown
19371183	Nivas Bussiness Corp	6100 6th Avenue S	5044: Office Equipment	Unknown
1565848	Northwest Bottling Co	1136 Albro Place S	9999: Nonclassifiable Establishments	Unknown
96854446	Northwest Nut & Bolt Co	6795 East Marginal Way S	Unknown	Unknown
55473184	Northwest Service, Inc.	6715 Corson Avenue S	Unknown	Unknown
29775533	Orcas Business Park LLC	650 S Orcas Street	6512: Nonresidential Building Operators	53112: Lessors of Unknownresidential Buildings
12545978	Ostex Intl Inc 5955 Airport Way	5955 Airport Way S	2835: Diagnostic Substances	325413: In-Vetro Diagnostic Substances Manufacturing
27585467	PNB Building	707 S Orcas Street	Unknown	Unknown
38171386	PSE Georgetown Base	6500 Ursula Place S	4924: Natural Gas Dristribution	22121: Natural Gas Dristribution
73263954	PTL Partnership	6314 7th Avenue S	Unknown	Unknown
51647545	Puget Sound Energy UST 9864	6349 18th Avenue S	Unknown	Unknown
4581549	Quick Start Northwest Inc	913 S Doris Street	Unknown	Unknown
65141181	Remarkable Tire	7115 East Marginal Way S	Unknown	Unknown
13751941	RS Hughes Co Inc	6530 5th Place S	5085: Industrial Supplies	42184: Industrial Supplies Wholesalers 42384: Industrial Supplies Merchant Wholesale
4522442	SEA A AFSS	6526 Ellis Avenue S	Unknown	Unknown
14811879	Sea Pac Resources Inc	8465 Perimeter Road S	9999: Nonclassifiable Establishments	Unknown
7107057	Seattle City DOT Airport Way Argo Bridge	Airport Way S between Summerville Place	Unknown	92119: Other General Government Support
2309	Seattle Commercial Finishing	5700 Corson Avenue S	3471: Electroplating, plating, polishing	Unknown
72625161	Seattle Fire Station 27	1000 S Myrtle Street	Unknown	Unknown
55416995	Seattle Jet Services	8013 Perimeter Road S	4581: Airports, Flying Fields, and Services	Unknown

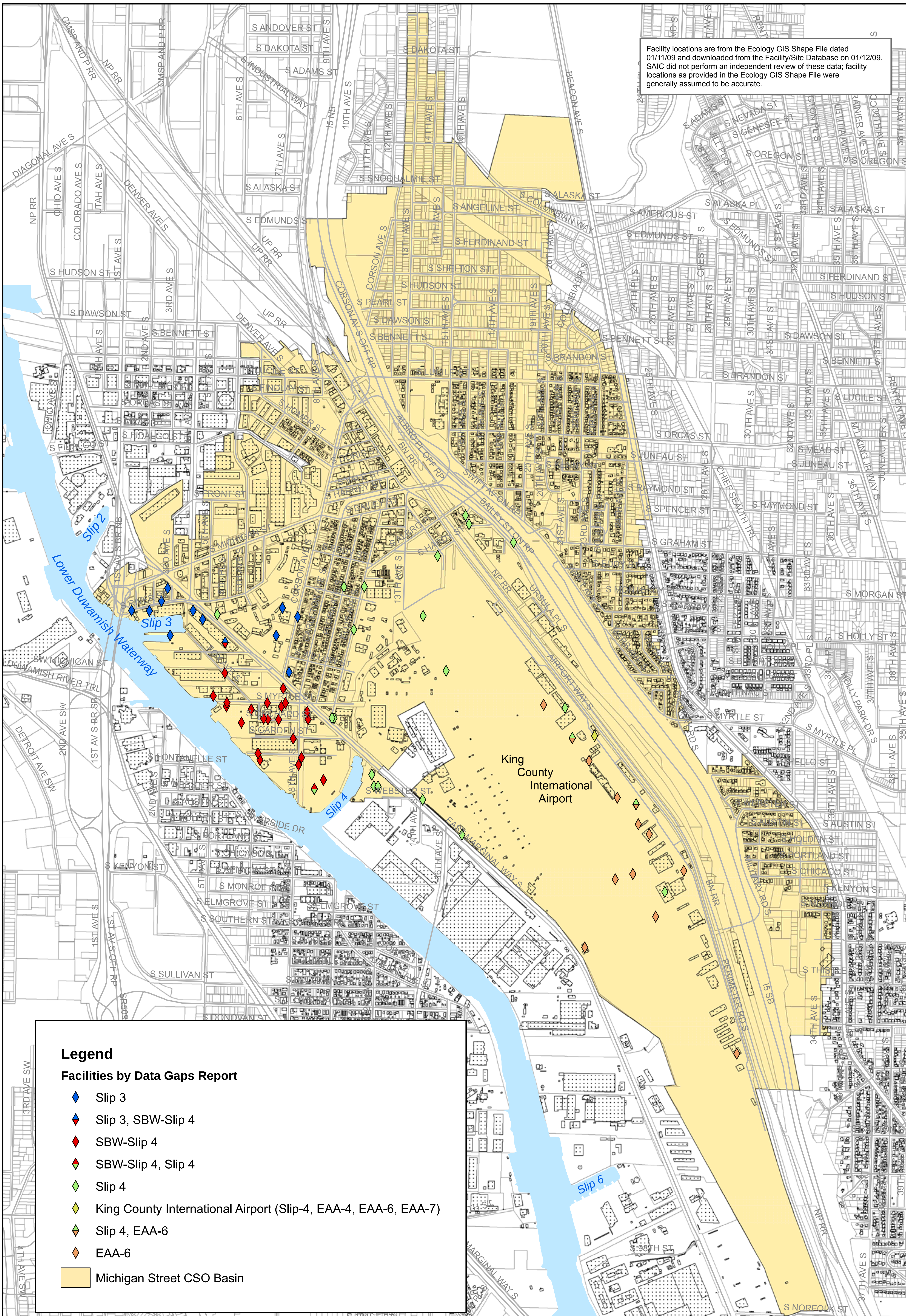
Table C-8
SIC and NAICS Codes for Facilities within the Michigan Street CSO Basin
that are Listed in the Ecology Facility/Site Database and Not Included in Another Source Control Area

Facility/Site ID	Facility Name	Facility Address	SIC Code	NAICS Code
17819358	Seattle School Dist 1 Cleveland HS	5511 15th Avenue S	8211: Elementary and Secondary Schools	61111: Elementary and Secondary Schools
11354986	Shell Station 121450	6200 Corson Avenue S	5541: Gasoline Service Stations	44711: Gasoline Stations with Convenience Stores 44719: Other Gasoline Stations
94368646	Shultz Distributing, Inc., Falcon Fast Fuel	6760 West Marginal Way	5171: Petroleum Bulk Stations and Terminals	Unknown
2563	Sons of Italy Chevron 93189	5337 15th Avenue S	5541: Gasoline Service Stations	Unknown
84173356	Springs Printing Inc Michigan	151 S Michigan Street	2752: Commercial Printing, Lithographic	32311: Printing
41677496	Sudden Printing	571 S Michigan Street	9999: Nonclassifiable Establishments	Unknown
19688471	Texaco 121430	600 S Michigan Street	5541: Gasoline Service Stations	44719: Other Gasoline Stations
33732426	TEXACO INC	7000 Airport Road S	Unknown	Unknown
15318746	THAW Corp	8300 Military Road S	5136: Men's and Boy's Clothing	Unknown
93694734	Tukwila Lucile Intersection Stage 1	MP 158	1622: Bridge, Tunnel, and Elevated Highway	Unknown
4151794	United Bldg Svcs	6259 Airport Way S	9999: Nonclassifiable Establishments	Unknown
59737155	United Couriers, Inc.	7595 Perimeter Road	4215: Courier Services, Except by Air	Unknown
58169621	Universal Metal Fabricators Seattle	6553 5th Avenue S	Unknown	Unknown
62411353	Universal Printing	6600 Ursula Place S	2752: Commercial Printing, Lithographic	32311: Printing
33482323	UPS Seattle Export	500 S Front Street	4215: Courier Services, Except by Air	49221: Local Messengers and Delivery
16264836	US West Communications W00D04	7679 Perimeter Road S	4813: Telephone Communications, Except Radio	Unknown
64775371	USWCOM Seattle Duwamish Co	7000 E Marginal Way S	4813: Telephone Communications, Except Radio	Unknown
9726741	VA PSHCS Seattle Division	1660 S Columbian Way	8062: General Medical & Surgical Hospitals	62211: General Medical & Surgical Hospitals 622110: General Medical & Surgical Hospitals
21468652	Valco Graphics Inc Seattle	674 S Orcas Street	9999: Nonclassifiable Establishments	Unknown
4256186	Vic Markov Tire Company	7300 East Marginal Way S	Unknown	Unknown
82347852	WA DOT Corson	6431 Corson Avenue S	9199: General Government, NEC	48849: Other Support Activities for Road Trucking
73975933	WA DOT Spokane	I5 S MP 160.1	9621: Regulation, Admin. Of Transportation	Unknown

Table C-8
SIC and NAICS Codes for Facilities within the Michigan Street CSO Basin
that are Listed in the Ecology Facility/Site Database and Not Included in Another Source Control Area

Facility/Site ID	Facility Name	Facility Address	SIC Code	NAICS Code
5972170	WA DOT Spokane St Storage 1017XG01	Airport Way and Diagonal Avenue S	Unknown	49311: General Warehousing and Storage 493110: General Warehousing and Storage
11546487	WA DOT State Ferries Airport	6301 Airport Way S	9999: Nonclassifiable Establishments	Unknown
63579524	WA GA Seattle Motor Pool	6650 Ellis Avenue S	7514: Passenger Car Rental	Unknown
39352815	Western Parcel Express Seattle	525 S Front Street	4215: Courier Services Except by Air	49211: Couriers
3895194	Western Trailer Repair Inc	707 S Lucile Street	3715: Truck Trailers	336212: Truck Trailer Manufacturing
33942516	Western Union Tel Co. UST 97407	808 S Fildalgo Street	Unknown	Unknown
18985948	Western Washington Apprent T	6770 East Marginal Way S Bldg D	9999: Nonclassifiable Establishments	Unknown
97262395	Western Wood Products of Seattle, Inc.	6520 5th Avenue S	2499: Wood Products, NEC	Unknown
56533162	Westmar Services Inc	5930 6TH Avenue S	9999: Nonclassifiable Establishments	Unknown
17791926	Zellerbach Paper Company	6301 Airport Way S	Unknown	Unknown

SIC - Standard Industrial Classification
NAICS - North American Industrial Classification System
NEC - Not Elsewhere Classified



N

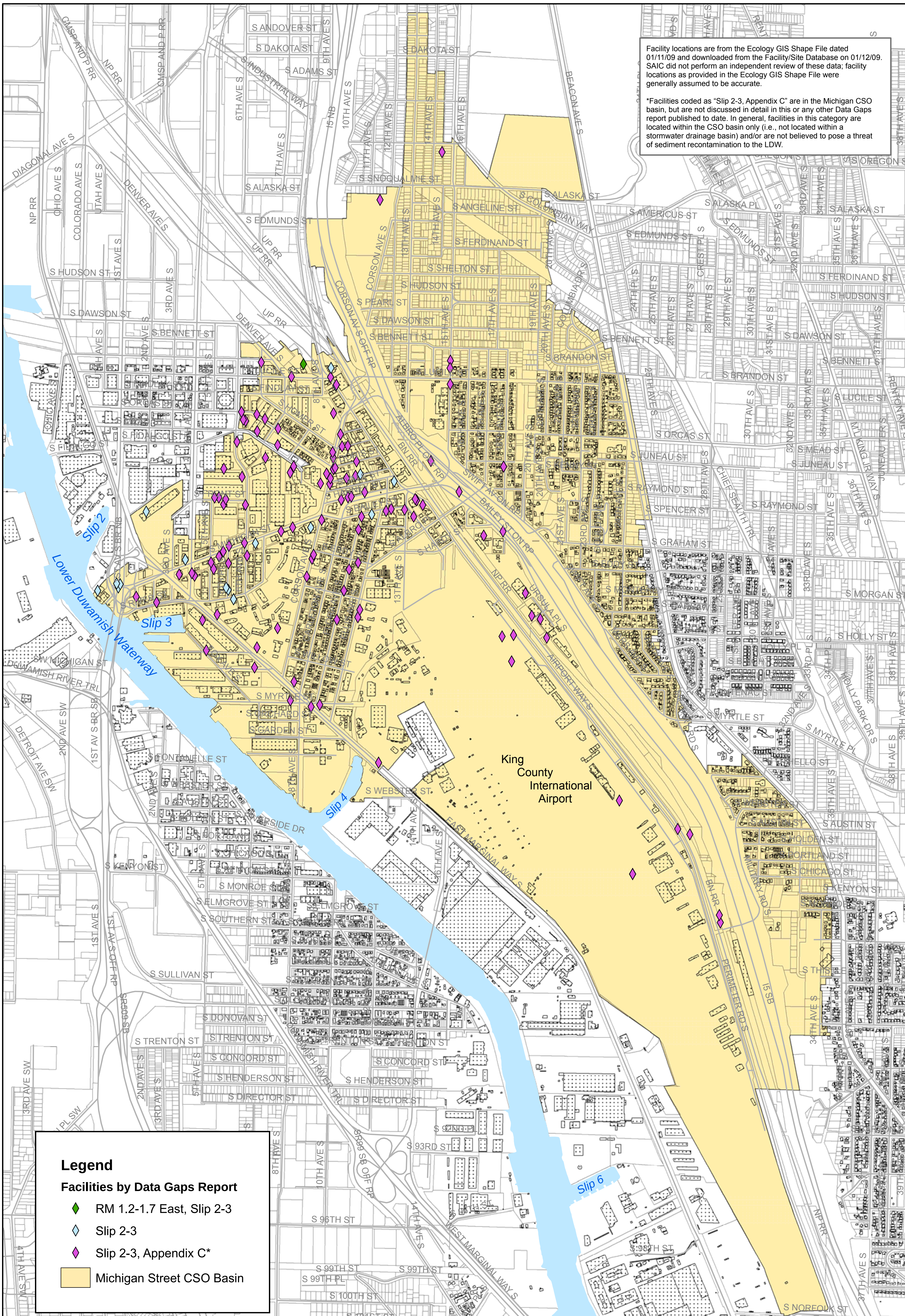
0 500 1,000 2,000 3,000 4,000 Feet

DEPARTMENT OF ECOLOGY State of Washington

Michigan Street CSO Basin Facilities Included in Previously Published Data Gaps Reports

SAIC From Science to Solutions

...\GIS\projects\LDW\Basin_Data_Gaps\Michigan CSO-drainage features-all others.mxd R.Otteman 1/14/09 WA State Plane NAD 83 - feet



Michigan Street CSO Basin Facilities Included in the Slip 2 to Slip 3 Data Gaps Report

0 500 1,000 2,000 3,000 4,000 Feet

DEPARTMENT OF ECOLOGY State of Washington

SAIC From Science to Solutions

...\GIS\projects\LDW\Basin_Data_Gaps\Michigan CSO-drainage features-Slip 2-3.mxd R.Otteman 1/29/09 WA State Plane NAD 83 - feet

Appendix C–3
Relevant Pages from
Philips Services Company Documents

Draft
Site Wide Feasibility Study Report

PSC Georgetown

Seattle, Washington

Prepared for:

Philip Services Corporation
18000 72nd Avenue South
Suite 217
Kent, Washington 98032

September 2005

Project No. 8770

Geomatrix

TABLE 4-1

GROUNDWATER EXCEEDANCES - HCIM AREA

PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance
CG-150-WT	1,1,1-Trichloroethane	11	22.4	16-Nov-04
1-S-1	1,1-Dichloroethane	47	213	16-Nov-04
CG-150-WT	1,1-Dichloroethane	47	197	16-Nov-04
1-S-1	1,2,4-Trimethylbenzene	13	236	16-Nov-04
CG-146-WT	1,2,4-Trimethylbenzene	13	167	16-Nov-04
CG-150-WT	1,2,4-Trimethylbenzene	13	169	16-Nov-04
CG-150-WT	1,2-Dichlorobenzene	13	30.8	16-Nov-04
1-S-1	1,3,5-Trimethylbenzene	9.8	116	16-Nov-04
CG-146-WT	1,3,5-Trimethylbenzene	9.8	27	16-Nov-04
CG-150-WT	1,3,5-Trimethylbenzene	9.8	51.6	16-Nov-04
CG-150-WT	1,4-Dichlorobenzene	2.5	25	16-Nov-04
CG-150-WT	1,4-Dioxane	2.5	207	16-Nov-04
1-S-1	2-Methylphenol	13	32	16-Nov-04
1-S-1	Aroclor 1016	0.005	1.95	16-Nov-04
CG-146-80	Arsenic	1.16	2.48	17-Nov-04
CG-146-WT	Arsenic	1.98	6.76	16-Nov-04
CG-150-WT	Arsenic	1.98	1.73	16-Nov-04
1-S-1	Chloroethane	461	505	16-Nov-04
CG-150-WT	Chloroethane	461	834	16-Nov-04
1-S-1	Chrysene	0.018	0.0312	16-Nov-04
CG-146-80	Chrysene	0.018	0.023	17-Nov-04
1-S-1	cis-1,2-Dichloroethylene	72.7	223	16-Nov-04
CG-150-WT	cis-1,2-Dichloroethylene	72.7	234	16-Nov-04
CG-146-WT	Cyanide	7.08	53	16-Nov-04
CG-146-80	Dibenzo(a,h)anthracene	0.018	0.0239	17-Nov-04
1-S-1	Ethylbenzene	7.3	1670	16-Nov-04
CG-146-WT	Ethylbenzene	7.3	55	16-Nov-04
CG-150-WT	Ethylbenzene	7.3	1190	16-Nov-04
1-S-1	Indeno(1,2,3-cd)pyrene	0.018	0.0217	16-Nov-04
CG-146-80	Indeno(1,2,3-cd)pyrene	0.018	0.0215	17-Nov-04
CG-146-80	Lead	2.5	2.61	17-Nov-04
1-S-1	Xylenes (Total)	141	5900	16-Nov-04
CG-150-WT	Xylenes (Total)	141	1069	16-Nov-04
1-S-1	Naphthalene	12	55	16-Nov-04
CG-146-WT	Naphthalene	12	14.5	16-Nov-04
CG-150-WT	Naphthalene	12	58.4	16-Nov-04
1-S-1	Toluene	9.8	24600	16-Nov-04
CG-150-WT	Toluene	9.8	607	16-Nov-04
CG-146-80	trans-1,2-Dichloroethene	65.3	438	17-Nov-04
1-I	Trichloro-ethene	0.79	1.62	16-Nov-04
1-I	Vinyl chloride	2.04	3.87	16-Nov-04
CG-146-80	Vinyl chloride	2.04	4130	17-Nov-04
CG-150-WT	Vinyl chloride	1.28	106	16-Nov-04

Geomatrix

TABLE 4-2

GROUNDWATER EXCEEDANCES - WATER TABLE
PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
102-S-1	1,1,1-Trichloroethane	11	11.4	19-Aug-04		X			
112-S-1	1,1,1-Trichloroethane	11	26	17-May-05			X		
CG-118-WT	1,1,1-Trichloroethane	11	18	16-May-05		X			
CG-124-WT	1,1,1-Trichloroethane	11	21.3	05-Nov-04			X		
CG-149-WT	1,1,1-Trichloroethane	11	26	17-May-05		X			
112-S-1	1,1-Dichloroethane	47	116	10-Feb-05			X		
CG-118-WT	1,1-Dichloroethane	47	100	16-May-05		X			
CG-124-WT	1,1-Dichloroethane	47	81.1	07-May-04			X		
CG-149-WT	1,1-Dichloroethane	47	47	17-May-05		X			
112-S-1	1,1-Dichloroethene	3.2	3.7	03-Nov-04			X		
CG-131-WT	1,1-Dichloroethene	3.2	3.3	13-May-04				X	
CG-149-WT	1,1-Dichloroethene	3.2	4.31	10-Mar-04		X			
104-S-1	1,2,4-Trimethylbenzene	13	156	10-Feb-05		X			
112-S-1	1,2,4-Trimethylbenzene	13	20	03-Nov-04			X		
113-S-1	1,2,4-Trimethylbenzene	13	19.8	10-Feb-05			X		
CG-115-WT	1,2,4-Trimethylbenzene	13	21	18-May-05		X			
CG-118-WT	1,2,4-Trimethylbenzene	13	330	16-May-05		X			
CG-149-WT	1,2,4-Trimethylbenzene	13	39	17-May-05		X			
CG-153-WT	1,2,4-Trimethylbenzene	13	450	16-May-05		X			
CG-118-WT	1,2-Dichlorobenzene	14	14	16-May-05		X			
CG-153-WT	1,2-Dichlorobenzene	14	26	16-May-05		X			
104-S-1	1,3,5-Trimethylbenzene	9.8	50.1	10-Feb-05		X			
113-S-1	1,3,5-Trimethylbenzene	9.8	17.8	01-Nov-04			X		
CG-115-WT	1,3,5-Trimethylbenzene	9.8	13.9	11-Feb-05		X			
CG-118-WT	1,3,5-Trimethylbenzene	9.8	70	16-May-05		X			
CG-149-WT	1,3,5-Trimethylbenzene	9.8	13	17-May-05		X			
CG-153-WT	1,3,5-Trimethylbenzene	9.8	97.6	01-Feb-05		X			
CG-153-WT	1,3,5-Trimethylbenzene	9.8	190	16-May-05		X			
CG-118-WT	1,4-Dichlorobenzene	2.5	3.2	16-May-05		X			
104-S-1	Arsenic	1.98	11.5	29-Oct-04		X			
112-S-1	Arsenic	1.98	16	03-Nov-04			X		
113-S-1	Arsenic	1.98	12	01-Nov-04			X		
CG-115-WT	Arsenic	1.98	2.14	02-Nov-04		X			
CG-122-WT	Arsenic	1.98	21	04-Nov-04				X	
CG-124-WT	Arsenic	1.98	8.51	05-Nov-04			X		
CG-127-WT	Arsenic	1.98	2.95	05-Nov-04				X	
CG-128-WT	Arsenic	1.98	4.16	09-Nov-04				X	
CG-129-WT	Arsenic	1.98	2.02	08-Nov-04				X	
CG-131-WT	Arsenic	1.98	2.5	09-Nov-04				X	
104-S-1	Benzene	9.6	13.5	10-Feb-05		X			
CG-118-WT	Benzene	9.6	13	16-May-05		X			
CG-122-WT	Benzene	9.6	10.3	10-Feb-05				X	

TABLE 4-2

GROUNDWATER EXCEEDANCES - WATER TABLE
PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
104-S-1	Bis(2-ethylhexyl)phthalate	1.83	4.97	09-Feb-04		X			
CG-106-WT	Bis(2-ethylhexyl)phthalate	1.83	2.06	28-Oct-04	X				
CG-128-WT	Bis(2-ethylhexyl)phthalate	1.83	14	11-Feb-04				X	
CG-129-WT	Bis(2-ethylhexyl)phthalate	1.83	8.93	11-Feb-04				X	
104-S-1	C8-C10 (VPH) Aromatics	120	17000	29-Oct-04		X			
113-S-1	C8-C10 (VPH) Aromatics	120	3000	01-Nov-04			X		
CG-115-WT	C8-C10 (VPH) Aromatics	120	120	18-May-05		X			
104-S-1	Chloroethane	461	666	09-Feb-04		X			
CG-118-WT	Chloroethane	461	1300	16-May-05		X			
101-S-1	Chloroform	4.1	18.2	28-Oct-04	X				
CG-106-WT	Chloroform	4.1	13.1	28-Oct-04	X				
CG-141-WT	Chloroform	4.1	7.08	13-May-04					X
112-S-1	cis-1,2-Dichloroethylene	72.7	117	03-Nov-04			X		
CG-124-WT	cis-1,2-Dichloroethylene	72.7	72.8	12-Feb-04			X		
CG-131-WT	cis-1,2-Dichloroethylene	72.7	73.6	09-Nov-04				X	
CG-136-WT	cis-1,2-Dichloroethylene	72.7	104	04-Feb-05					X
CG-149-WT	cis-1,2-Dichloroethylene	72.7	85.5	11-May-04		X			
CG-127-WT	Copper	3.1	4.05	05-Nov-04				X	
113-S-1	Dibenzo(a,h)anthracene	0.018	0.0667	01-Nov-04			X		
CG-124-WT	Dibenzo(a,h)anthracene	0.018	0.018	05-Nov-04			X		
104-S-1	Ethylbenzene	7.3	3900	10-Feb-05		X			
112-S-1	Ethylbenzene	7.3	26.7	03-Nov-04			X		
113-S-1	Ethylbenzene	7.3	741	10-Feb-05			X		
CG-115-WT	Ethylbenzene	7.3	9.77	20-Aug-04		X			
CG-118-WT	Ethylbenzene	7.3	1600	16-May-05		X			
CG-149-WT	Ethylbenzene	7.3	8	17-May-05		X			
CG-153-WT	Ethylbenzene	7.3	760	16-May-05		X			
113-S-1	Indeno(1,2,3-cd)pyrene	0.018	0.0616	01-Nov-04			X		
104-S-1	Iron	1000	20700	10-Feb-05		X			
CG-124-WT	Iron	1000	5840	09-Feb-05			X		
CG-141-WT	Iron	1000	1850	11-Nov-04					X
104-S-1	Xylenes (Total)	141	1000	10-Feb-05		X			
113-S-1	Xylenes (Total)	141	382	01-Nov-04			X		
CG-115-WT	Xylenes (Total)	141	247	20-Aug-04		X			
CG-118-WT	Xylenes (Total)	141	620	16-May-05		X			
CG-153-WT	Xylenes (Total)	141	4400	16-May-05		X			
CG-142-WT	Manganese	151	876	11-Nov-04					X
CG-143-WT	Manganese	151	346	12-Nov-04					X
104-S-1	Naphthalene	12	27.7	10-Feb-05		X			
112-S-1	Naphthalene	12	13.3	03-Nov-04			X		
113-S-1	Naphthalene	12	13.1	10-Feb-04			X		
CG-115-WT	Naphthalene	12	14.7	04-May-04		X			

TABLE 4-2

GROUNDWATER EXCEEDANCES - WATER TABLE

PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
CG-118-WT	Naphthalene	12	89	16-May-05		X			
CG-149-WT	Naphthalene	12	13	10-Mar-04		X			
CG-153-WT	Naphthalene	12	19	16-May-05		X			
104-S-1	n-Hexane	0.45	2.31	09-Feb-04		X			
104-S-1	n-Propylbenzene	7.3	31.5	10-Feb-05		X			
CG-115-WT	n-Propylbenzene	7.3	12	18-May-05		X			
CG-118-WT	n-Propylbenzene	7.3	32	16-May-05		X			
CG-153-WT	n-Propylbenzene	7.3	190	16-May-05		X			
CG-118-WT	sec-Butylbenzene	4.6	7.4	16-May-05		X			
CG-153-WT	sec-Butylbenzene	4.6	10	16-May-05		X			
103-S-1	Tetrachloroethene	0.2	15.5	05-May-04		X			
104-S-1	Tetrachloroethene	0.2	0.36	09-Feb-04		X			
112-S-1	Tetrachloroethene	0.2	1.1	17-May-05			X		
113-S-1	Tetrachloroethene	0.2	1.5	10-Feb-05			X		
CG-118-WT	Tetrachloroethene	0.2	2.1	16-May-05		X			
CG-124-WT	Tetrachloroethene	0.2	7.7	19-May-05			X		
CG-126-WT	Tetrachloroethene	0.2	1.51	03-Feb-05				X	
CG-127-WT	Tetrachloroethene	0.2	0.383	02-Feb-05				X	
CG-128-WT	Tetrachloroethene	0.2	0.431	03-Feb-05				X	
CG-132-WT	Tetrachloroethene	0.2	0.392	03-Feb-05				X	
CG-136-WT	Tetrachloroethene	0.2	1.61	04-Feb-05					X
CG-138-WT	Tetrachloroethene	0.2	0.282	02-Feb-05					X
CG-149-WT	Tetrachloroethene	0.2	0.92	17-May-05		X			
104-S-1	Toluene	9.8	866	06-May-04		X			
113-S-1	Toluene	9.8	199	04-May-04			X		
CG-118-WT	Toluene	9.8	120	16-May-05		X			
CG-149-WT	Toluene	9.8	10	11-May-04		X			
CG-153-WT	Toluene	9.8	1300	18-Aug-04		X			
103-S-1	Trichloroethene	0.4	17.2	05-May-04		X			
104-S-1	Trichloroethene	0.4	0.568	09-Feb-04		X			
112-S-1	Trichloroethene	0.4	2.8	17-May-05			X		
113-S-1	Trichloroethene	0.4	1.14	10-Feb-05			X		
CG-106-WT	Trichloroethene	0.4	2.37	28-Oct-04	X				
CG-118-WT	Trichloroethene	0.4	1.2	16-May-05		X			
CG-122-WT	Trichloroethene	0.4	0.473	06-May-04				X	
CG-124-WT	Trichloroethene	0.4	17	19-May-05			X		
CG-126-WT	Trichloroethene	0.4	16.4	03-Feb-05				X	
CG-127-WT	Trichloroethene	0.4	11.7	02-Feb-05				X	
CG-128-WT	Trichloroethene	0.4	0.576	03-Feb-05				X	
CG-130-WT	Trichloroethene	0.4	1.2	03-Feb-05				X	
CG-131-WT	Trichloroethene	0.4	44.9	03-Feb-05				X	
CG-132-WT	Trichloroethene	0.4	5.03	03-Feb-05				X	

TABLE 4-2

GROUNDWATER EXCEEDANCES - WATER TABLE
PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
CG-136-WT	Trichloroethene	0.4	28.4	04-Feb-05					X
CG-137-WT	Trichloroethene	0.4	269	01-Feb-05					X
CG-138-WT	Trichloroethene	0.4	0.611	11-Nov-04					X
CG-149-WT	Trichloroethene	0.4	7.3	17-May-05		X			
103-S-1	Vinyl chloride	1.28	3.07	05-May-04		X			
104-S-1	Vinyl chloride	1.28	3.01	10-Feb-05		X			
112-S-1	Vinyl chloride	1.28	1.5	17-May-05			X		
113-S-1	Vinyl chloride	1.28	2.47	10-Feb-05			X		
CG-118-WT	Vinyl chloride	1.28	4.9	16-May-05		X			
CG-122-WT	Vinyl chloride	1.28	1.37	16-Feb-04				X	
CG-124-WT	Vinyl chloride	1.28	9.5	19-May-05			X		
CG-126-WT	Vinyl chloride	1.28	2.48	05-Nov-04				X	
CG-131-WT	Vinyl chloride	1.28	5.76	03-Feb-05				X	
CG-137-WT	Vinyl chloride	1.28	2.02	01-Feb-05					X
CG-149-WT	Vinyl chloride	1.28	36	17-May-05		X			
CG-153-WT	Vinyl chloride	1.28	8.52	11-Mar-04		X			

TABLE 4-3

GROUNDWATER EXCEEDANCES - SHALLOW

PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
CG-119-40	1,1-Dichloroethane	47	62	17-May-05		X			
CG-125-40	1,4-Dioxane	94.9	195	08-Nov-04				X	
CG-127-40	1,4-Dioxane	94.9	414	05-Nov-04				X	
CG-129-40	1,4-Dioxane	94.9	233	08-Nov-04				X	
CG-131-40	1,4-Dioxane	94.9	500	09-Nov-04				X	
CG-134-40	1,4-Dioxane	94.9	249	04-Feb-05				X	
CG-135-40	1,4-Dioxane	94.9	300	06-Feb-04				X	
CG-139-40	1,4-Dioxane	94.9	109	08-Nov-04					X
CG-127-40	Barium	9.75	10.3	05-Nov-04				X	
CG-121-40	Benzene	9.6	28	17-May-05				X	
CG-129-40	Benzene	9.6	23.2	08-Nov-04				X	
104-S-2	Bis(2-ethylhexyl)phthalate	1.83	5.72	09-Feb-04		X			
CG-119-40	Bis(2-ethylhexyl)phthalate	1.83	7.11	10-Feb-04		X			
CG-134-40	Bis(2-ethylhexyl)phthalate	1.83	2.97	10-Nov-04				X	
CG-127-40	Chromium (Hexavalent)	10	13.4	05-Nov-04				X	
CG-129-40	Chromium (Hexavalent)	10	10	08-Nov-04				X	
CG-141-40	Chromium (Hexavalent)	10	17.1	11-Nov-04					X
CG-132-40	Chrysene	0.018	0.0338	08-Nov-04				X	
103-S-2	Dibenzo(a,h)anthracene	0.018	0.0255	01-Nov-04		X			
CG-132-40	Dibenzo(a,h)anthracene	0.018	0.0272	08-Nov-04				X	
CG-138-40	Dibenzo(a,h)anthracene	0.018	0.0291	02-Feb-05					X
103-S-2	Indeno(1,2,3-cd)pyrene	0.018	0.0238	01-Nov-04		X			
CG-132-40	Indeno(1,2,3-cd)pyrene	0.018	0.0254	08-Nov-04				X	
CG-138-40	Indeno(1,2,3-cd)pyrene	0.018	0.0218	02-Feb-05					X
104-S-2	Iron	1000	16600	10-Feb-05		X			
CG-124-40	Iron	1000	4380	09-Feb-05			X		
CG-127-40	Iron	1000	19000	02-Feb-05				X	
CG-134-40	Iron	1000	24200	04-Feb-05				X	
CG-135-40	Iron	1000	37900	06-Feb-04				X	
CG-141-40	Iron	1000	16400	04-Feb-05					X
CG-143-40	Iron	1000	4700	02-Feb-05					X
CG-144-35	Iron	1000	7970	09-Feb-05					X

TABLE 4-3

Geomatrix

GROUNDWATER EXCEEDANCES - SHALLOW

PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
CG-140-30	Manganese	151	397	12-Nov-04					X
CG-141-40	Manganese	151	782	11-Nov-04					X
CG-142-40	Manganese	151	503	11-Nov-04					X
CG-143-40	Manganese	151	526	12-Nov-04					X
CG-145-35	Manganese	151	206	12-Nov-04					X
CG-151-25	Manganese	151	275	18-Nov-04					X
CG-137-40	Naphthalene	12	15.1	12-May-04					X
103-S-2	Trichloroethene	0.4	1.72	14-Feb-05		X			
CG-119-40	Trichloroethene	0.4	0.407	10-Feb-04		X			
CG-124-40	Trichloroethene	0.4	1.2	19-May-05			X		
CG-137-40	Trichloroethene	0.4	0.55	12-May-04					X
102-S-2	Vinyl chloride	1.28	15	19-May-05		X			
103-S-2	Vinyl chloride	1.28	9.95	14-Feb-05		X			
CG-119-40	Vinyl chloride	1.28	3.8	17-May-05		X			
CG-124-40	Vinyl chloride	1.28	5.77	12-Feb-04			X		
CG-124-40	Vinyl chloride	1.28	3.4	19-May-05			X		
CG-125-40	Vinyl chloride	1.28	5.61	08-Nov-04				X	
CG-127-40	Vinyl chloride	1.28	13.2	02-Feb-05				X	
CG-129-40	Vinyl chloride	1.28	2	08-Nov-04				X	
CG-131-40	Vinyl chloride	1.28	10.2	03-Feb-05				X	
CG-132-40	Vinyl chloride	1.28	3.44	08-Nov-04				X	
CG-133-40	Vinyl chloride	1.28	51.8	09-Feb-05				X	
CG-134-40	Vinyl chloride	1.28	18.1	04-Feb-05				X	
CG-135-40	Vinyl chloride	1.28	4.88	12-May-04				X	
CG-136-40	Vinyl chloride	1.28	38.7	04-Feb-05					X
CG-137-40	Vinyl chloride	1.28	68.2	01-Feb-05					X
CG-139-40	Vinyl chloride	1.28	1.83	08-Nov-04					X
CG-140-30	Vinyl chloride	1.28	76.9	09-Feb-05					X
CG-140-40	Vinyl chloride	1.28	2.32	14-May-04					X
CG-141-40	Vinyl chloride	1.28	362	04-Feb-05					X
CG-144-35	Vinyl chloride	1.28	2.92	12-Nov-04					X
CG-151-25	Vinyl chloride	1.28	49.4	18-Nov-04					X

TABLE 4-4

GROUNDWATER EXCEEDANCES - INTERMEDIATE

PSC Georgetown
Seattle, Washington

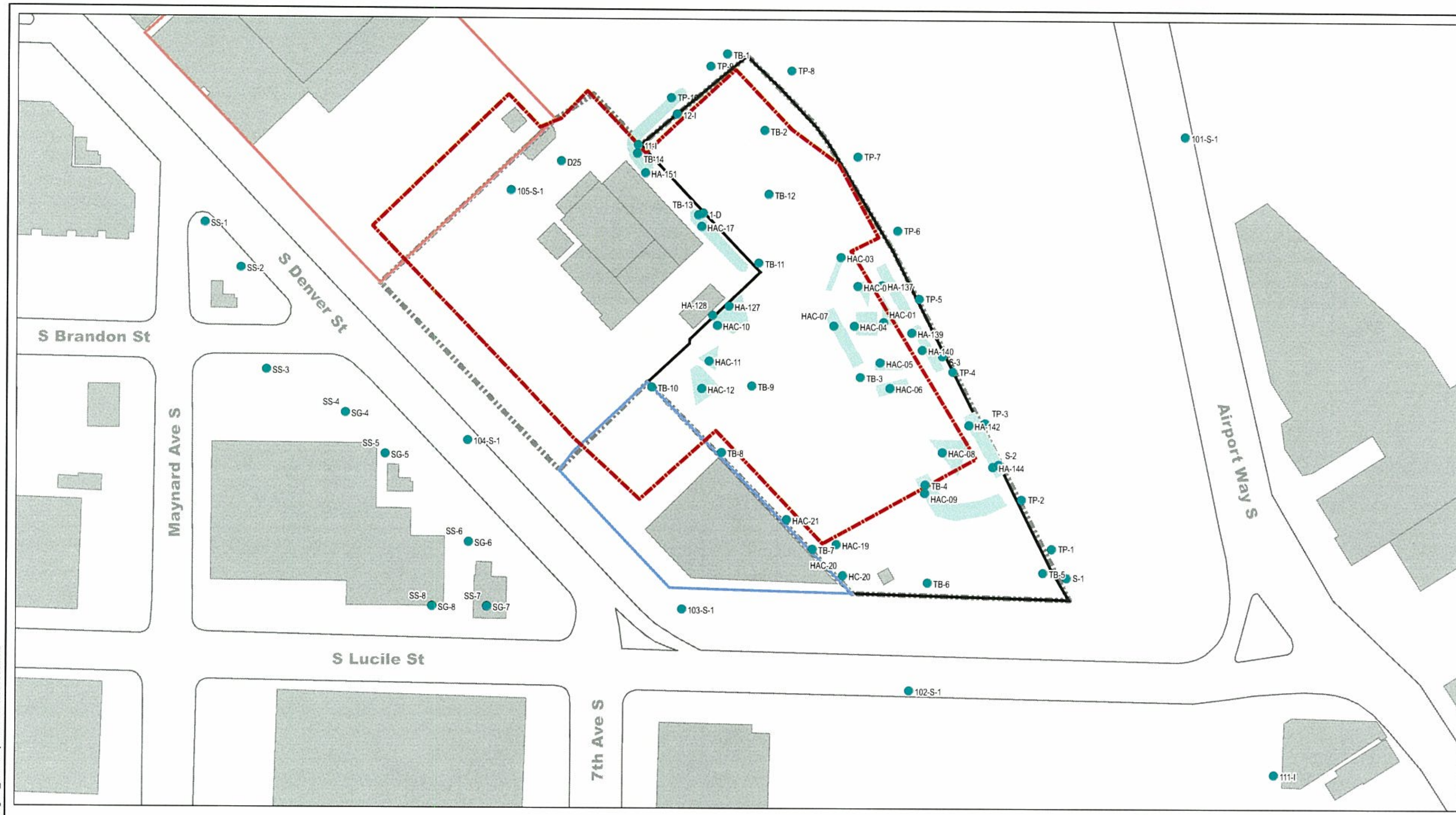
Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
104-I	1,1-Dichloroethane	47	51.6	11-Feb-05		X			
CG-122-60	1,4-Dioxane	94.9	355	04-Nov-04				X	
CG-124-70	1,4-Dioxane	94.9	127	05-Nov-04			X		
CG-128-70	1,4-Dioxane	94.9	158	11-Feb-04				X	
CG-135-50	1,4-Dioxane	94.9	530	02-Feb-05				X	
CG-138-70	1,4-Dioxane	94.9	107	02-Feb-05					X
CG-121-93	Arsenic	1.16	1.38	04-Nov-04				X	
CG-124-70	Arsenic	1.16	1.19	05-Nov-04			X		
104-I	Bis(2-ethylhexyl)phthalate	1.83	9.51	09-Feb-04		X			
CG-120-75	Bis(2-ethylhexyl)phthalate	1.83	5.96	10-Feb-04			X		
CG-123-90	Bis(2-ethylhexyl)phthalate	1.83	5.57	04-Nov-04				X	
CG-120-75	Chrysene	0.018	0.0451	10-Feb-04			X		
CG-115-75	Cyanide	9.76	34	11-Feb-05		X			
CG-121-70	Cyanide	9.76	28	14-Feb-05				X	
103-I	Dibenzo(a,h)anthracene	0.018	0.0425	01-Nov-04		X			
CG-115-75	Dibenzo(a,h)anthracene	0.018	0.0317	02-Nov-04		X			
CG-118-79	Ethylbenzene	7.3	36.4	09-Mar-04		X			
103-I	Indeno(1,2,3-cd)pyrene	0.018	0.0431	01-Nov-04		X			
CG-115-75	Indeno(1,2,3-cd)pyrene	0.018	0.0343	02-Nov-04		X			
CG-120-75	Indeno(1,2,3-cd)pyrene	0.018	0.0239	10-Feb-04			X		
CG-124-70	Iron	6667	8180	09-Feb-05			X		
102-I	Vinyl chloride	2.04	6.4	18-May-05		X			
103-I	Vinyl chloride	2.04	2.9	14-Feb-05		X			
104-I	Vinyl chloride	2.04	1000	11-Feb-05		X			
CG-115-75	Vinyl chloride	2.04	3.98	11-Feb-05		X			
CG-116-80	Vinyl chloride	2.04	840	16-May-05		X			
CG-118-79	Vinyl chloride	2.04	80.2	09-Mar-04		X			
CG-135-50	Vinyl chloride	2.04	7	02-Feb-05					X
CG-138-70	Vinyl chloride	2.04	16.9	02-Feb-05					X
CG-141-50	Vinyl chloride	2.04	18.6	13-May-04					X

TABLE 4-5

GROUNDWATER EXCEEDANCES - DEEP

PSC Georgetown
Seattle, Washington

Sample Location	Constituent	Cleanup Level (mg/L)	Concentration of Most Recent Exceedance (mg/L)	Date of Most Recent Exceedance	Upgradient	HCIM to Denver Avenue	West Side of Denver Avenue	Between Denver Avenue and 4th Avenue	Downgradient of 4th Avenue
102-D	Arsenic	15.6	16.4	01-Nov-04		X			
1-D	Arsenic	15.6	19	18-Nov-04		X			
102-D	Barium	24.5	97.4	01-Nov-04		X			
104-D	Barium	24.5	52.2	29-Oct-04		X			
104-D	Bis(2-ethylhexyl)phthalate	1.83	20.6	10-Feb-05		X			
CG-116-	Carbon disulfide	0.92	5.7	16-May-05		X			
102-D	Chromium	15.8	28.6	01-Nov-04		X			
104-D	Iron	1000	6730	10-Feb-05		X			
CG-106-D	Iron	1000	1340	16-Feb-05	X				



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EXPLANATION

- Historical Soil Sample Location < 15'
- Composite Soil Sample
- HCIM Area
- Facility
- PSC Property
- Stone-Drew / Ashe & Jones, Inc. (SAD) Property
- Aronson Property
- Building

HISTORICAL SOIL SAMPLE LOCATIONS
PSC Georgetown
Seattle, Washington

GEOMATRIX

Project No.	Figure
8770	4-1

Appendix C–4
Relevant Pages from
Kelly Moore Documents

LUST 5203 Preservative Paint Co
UST 1945
Seattle

SECOR
International Incorporated

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
FORMER PRESERVATIVE PAINTS
OFFICE BUILDING PARCEL
5502 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON

SECOR Project No. 00386-001-01

Submitted by
SECOR International Incorporated

For
Preservative Paints
5400 Airport Way South
Seattle, Washington 98108

August 29, 1997

Prepared by:

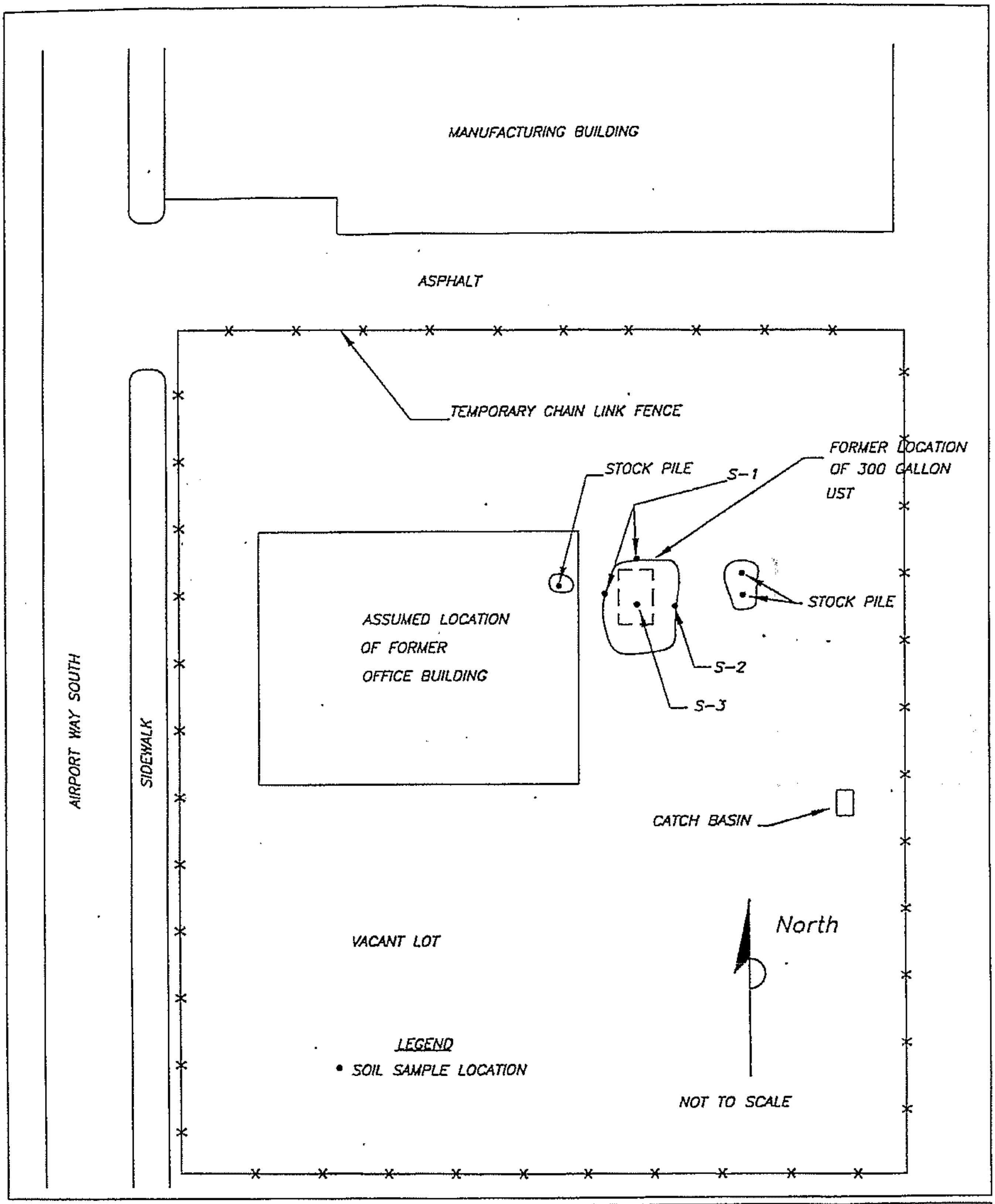
Mark R. Molzer
Environmental Specialist

Reviewed by:

Peter Jewett
Principal Project Manager

ENTERED 12/18/01

15400 SE [illegible] Place, Suite [illegible], Bellevue, WA [illegible] 425 [illegible] FAX www.secor.com



SECOR
International Incorporated

SOIL SAMPLE LOCATIONS
TANK DECOMMISSIONING
PRESERVATIVE PAINTS
5502 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON

FIGURE: 3

JOB#: 00386-001-02 APPR: DWN: SES DATE: 08/14/97

DWG: PPC0102A

TABLE 1
LABORATORY ANALYTICAL RESULTS
PRESERVATIVE PAINT CO.
5510 Airport Way South
Seattle, Washington

Date	Sample ID	Sample Location	Diesel Range Hydrocarbons[1] (mg/kg)	Heavy Oil Range Hydrocarbons[2] (mg/kg)
8/4/97	S-1	North and West Sidewalls 4.5' bgs[3]	<10.0[4]	<25.0
8/4/97	S-2	East Sidewall 4.5' bgs	<10.0	<25.0
8/4/97	S-3	Bottom of Excavation 5.5' bgs	14.2	59.3
8/4/97	Stockpile	Excavated Soil	<20.0	121

Notes:

[1] Diesel Range Hydrocarbons (C12-C24) are by WTPH-d (extended).

[2] Heavy Oil Range Hydrocarbons (C24-C40) are by WTPH-d (extended).

[3] bgs means below ground surface.

[4] Concentrations below the method reporting limit are indicated as less than the reporting limit.

Appendix C–5
Relevant Pages from
Former Unocal Service Station No. 0907
Documents

Supplemental Soil Investigation Summary Report

Former Unocal Service Station No. 0907
1121 South Bailey Street
Seattle, Washington

Prepared for:

Union Oil Company of California
276 Tank Farm Road
San Luis Obispo, California

Prepared by:

ENSR Corporation
9521 Willows Road
Redmond, Washington

ENSR INTERNATIONAL

December 2005
Project Number 06940-272

TABLE 1

SUMMARY OF SOIL CHEMICAL ANALYTICAL DATA
PETROLEUM HYDROCARBONS
FORMER UNOCAL SERVICE STATION #0907
1121 SOUTH BAILEY STREET
SEATTLE, WASHINGTON
06940-272

Sample Name	Sample Date	Sample Depth (feet bgs)	BETX[1] (mg/kg)				Gasoline-Range Hydrocarbons[2] (mg/kg)	Diesel-Range Hydrocarbons[3] (mg/kg)	Heavy Oil-Range Hydrocarbons[3] (mg/kg)	Kerosene-Range Hydrocarbons[3] (mg/kg)
			Benzene	Ethylbenzne	Toluene	Total Xylenes				
MTCA Method A Soil Cleanup			0.03	6.0	7.0	9.0	30	2,000	2,000	2,000
SB-1-3	04/09/05	3.0	ND (<0.00150)	ND (<0.115)	ND (<0.115)	ND (<0.230)	ND (<11.5)	16.5	76.0	ND (<10.0)
SB-2-3	04/09/05	3.0	ND (<0.00105)	ND	ND (<0.0697)	ND (<0.139)	8.11	53.5	29.3	277
SB-2-9	04/09/05	9.0	0.0556	0.209	0.0868	0.762	87.6	ND (<10.0)	ND (<25.0)	ND (<10.0)
SB-3-3	04/09/05	3.0	2.66	1.86	1.09	4.80	396	85.0	117	87.5
SB-3-9	04/09/05	9.0	0.00453	ND	ND (<0.0795)	ND (<0.159)	ND (<7.95)	13.7	103	ND (<10.0)
SB-4-3	04/09/05	3.0	5.52	1.51	4.00	5.04	74.3	20.5	95.6	15.7
SB-4-10	04/09/05	10.0	0.0230	ND	ND (<0.0734)	ND (<0.147)	ND (<7.34)	25.0	160	ND (<10.0)
SB-5-3	04/09/05	3.0	0.0834	0.262	0.150	1.25	41.8	19.0	60.2	20.6
SB-5-9	04/09/05	9.0	ND (<0.00104)	ND	ND (<0.0726)	ND (<0.145)	ND (<7.26)	ND (<10.0)	ND (<25.0)	ND (<10.0)
SB-6-3	04/09/05	3.0	0.0507	0.216	0.168	0.836	49.9	39.9	104	104
SB-6-11	04/09/05	11.0	ND (<0.60)	6.23	ND (<1.00)	11.2	4,880	66.6	ND (<25.0)	289
SB-7-3	04/09/05	3.0	0.0899	0.266	ND (<0.0965)	0.988	63.8	157	584	32.1
SB-7-6	04/09/05	6.0	ND (<0.00136)	0.135	ND (<0.00136)	0.343	110	244	1120	69.7
SB-8-3	04/09/05	3.0	0.00232	ND	ND (<0.0627)	0.249	7.14	24.3	66.1	90.8
SB-8-4	04/09/05	4.0	ND (<0.00150)	ND	ND (<0.0672)	ND (<0.134)	ND (<6.72)	ND (<10.0)	ND (<25.0)	ND (<10.0)
SB-9-10	04/09/05	10.0	ND (<0.00134)	ND	ND (<0.0645)	0.174	16.7	ND (<10.0)	ND (<25.0)	ND (<10.0)
SB-10-3.5	04/09/05	3.5	ND	ND	ND (<0.0637)	0.128	ND (<6.37)	ND (<10.0)	ND (<25.0)	ND (<10.0)
SB-10-9	04/09/05	9.0	ND (<0.00127)	0.107	ND (<0.0500)	0.359	14.0	21.7	119	ND (<10.0)
SB-11-2.5	04/09/05	2.5	40.6	33.1	29.7	73.6	1,560	78.4	548	110
SB-11-8.5	04/09/05	8.5	13.6	11.8	9.61	33.9	520	ND (<10.0)	ND (<25.0)	ND (<10.0)
SB-12-8.5	04/09/05	8.5	2.37	2.32	0.982	10.2	209	ND (<10.0)	30.7	ND (<10.0)

Notes:

[1]B = Benzene, E = Ethylbenzene, T = Toluene, X = Total Xylenes. Analyzed by EPA Method 8021B.

[2]Gasoline-range hydrocarbons analyzed by Washington Method WTPH-G or Northwest Method NWTPH-Gx.

[3]Diesel-range, heavy oil-range, and kerosene-range hydrocarbons analyzed by Washington Method WTPH-D extended or NWTPH-Dx with acid/silica gel cleanup.

ND = Not detected at or exceeding laboratory reporting limit.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act (2001 Version).

Shading indicates concentration exceeds MTCA Method A soil cleanup level.

Chemical analyses were completed by North Creek Analytical of Bothell, Washington.

TABLE 2

SUMMARY OF SOIL CHEMICAL ANALYTICAL DATA
POLYNUCLEAR AROMATIC HYDROCARBONS

FORMER UNOCAL SERVICE STATION #0907
1121 SOUTH BAILEY ST
SEATTLE, WASHINGTON
06940-272

Sample Name	Sample Date	Sample Depth (feet bgs)	1-Methylnapthalene (mg/kg)	2-Methylnapthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) fluoranthene (mg/kg)	Benzo (ghi) perylene (mg/kg)	Benzo (k) fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenz (a,h) anthracene (mg/kg)	Fluoranthene (mg/kg)	Flourene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Napthalenes (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
MTCA Method A Soil Cleanup			NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	5	NSA	NSA
SB-6-3	4/9/2005	3.0	ND (<0.100))	ND (<0.100)	ND (<0.100)	ND (<0.100)	0.348	2.13	2.40	1.63	1.24	1.70	2.62	0.534	3.16	ND (<0.100)	1.06	0.119	0.670	4.37
SB-7-6	4/9/2005	6.0	0.148	0.258	ND (<0.0100)	ND (<0.0100)	0.0104	0.0586	0.104	0.110	0.0498	0.0594	0.0900	ND (<0.0100)	0.0900	ND (<0.0100)	0.0402	0.214	0.0313	0.143
SB-11-2.5	4/9/2005	2.5	0.117	0.142	ND (<0.0100)	ND (<0.0100)	0.0130	0.0130	0.0369	0.0150	ND (<0.0100)	ND (<0.0100)	0.0329	ND (<0.0100)	0.0240	ND (<0.0100)	ND (<0.0100)	0.2940	0.0768	0.0429

Notes:

Polynuclear Aromatic Hydrocarbons by EPA Method 8270-SIM.
mg/kg = milligram per kilogram.
ND = Not detected at or exceeding the laboratory reporting limit.
MTCA = Model Toxics Control Act (2001 Version)
NSA = No cleanup standard available.
Chemical analyses were completed by North Creek Analytical of Bothell, Washington.

TABLE 3

SUMMARY OF ANALYTICAL DATA
VOLATILE ORGANIC COMPOUNDS[1]

FORMER SERVICE STATION #0907
1121 SOUTH BAILEY STREET
SEATTLE, WASHINGTON
06940-272

Soil Sample	Date Sampled	Depth Sampled	1,2-Dichloroethane (mg/kg)	Methylene Chloride (mg/kg)	Naphthalene (mg/kg)	n-Propyl-benzene (mg/kg)	1,2,4-Trimethyl-benzene (mg/kg)	1,3,5-Trimethyl-benzene (mg/kg)
MTCA Method A Soil Cleanup Level			**NSA**	**0.02**	**5.0**	**NSA**	**NSA**	**NSA**
SB-6-3	04/09/05	3	0.00173	0.00876	ND (<0.00438)	0.00446	0.0172	0.00720
SB-7-6	04/09/05	6	ND (<0.00114)	0.00689	ND (<0.00455)	ND (<0.00455)	ND (<0.00455)	ND (<0.00455)
SB-11-2.5	04/09/05	2.5	1.21	ND (<1.79)	0.599	16.3	47.4	11.8

Notes:

[1]Volatile Organic Compounds by EPA Method 8260B (Low Soil Method). Only those compounds detected are listed. See laboratory report for a full list of analytes and specific method reporting limits.

Chemical analyses were conducted by North Creek Analytical of Bothell, Washington.

mg/kg = milligram per kilogram.

ND = Not detected at or exceeding laboratory reporting limit.

MTCA = Model Toxics Control Act (2001 Version).

NSA = No cleanup standard available.

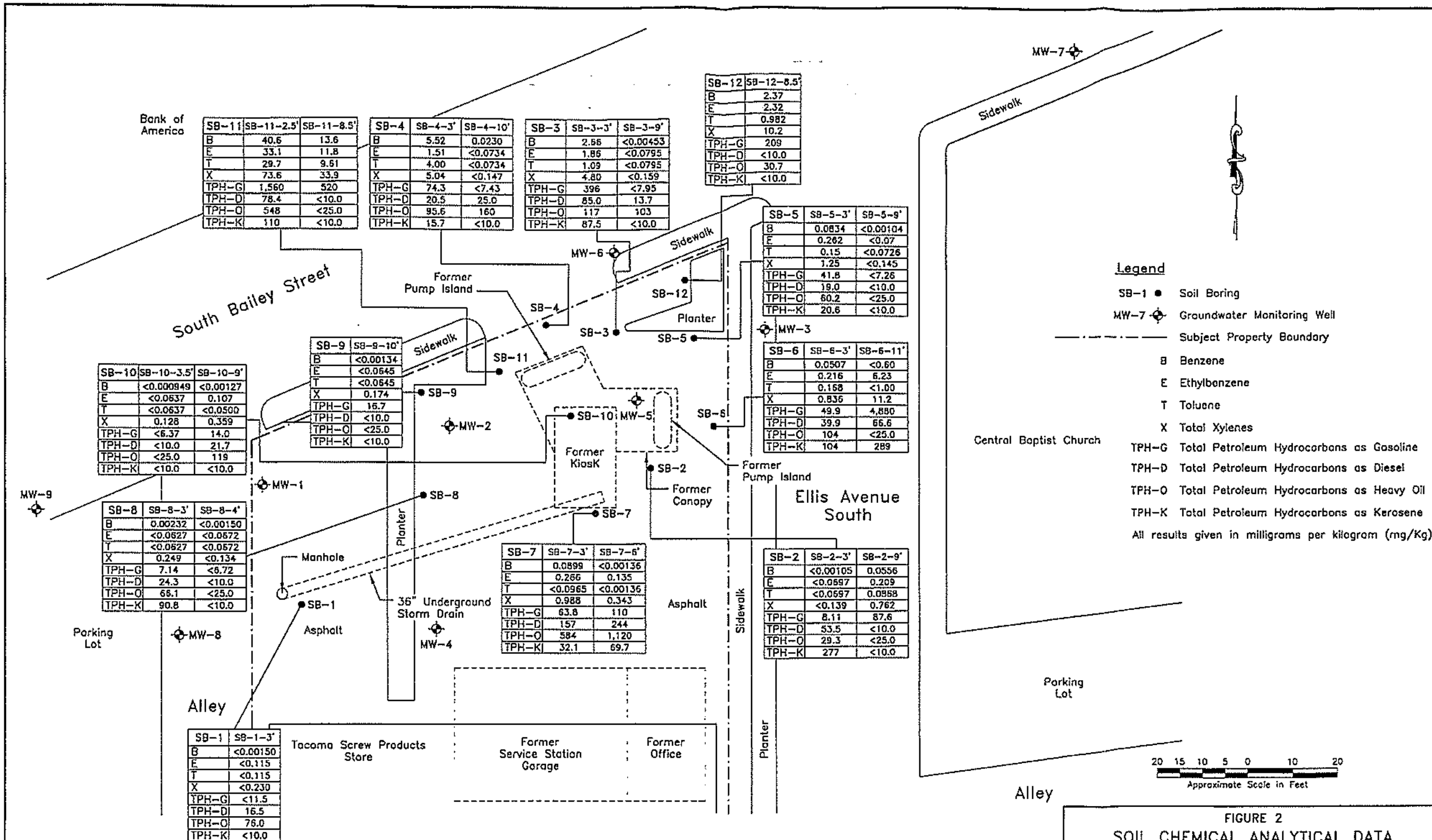
TABLE 4

SUMMARY OF ANALYTICAL DATA
VOLATILE PETROLEUM HYDROCARBONS AND EXTRACTABLE PETROLEUM HYDROCARBONS
FORMER UNOCAL SERVICE STATION #0907
1121 SOUTH BAILEY STREET
SEATTLE, WASHINGTON
06940-272

Soil Sample	Date Sampled	Depth Sampled	Volatile Petroleum Hydrocarbons[1] (mg/kg)								Extractable Petroleum Hydrocarbons[1] (mg/kg)						
			C5-C6 Aliphatics	C6-C8 Aliphatics	C8-C10 Aliphatics	C10-C12 Aliphatics	C8-C10 Aromatics	C10-C12 Aromatics	C12-C13 Aromatics	Total VPF	C12-C16 Aliphatics	C16-C21 Aliphatics	C21-C34 Aliphatics	C12-C16 Aromatics	C16-C21 Aromatics	C21-C34 Aromatics	Total EPH
MTCA Method A Soil Cleanup Level			NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA	NSA
SB-6-3	04/09/05	3	ND (<7.31)	ND (<7.31)	ND (<7.31)	10.4	ND (<7.31)	10.3	ND (<7.31)	ND (<51.2)	8.6	ND (<5.00)	7.67	5.88	19	57.7	98.9
SB-7-6	04/09/05	6	ND (<7.16)	ND (<7.16)	ND (<7.16)	34.5	ND (<7.16)	34.8	21.9	91.2	ND (<20.0)	52.5	509	ND (<20.0)	ND (<20.0)	137	698
SB-11-2.5	04/09/05	2.5	ND (<89.3)	140	113	202	195	210	ND (<89.3)	860	ND (<10.0)	ND (<10.0)	62.4	ND (<10.0)	ND (<10.0)	55.1	118

Notes:

[1]Volatile Petroleum Hydrocarbons/Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method.
mg/kg = milligram per kilogram.
ND = Not detected at or exceeding laboratory reporting limit.
MTCA = Model Toxics Control Act (2001 Version).
NSA = No cleanup standard available.
Chemical analyses were conducted by North Creek Analytical of Bothell, Washington.



SB-11	SB-11-2.5'	SB-11-8.5'
B	40.6	13.6
E	33.1	11.8
T	29.7	9.61
X	73.6	33.9
TPH-G	1,560	520
TPH-D	78.4	<10.0
TPH-O	548	<25.0
TPH-K	110	<10.0

SB-4	SB-4-3'	SB-4-10'
B	5.52	0.0230
E	1.51	<0.0734
T	4.00	<0.0734
X	5.04	<0.147
TPH-G	74.3	<7.43
TPH-D	20.5	25.0
TPH-O	95.6	160
TPH-K	15.7	<10.0

SB-3	SB-3-3'	SB-3-9'
B	2.66	<0.00453
E	1.86	<0.0795
T	1.09	<0.0795
X	4.80	<0.159
TPH-G	396	<7.95
TPH-D	85.0	13.7
TPH-O	117	103
TPH-K	87.5	<10.0

SB-12	SB-12-8.5'
B	2.37
E	2.32
T	0.982
X	10.2
TPH-G	209
TPH-D	<10.0
TPH-O	30.7
TPH-K	<10.0

SB-5	SB-5-3'	SB-5-9'
B	0.0834	<0.00104
E	0.262	<0.07
T	0.15	<0.0726
X	1.25	<0.145
TPH-G	41.8	<7.26
TPH-D	19.0	<10.0
TPH-O	60.2	<25.0
TPH-K	20.6	<10.0

SB-6	SB-6-3'	SB-6-11'
B	0.0507	<0.60
E	0.216	6.23
T	0.158	<1.00
X	0.836	11.2
TPH-G	49.9	4,880
TPH-D	39.9	66.6
TPH-O	104	<25.0
TPH-K	104	289

SB-9	SB-9-10'
B	<0.00134
E	<0.0645
T	<0.0645
X	0.174
TPH-G	16.7
TPH-D	<10.0
TPH-O	<25.0
TPH-K	<10.0

SB-10	SB-10-3.5'	SB-10-9'
B	<0.000949	<0.00127
E	<0.0637	0.107
T	<0.0637	<0.0500
X	0.128	0.359
TPH-G	<6.37	14.0
TPH-D	<10.0	21.7
TPH-O	<25.0	119
TPH-K	<10.0	<10.0

SB-8	SB-8-3'	SB-8-4'
B	0.00232	<0.00150
E	<0.0627	<0.0672
T	<0.0627	<0.0672
X	0.249	<0.134
TPH-G	7.14	<6.72
TPH-D	24.3	<10.0
TPH-O	66.1	<25.0
TPH-K	90.8	<10.0

SB-7	SB-7-3'	SB-7-6'
B	0.0899	<0.00136
E	0.266	0.135
T	<0.0965	<0.00136
X	0.988	0.343
TPH-G	63.8	110
TPH-D	157	244
TPH-O	584	1,120
TPH-K	32.1	69.7

SB-2	SB-2-3'	SB-2-9'
B	<0.00105	0.0556
E	<0.0697	0.209
T	<0.0697	0.0868
X	<0.139	0.762
TPH-G	8.11	87.6
TPH-D	53.5	<10.0
TPH-O	29.3	<25.0
TPH-K	277	<10.0

SB-1	SB-1-3'
B	<0.00150
E	<0.115
T	<0.115
X	<0.230
TPH-G	<11.5
TPH-D	16.5
TPH-O	76.0
TPH-K	<10.0

Legend

- SB-1 ● Soil Boring
- MW-7 ⌖ Groundwater Monitoring Well
- — · — · — Subject Property Boundary
- B Benzene
- E Ethylbenzene
- T Toluene
- X Total Xylenes
- TPH-G Total Petroleum Hydrocarbons as Gasoline
- TPH-D Total Petroleum Hydrocarbons as Diesel
- TPH-O Total Petroleum Hydrocarbons as Heavy Oil
- TPH-K Total Petroleum Hydrocarbons as Kerosene

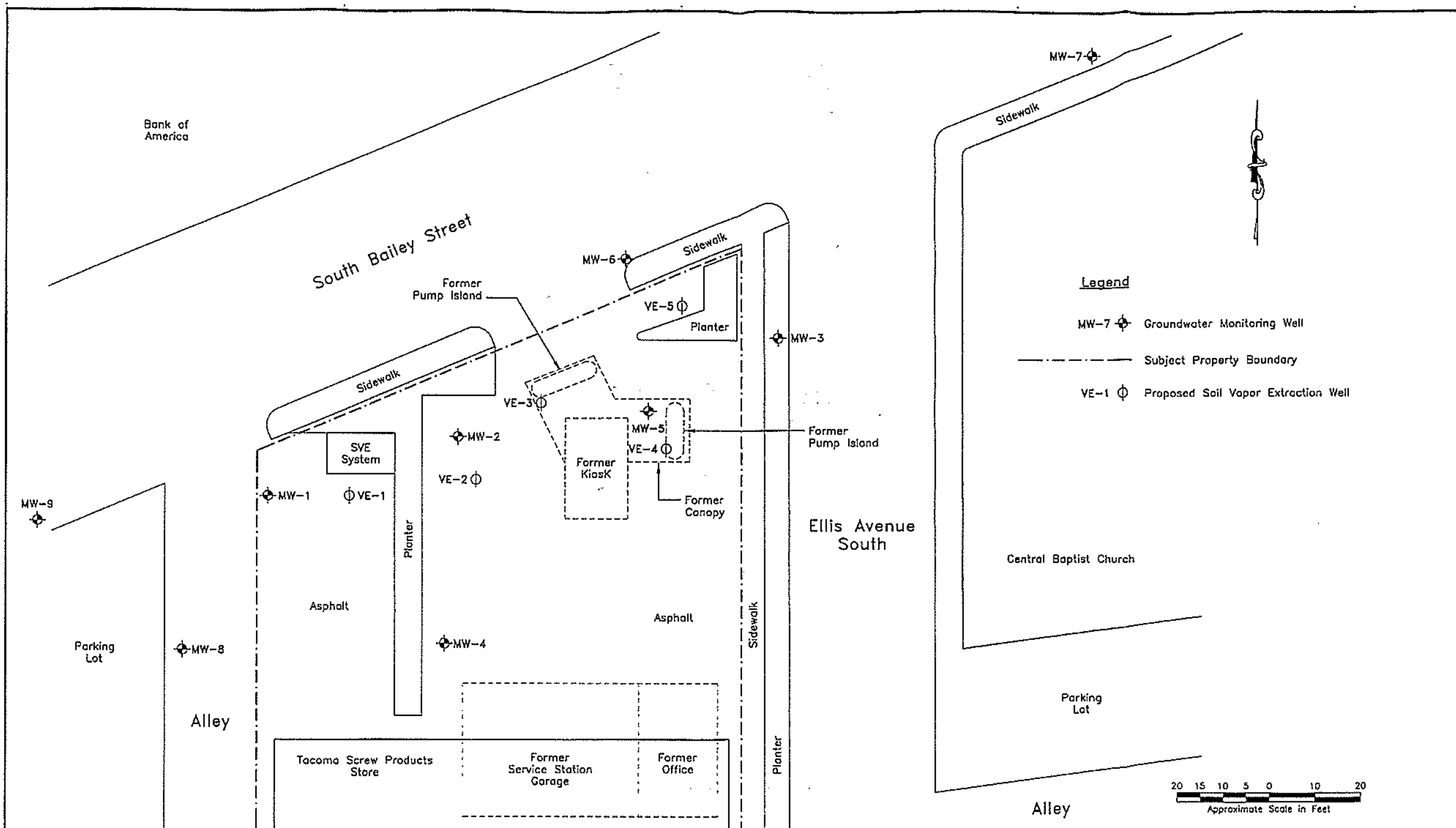
All results given in milligrams per kilogram (mg/Kg)

Source: Maul, Foster, and Alongi
Autocad File: 003-02.dwg 03/27/03

SCALE: 1" = 20' @11x17	DESIGN: S. Zorn	CHECKED: A. Fekete	ENSR PROJECT NO:
FILENAME: 0694027213N	DRAWN: K. Mangar	DATE: July 27, 2005	05940-272-230

ENSR INTERNATIONAL

FIGURE 2
SOIL CHEMICAL ANALYTICAL DATA
APRIL 9, 2005
Former Unocal Service Station No. 0907
1121 South Bailey Street
Seattle, Washington



Source: Maul, Foster, and Alongi
Autocad File: 003-02.dwg 03/27/03

SCALE: 1" = 20' @11x17	DESIGN: S. Zorn	CHECKED: A. Fekete	ENSR PROJECT NO:
FILENAME: 0694027213X	DRAWN: K. Mongar	DATE: December 14, 2005	06940-272-130

ENSR INTERNATIONAL

FIGURE 3
PROPOSED SOIL VAPOR EXTRACTION WELLS
Former Unocal Service Station No. 0907
1121 South Bailey Street
Seattle, Washington

GETTLER-RYAN INC.

November 8, 2007
Job #385509

Mr. Mark J. Inglis
Chevron Environmental Management Company
P.O. Box 6012, Room K2256
San Ramon, CA 94583

RE: **Event of October 10, 2007**
Groundwater Monitoring & Sampling Report
Chevron Facility #306491
(Former Unocal #0907)
1121 South Bailey Street
Seattle, Washington

Dear Mr. Inglis:

This report documents the most recent groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R) at the referenced site. All field work was conducted in accordance with G-R Standard Operating Procedure - Groundwater Sampling (attached).

Static groundwater levels were measured and the wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in any well. Static water level data and groundwater elevations are presented in Table 1. A Groundwater Elevation/Concentration Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells and submitted to a state certified laboratory for analyses. The field data sheets for this event are attached. Analytical results are presented in the table(s) listed below. Purge water was treated by filtering the water through granular activated carbon and was subsequently discharged. The chain of custody document and laboratory analytical reports are attached.

Please call if you have any questions or comments regarding this report. Thank you.

Sincerely,

Deanna L. Harding
Project Coordinator

State of Washington
Licensed Geologist
2660
Douglas J. Lee

Douglas J. Lee
Senior Geologist, L.G. No. 2660

Figure 1:	Groundwater Elevation/Concentration Map
Table 1:	Groundwater Monitoring Data
Table 2:	Groundwater Analytical Results
Table 3	Field Measurements and Analytical Results
Table 4:	Field Measurements
Attachments:	Standard Operating Procedure - Groundwater Sampling
	Field Data Sheets
	Chain of Custody Document and Laboratory Analytical Reports

6747 Sierra Court, Suite J • Dublin, CA 94568 • (925) 551-7555 • Fax (925) 551-7888
3140 Gold Camp Drive, Suite 170 • Rancho Cordova, CA 95670 • (916) 631-1300 • Fax (916) 631-1317
1364 N. McDowell Blvd., Suite B2 • Petaluma, CA 94954 • (707) 789-3255 • Fax (707) 789-3218

Groundwater Analytical Results
Chevron Facility #306491
(Former Unocal #0907)
1121 South Bailey Street
Seattle, Washington

WELL ID	DATE	BTEX[1] (µg/l) B	T	E	X	Diesel-range Hydrocarbons[3] (µg/l)	Gasoline-range Hydrocarbons[2] (µg/l)	Kerosene-range Hydrocarbons[3] (µg/l)	Heavy Oil-range Hydrocarbons[3] (µg/l)	Total Arsenic[4] (µg/l)	Dissolved Arsenic[4] (µg/l)	Total Suspended Solids[5] (mg/l)
MW-1	06/27/01	5.12	1.49	44.3	6.65	--	621	467	ND (500)	130	4.52	4,600
	03/12/02	0.63	ND (0.500)	10.6	1.4	--	191	811	ND (500)	24	2.32	1,200
	06/04/02	7.09	2.66	190	16	--	2,530	597	ND (500)	5.72	1.07	200
	09/12/02	0.51	ND (0.500)	4.97	ND (1.00)	--	122	ND (250)	ND (500)	7.42	2.57	300
	12/10/02	3.77	1.88	69.5	15.3	--	957	ND (250)	ND (500)	9.58	2.04	370
	03/10/03	4.03	1.43	84	7.78	--	1,010	691	ND (500)	2.33	1.99	4.00
	01/24/04	0.715	ND (0.500)	15.2	1.78	--	278	906	ND (500)	8.76	ND (1.00)	230
	04/30/04	6.22	4.77	149	19.4	--	2,550	ND (250)	ND (500)	7.36	ND (1.00)	160
	07/27/04	1.54	1.15	36.5	4.91	--	522	266	ND (500)	5.75	1.61	150
	10/22/04	4.10	2.33	95.9	19.8	--	1,570	ND (250)	ND (500)	11.4	5.59	410
	01/15/05	6.06	2.35	110	20.5	--	1,930	273	ND (500)	8.1	ND (1.00)	500
	04/28/05	0.633	ND (0.500)	18.4	2.83	--	335	ND (500)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	07/18/05	0.754	0.503	30.5	3.72	--	418	ND (250)	ND (500)	1.39	ND (1.00)	ND (4.0)
	12/04/05	0.950	0.509	20.4	3.67	--	435	ND (236)	ND (472)	1.33	1.36	ND (4.0)
	05/17/06	ND(0.500)	ND(0.500)	11.4	1.16	--	205	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	04/04/07	<2.0	110	<2.0	10	160[7]	2,300	--	<100	<10	<10	49.2
	10/10/07	9.6	3.5	140	28	150[7]	2,400	--	<100	<10	<10	196
MW-2	06/27/01	10.6	7.31	345	191	--	5,960	1,940	ND (500)	348	6.5	6,400
	03/12/02	14.5	6.9	307	151	--	5,980	2,400	ND (500)	35.9	6.17	770
	06/04/02	15.6	5.8	273	134	--	7,680	2,480	ND (500)	12	4.31	490
	09/12/02	7.04	ND (5.0)	183	93.1	--	3,700	806	ND (500)	7.19	3.06	170
	12/10/02	3.64	ND (2.5)	96.2	33.7	--	2,050	362	ND (500)	11.7	1.87	310
	03/10/03	7.46	3.72	192	85.6	--	5,590	5,590	ND (500)	7.84	6.55	17.0
	01/24/04	3.47	2.15	127	43.3	--	2,250	2,430	ND (500)	9.1	2.49	160
	04/30/04	6.48	5.76	280	96	--	4,890	1,030	ND (500)	5.52	1.06	120
	07/27/04	4.90	3.92	204	67.9	--	3,650	608	ND (500)	8.58	1.2	89.0
	10/22/04	2.94	2.33	166	60.3	--	3,280	466	ND (500)	8.43	4.71	120
	01/15/05	ND (1.25)	2.42	193	63.3	--	3,170	672	ND (500)	2.61	1.52	160
	04/28/05	2.90	<2.50	175	61.4	--	3,130	773	ND (500)	1.88	1.93	9.0
	07/18/05	ND (2.5)	<2.50	155	50.6	--	2,430	856	ND (500)	1.98	1.59	5.5
	12/04/05	2.03	2.27	154	47.6	--	2,780	1,200	ND (472)	2.23	2.15	ND (4.0)

Groundwater Analytical Results
Chevron Facility #306491
(Former Unocal #0907)
1121 South Bailey Street
Seattle, Washington

WELL ID	DATE	BTEX[1] (µg/l) B	T	E	X	Diesel-range Hydrocarbons[3] (µg/l)	Gasoline-range Hydrocarbons[2] (µg/l)	Kerosene-range Hydrocarbons[3] (µg/l)	Heavy Oil-range Hydrocarbons[3] (µg/l)	Total Arsenic[4] (µg/l)	Dissolved Arsenic[4] (µg/l)	Total Suspended Solids[5] (mg/l)
MW-1	06/27/01	5.12	1.49	44.3	6.65	--	621	467	ND (500)	130	4.52	4,600
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	06/04/02	7.09	2.66	190	16	--	2,530	597	ND (500)	5.72	1.07	200
	09/12/02	0.51	ND (0.500)	4.97	ND (1.00)	--	122	ND (250)	ND (500)	7.42	2.57	300
	12/10/02	3.77	1.88	69.5	15.3	--	957	ND (250)	ND (500)	9.58	2.04	370
	03/10/03	4.03	1.43	84	7.78	--	1,010	691	ND (500)	2.33	1.99	4.00
	01/24/04	0.715	ND (0.500)	15.2	1.78	--	278	906	ND (500)	8.76	ND (1.00)	230
	04/30/04	6.22	4.77	149	19.4	--	2,550	ND (250)	ND (500)	7.36	ND (1.00)	160
	07/27/04	1.54	1.15	36.5	4.91	--	522	266	ND (500)	5.75	1.61	150
	10/22/04	4.10	2.33	95.9	19.8	--	1,570	ND (250)	ND (500)	11.4	5.59	410
	01/15/05	6.06	2.35	110	20.5	--	1,930	273	ND (500)	8.1	ND (1.00)	500
	04/28/05	0.633	ND (0.500)	18.4	2.83	--	335	ND (500)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	07/18/05	0.754	0.503	30.5	3.72	--	418	ND (250)	ND (500)	1.39	ND (1.00)	ND (4.0)
	12/04/05	0.950	0.509	20.4	3.67	--	435	ND (236)	ND (472)	1.33	1.36	ND (4.0)
	05/17/06	ND(0.500)	ND(0.500)	11.4	1.16	--	205	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	04/04/07	<2.0	110	<2.0	10	160[7]	2,300	--	<100	<10	<10	49.2
	10/10/07	9.6	3.5	140	28	150[7]	2,400	--	<100	<10	<10	196
MW-2	06/27/01	10.6	7.31	345	191	--	5,960	1,940	ND (500)	348	6.5	6,400
	03/12/02	14.5	6.9	307	151	--	5,980	2,400	ND (500)	35.9	6.17	770
	06/04/02	15.6	5.8	273	134	--	7,680	2,480	ND (500)	12	4.31	490
	09/12/02	7.04	ND (5.0)	183	93.1	--	3,700	806	ND (500)	7.19	3.06	170
	12/10/02	3.64	ND (2.5)	96.2	33.7	--	2,050	362	ND (500)	11.7	1.87	310
	03/10/03	7.46	3.72	192	85.6	--	5,590	5,590	ND (500)	7.84	6.55	17.0
	01/24/04	3.47	2.15	127	43.3	--	2,250	2,430	ND (500)	9.1	2.49	160
	04/30/04	6.48	5.76	280	96	--	4,890	1,030	ND (500)	5.52	1.06	120
	07/27/04	4.90	3.92	204	67.9	--	3,650	608	ND (500)	8.58	1.2	89.0
	10/22/04	2.94	2.33	166	60.3	--	3,280	466	ND (500)	8.43	4.71	120
	01/15/05	ND (1.25)	2.42	193	63.3	--	3,170	672	ND (500)	2.61	1.52	160
	04/28/05	2.90	<2.50	175	61.4	--	3,130	773	ND (500)	1.88	1.93	9.0
	07/18/05	ND (2.5)	<2.50	155	50.6	--	2,430	856	ND (500)	1.98	1.59	5.5
	12/04/05	2.03	2.27	154	47.6	--	2,780	1,200	ND (472)	2.23	2.15	ND (4.0)

Groundwater Analytical Results
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WELL ID		DATE	BTEX[1] (µg/l) B	T	E	X	Diesel-range Hydrocarbons[3] (µg/l)	Gasoline-range Hydrocarbons[2] (µg/l)	Kerosene-range Hydrocarbons[3] (µg/l)	Heavy Oil-range Hydrocarbons[3] (µg/l)	Total Arsenic[4] (µg/l)	Dissolved Arsenic[4] (µg/l)	Total Suspended Solids[5] (mg/l)
MW-2	(D)	12/04/05	1.91	1.95	144	43.6	--	2,960	1,080	ND (472)	--	--	--
(cont)		05/17/06	24.1	6.32	244	80.4	--	4,690	1,310	ND (472)	2.62	2.60	17
	(D)	05/17/06	24.3	4.51	226	81.2	--	5,320	1,290	ND (472)	--	--	--
		04/04/07	<4.0	270	<3.0	93	760	5,100	--	<99	<10	<10	101
		10/10/07	16	4.8[7]	210	70	1,200	4,200	--	<100	<10	<10	171
								800 µg/L → cleanup level					
MW-3		06/27/01	0.73	0.71	1.31	6.43	--	1,270	631	ND (500)	79.7	3.17	3,700
		03/12/02	ND (0.500)	ND (0.500)	ND (0.500)	2.22	--	491	391	ND (500)	4.97	1	150
		06/04/02	ND (0.500)	ND (0.500)	0.55	3.45	--	628	416	ND (500)	1.21	ND (1.00)	51.0
		09/12/02	ND (0.500)	ND (0.500)	ND (0.500)	3.09	--	495	ND (250)	ND (500)	2.56	ND (1.00)	54.0
		12/10/02	ND (0.500)	ND (0.500)	ND (0.500)	2.58	--	305	ND (250)	ND (500)	2.13	1.02	56.0
		03/10/03	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	264	ND (250)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
		01/24/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	85	ND (250)	ND (500)	2.6	ND (1.00)	64.0
		04/30/04	ND (0.500)	ND (0.500)	ND (0.500)	1.42	--	347	ND (250)	ND (500)	2.85	ND (1.00)	22.0
		07/27/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	175	ND (250)	ND (500)	9.3	5.03	74.0
		10/22/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	2.8	2.73	17.0
		01/15/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	190	ND (250)	ND (500)	3.24	ND (1.00)	76.0
		04/28/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	60.6	ND (500)	ND (500)	ND (1.00)	ND (1.00)	20.0
		07/18/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	108	ND (250)	ND (500)	2.22	ND (1.00)	ND (4.0)
		12/04/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	211	ND (236)	ND (472)	1.20	ND (1.00)	ND (4.0)
		05/17/06	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND(50.0)	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
		NOT PART OF MONITORING/SAMPLING PROGRAM											
MW-4		06/27/01	ND (1.25)	ND (1.25)	59.6	232	--	2,640	367	ND (500)	19.9	3.54	4,200
		03/12/02	ND (0.500)	ND (0.500)	8.04	25.2	--	337	396	ND (500)	10.0	1.69	840
		06/04/02	ND (0.500)	ND (0.500)	35.9	127	--	1,380	397	ND (500)	2.46	1.31	140
		09/12/02	ND (0.500)	33.6	ND (0.500)	125	--	1,140	ND (250)	ND (500)	2.26	1.21	91.0
		12/10/02	ND (0.500)	ND (0.500)	13.5	34	--	507	ND (250)	ND (500)	2.21	1.19	110
		03/10/03	ND (0.500)	ND (0.500)	27.7	80.4	--	951	621	ND (500)	1.45	1.31	7.0
		01/24/04	ND (0.500)	ND (0.500)	0.877	ND (1.00)	--	86.7	ND (250)	ND (500)	1.03	ND (1.00)	480
		04/30/04	ND (0.500)	ND (0.500)	4.16	1.95	--	176	ND (250)	ND (500)	7.26	ND (1.00)	330
		07/27/04	ND (0.500)	ND (0.500)	1.38	ND (1.00)	--	53.2	ND (250)	ND (500)	12.3	ND (1.00)	330

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WELL ID		DATE	BTEX[1] (µg/l)				Diesel-range Hydrocarbons[3] (µg/l)	Gasoline-range Hydrocarbons[2] (µg/l)	Kerosene-range Hydrocarbons[3] (µg/l)	Heavy Oil-range Hydrocarbons[3] (µg/l)	Total Arsenic[4] (µg/l)	Dissolved Arsenic[4] (µg/l)	Total Suspended Solids[5] (mg/l)
			B	T	E	X							
MW-2	(D)	12/04/05	1.91	1.95	144	43.6	--	2,960	1,080	ND (472)	--	--	--
(cont)		05/17/06	24.1	6.32	244	80.4	--	4,690	1,310	ND (472)	2.62	2.60	17
	(D)	05/17/06	24.3	4.51	226	81.2	--	5,320	1,290	ND (472)	--	--	--
		04/04/07	<4.0	270	<3.0	93	760	5,100	--	<99	<10	<10	101
		10/10/07	16	4.8[7]	210	70	1,200	4,200	--	<100	<10	<10	171
								800 µg/l → clean up level					
MW-3		06/27/01	0.73	0.71	1.31	6.43	--	1,270	631	ND (500)	79.7	3.17	3,700
		03/12/02	ND (0.500)	ND (0.500)	ND (0.500)	2.22	--	491	391	ND (500)	4.97	1	150
		06/04/02	ND (0.500)	ND (0.500)	0.55	3.45	--	628	416	ND (500)	1.21	ND (1.00)	51.0
		09/12/02	ND (0.500)	ND (0.500)	ND (0.500)	3.09	--	495	ND (250)	ND (500)	2.56	ND (1.00)	54.0
		12/10/02	ND (0.500)	ND (0.500)	ND (0.500)	2.58	--	305	ND (250)	ND (500)	2.13	1.02	56.0
		03/10/03	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	264	ND (250)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
		01/24/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	85	ND (250)	ND (500)	2.6	ND (1.00)	64.0
		04/30/04	ND (0.500)	ND (0.500)	ND (0.500)	1.42	--	347	ND (250)	ND (500)	2.85	ND (1.00)	22.0
		07/27/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	175	ND (250)	ND (500)	9.3	5.03	74.0
		10/22/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	2.8	2.73	17.0
		01/15/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	190	ND (250)	ND (500)	3.24	ND (1.00)	76.0
		04/28/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	60.6	ND (500)	ND (500)	ND (1.00)	ND (1.00)	20.0
		07/18/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	108	ND (250)	ND (500)	2.22	ND (1.00)	ND (4.0)
		12/04/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	211	ND (236)	ND (472)	1.20	ND (1.00)	ND (4.0)
		05/17/06	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND(50.0)	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
		NOT PART OF MONITORING/SAMPLING PROGRAM											
MW-4		06/27/01	ND (1.25)	ND (1.25)	59.6	232	--	2,640	367	ND (500)	19.9	3.54	4,200
		03/12/02	ND (0.500)	ND (0.500)	8.04	25.2	--	337	396	ND (500)	10.0	1.69	840
		06/04/02	ND (0.500)	ND (0.500)	35.9	127	--	1,380	397	ND (500)	2.46	1.31	140
		09/12/02	ND (0.500)	33.6	ND (0.500)	125	--	1,140	ND (250)	ND (500)	2.26	1.21	91.0
		12/10/02	ND (0.500)	ND (0.500)	13.5	34	--	507	ND (250)	ND (500)	2.21	1.19	110
		03/10/03	ND (0.500)	ND (0.500)	27.7	80.4	--	951	621	ND (500)	1.45	1.31	7.0
		01/24/04	ND (0.500)	ND (0.500)	0.877	ND (1.00)	--	86.7	ND (250)	ND (500)	1.03	ND (1.00)	480
		04/30/04	ND (0.500)	ND (0.500)	4.16	1.95	--	176	ND (250)	ND (500)	7.26	ND (1.00)	330
		07/27/04	ND (0.500)	ND (0.500)	1.38	ND (1.00)	--	53.2	ND (250)	ND (500)	12.3	ND (1.00)	330

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WELL ID	DATE	BTEX[1] (µg/l) B	BTEX[1] (µg/l) T	BTEX[1] (µg/l) E	BTEX[1] (µg/l) X	Diesel-range Hydrocarbons[3] (µg/l)	Gasoline-range Hydrocarbons[2] (µg/l)	Kerosene-range Hydrocarbons[3] (µg/l)	Heavy Oil-range Hydrocarbons[3] (µg/l)	Total Arsenic[4] (µg/l)	Dissolved Arsenic[4] (µg/l)	Total Suspended Solids[5] (mg/l)
MW-4 (cont)	10/22/04	ND (0.500)	ND (0.500)	1.84	ND (1.00)	--	ND (50)	ND (250)	ND (500)	4.55	1.93	920
	01/15/05	ND (0.500)	ND (0.500)	13.3	24.5	--	256	ND (250)	ND (500)	4.07	ND (1.00)	450
	04/28/05	ND (0.500)	ND (0.500)	16.5	52.9	--	494	ND (500)	ND (500)	1.47	ND (1.00)	12.0
	07/18/05	ND (0.500)	ND (0.500)	11.4	38	--	377	ND (250)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	12/04/05	ND (0.500)	ND (0.500)	12.4	39.5	--	402	315	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	05/17/06	1.24	0.579	16.7	47.8	--	710	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	NOT PART OF MONITORING/SAMPLING PROGRAM											
MW-5	06/27/01	2.98	2.37	71.9	47.1	--	3,850	1,510	ND (500)	51.1	3.93	7,400
	03/12/02	0.59	ND (0.500)	21.5	12.1	--	1,220	715	ND (500)	8.75	1.38	470
	06/04/02	0.83	0.77	36.5	18.4	--	1,760	824	ND (500)	1.44	1.56	150
	09/12/02	1.07	1.04	70.6	32.6	--	3,410	408	ND (500)	1.36	1.33	63.0
	12/10/02	ND (0.500)	0.65	25.7	19	--	1,910	ND (250)	ND (500)	3.33	1.77	130
	03/10/03	0.62	ND (0.500)	18.8	7.78	--	827	776	ND (500)	1.22	1.1	10.0
	01/24/04	ND (0.500)	ND (0.500)	5.69	1.96	--	345	755	ND (500)	1.22	ND (1.00)	160
	04/30/04	1.69	1.41	41.3	13.8	--	2,530	310	ND (500)	3.52	ND (1.00)	110
	07/27/04	ND (0.500)	ND (0.500)	12.9	3.5	--	647	ND (250)	ND (500)	3.5	ND (1.00)	130
	10/22/04	ND (0.500)	0.726	30.8	11.1	--	1.950	ND (250)	ND (500)	3.9	2.96	170
	01/15/05	ND (0.500)	0.875	42.3	16.2	--	2,310	375	ND (500)	1.71	ND (1.00)	210
	04/28/05	ND (0.500)	ND (0.500)	3.34	1.27	--	182	ND (500)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	07/18/05	ND (0.500)(	ND (0.500)(	18	4.38	--	824	436	ND (500)	1.16	ND (1.00)	40.0
	12/04/05	ND (0.500)	ND (0.500)	16.5	4.56	--	874	551	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	05/17/06	1.16	ND (0.500)	3.53	ND (1.00)	--	240	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	04/04/07	<4.0	24	<2.0	5.0	94[7]	1,600	--	<99	<10	<10	125
	10/10/07	**4.0**	**<5.0**	**5.9**	**<5.0**	**300**	**780**	**--**	**<100**	**11.3[7]**	**<10**	**249**
MW-6	06/27/01	1.21	1.08	2.16	5.48	--	1,160	611	ND (500)	137	9.4	6,500
	03/12/02	ND (0.500)	ND (0.500)	1.31	1.44	--	336	374	ND (500)	24.9	3.74	520
	06/04/02	0.88	0.86	4.05	4.09	--	1210	ND (250)	ND (500)	5.1	1.7	120
	09/12/02	0.74	ND (0.500)	2.14	2.36	--	956	ND (250)	ND (500)	2.86	1.64	25.0
	12/10/02	ND (0.500)	ND (0.500)	1.55	2.74	--	518	ND (250)	ND (500)	5.75	2.16	31.0
	03/10/03	ND (0.500)	ND (0.500)	2.02	1.42	--	507	251	ND (500)	1.29	1.37	ND (4.0)

Groundwater Analytical Results
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WELL ID	DATE	BTEX[1] (μg/l) B	T	E	X	Diesel-range Hydrocarbons[3] (μg/l)	Gasoline-range Hydrocarbons[2] (μg/l)	Kerosene-range Hydrocarbons[3] (μg/l)	Heavy Oil-range Hydrocarbons[3] (μg/l)	Total Arsenic[4] (μg/l)	Dissolved Arsenic[4] (μg/l)	Total Suspended Solids[5] (mg/l)
MW-6 (cont)	01/24/04	ND (0.500)	ND (0.500)	1.38	ND (0.500)	--	334	335	ND (500)	1.45	ND (1.00)	22.0
	04/30/04	0.755	0.603	3.48	3.44	--	1,060	310	ND (500)	3.95	ND (1.00)	45.0
	07/27/04	0.907	0.797	1.71	4.96	--	954	ND (250)	ND (500)	5.61	1.07	58.0
	10/22/04	ND (0.500)	ND (0.500)	0.931	1.27	--	420	ND (250)	ND (500)	3.56	3.24	3.0
	01/15/05	ND (0.500)	ND (0.500)	1.12	3.69	--	812	ND (250)	ND (500)	3	ND (1.00)	64.0
	04/28/05	NS	NS	NS	NS	--	NS	NS	NS	NS	NS	NS
	07/18/05	ND (0.500)(	ND (0.500)(	0.588	ND (1.00)	--	270	ND (250)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	12/04/05	NS	NS	NS	NS	--	NS	NS	NS	NS	NS	NS
	05/17/06	ND (0.500)	ND (0.500)	0.514	ND (1.00)	--	183	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	NOT PART OF MONITORING/SAMPLING PROGRAM											
MW-7	03/12/02	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (500)	ND (500)	155	1.23	7,900
	06/04/02	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	25.4	1.68	1,500
	09/12/02	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	11.1	2.1	550
	12/10/02	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	10.0	1.62	350
	03/10/03	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	1.71	1.38	ND (4.0)
	01/24/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	6.02	ND (1.00)	890
	04/30/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	7.30	ND (1.00)	370
	07/27/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	7.84	1.68	390
	10/22/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	3.48	3.47	98.0
	01/15/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	6.56	ND (1.00)	240
	04/28/05	NS	NS	NS	NS	--	NS	NS	NS	NS	NS	NS
	07/18/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	12/04/05	NS	NS	NS	NS	--	NS	NS	NS	NS	NS	NS
	05/17/06	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (236)	ND (472)	ND (1.00)	ND (1.00)	ND (4.0)
	NOT PART OF MONITORING/SAMPLING PROGRAM											
MW-8	03/12/02	ND (0.500)	3.42	ND (0.500)	ND (1.00)	--	ND (50)	ND (500)	ND (500)	76.6	ND (1.00)	4,300
	06/04/02	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	7.39	ND (1.00)	590
	09/12/02	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (86)	ND (250)	ND (500)	2.85	ND (1.00)	190
	12/10/02	ND (0.500)	ND (0.500)	0.51	2.54	--	ND (203)	ND (250)	ND (500)	2.03	1.42	120
	03/10/03	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	ND (1.00)	ND (1.00)	ND (4.0)
	01/24/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	3.93	ND (1.00)	300

Groundwater Analytical Results
Chevron Facility #306491
(Former Unocal #0907)
1121 South Bailey Street
Seattle, Washington

WELL ID	DATE	BTEX[1] (μg/l) B	T	E	X	Diesel-range Hydrocarbons[3] (μg/l)	Gasoline-range Hydrocarbons[2] (μg/l)	Kerosene-range Hydrocarbons[3] (μg/l)	Heavy Oil-range Hydrocarbons[3] (μg/l)	Total Arsenic[4] (μg/l)	Dissolved Arsenic[4] (μg/l)	Total Suspended Solids[5] (mg/l)
MW-8	04/30/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	1.74	ND (1.00)	410
(cont)	07/27/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	7.71	1.43	160
	10/22/04	ND (0.500)	ND (0.500)	0.548	ND (1.00)	--	89.6	ND (250)	ND (500)	4.28	3.1	100
	01/15/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	56.6	ND (250)	ND (500)	4.84	1.99	130
	04/28/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (500)	ND (500)	1.17	1.16	ND (4.0)
	07/18/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	3.66	1.44	54.0
	12/04/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	51.1	ND (236)	ND (236)	2.09	2.53	ND (4.0)
	05/17/06	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND(240)	ND(481)	ND (1.00)	ND (1.00)	ND (4.0)
	NOT PART OF MONITORING/SAMPLING PROGRAM											
MW-9[6]	01/24/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	55.3	264	ND (500)	6.86	1.02	3,600
	04/30/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	54.7	ND (250)	ND (500)	18.8	1.46	250
	07/27/04	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	57.4	ND (250)	ND (500)	31.3	3.06	960
	10/22/04	0.632	ND (0.500)	ND (0.500)	ND (1.00)	--	126	ND (250)	ND (500)	16.2	8.85	530
	01/15/05	0.722	ND (0.500)	0.672	1.41	--	164	ND (250)	ND (500)	9.21	3.22	530
	04/28/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (500)	ND (500)	2.24	2.21	6.5
	07/18/05	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND (250)	ND (500)	2.67	2.85	ND (4.0)
	12/04/05	NS	NS	NS	NS	--	NS	NS	NS	NS	NS	NS
	05/17/06	ND (0.500)	ND (0.500)	ND (0.500)	ND (1.00)	--	ND (50)	ND(236)	ND(472)	1.41	1.06	ND (4.0)
	NOT PART OF MONITORING/SAMPLING PROGRAM											
TRIP BLANK												
QA	04/04/07	<0.5	<0.5	<0.5	<1.5	--	<50	--	--	--	--	--
	10/10/07	<0.5	<0.5	<0.5	<1.5	--	<50	--	--	--	--	--

Groundwater Analytical Results

Chevron Facility #306491
(Former Unocal #0907)
1121 South Bailey Street
Seattle, Washington

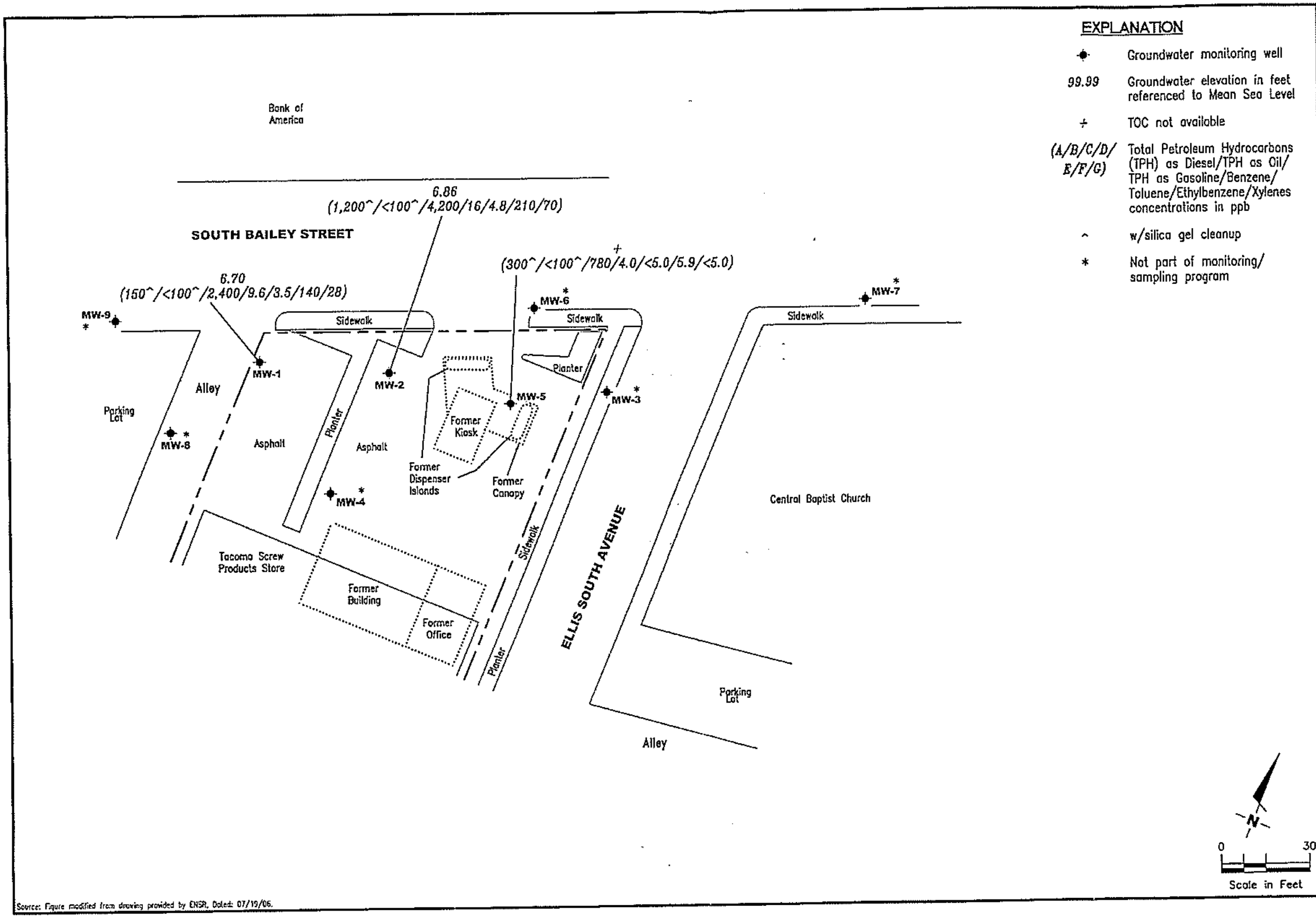
EXPLANATIONS:

Groundwater laboratory analytical results prior to April 4, 2007, were compiled from reports provided by ENSR International.

(µg/l) = micrograms per liter
(mg/l) = milligrams per liter
NL = No cleanup level
NS = Not sampled
(D) = Duplicate

1 B = Benzene, T = Toluene, E = Ethylbenzene, X = Total Xylenes. Analyzed by EPA Method 8021B.
2 Gasoline-range hydrocarbons analyzed by Northwest Method NWTPH-Gx.
3 Diesel-Range, Kerosene-range and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx with Acid/Silica Gel cleanup.
4 Total and dissoved arsenic analyzed by EPA 6000/7000 Series Methods.
5 Total suspended solids analyzed by EPA Method 160.2
6 Monitoring Well MW-9 was installed in November of 2003.
7 Laboratory report indicates estimated value.

MTCA = Washington State Department of Ecology Model Toxics Control Act



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GROUNDWATER ELEVATION/CONCENTRATION MAP
Chevron Facility #306491 (Former Unocal #0907)
1121 South Bailey Street
Seattle Washington

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
385509		October 10, 2007	

FIGURE 1

FILE NAME: P:\Enviro\Chevron\306491\007-306491.dwg | Layout Tab: Pot4

Appendix C–6
Relevant Pages from
VIOX Corporation Documents

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October 14, 1999

Mr. Tom Burnett
VIOX Corporation
6701 Sixth Avenue South
Seattle, Washington 98108

Re: North Wall Sampling Results
VIOX Corporation Facility
Seattle, Washington
J-4909

Dear Mr. Burnett:

This letter summarizes the results of the recent environmental investigation we conducted at the VIOX Corporation property in Seattle, Washington (Figure 1). The objectives of this work were to define the nature and extent of lead contamination in soil located along the northern wall of the electronic-glass manufacturing plant following the recent drain line breakage in this area and to provide recommendations regarding the need for remedial actions.

SITE BACKGROUND

VIOX owns and operates an electronic-glass manufacturing plant located at 6701 Sixth Avenue South (Figure 2). The electronic-glass manufacturing plant is approximately 40 years old. VIOX also leased the lots directly west and adjacent to the plant (551 South River Street) since December of 1979. The 551 South River Street property, which was recently purchased by VIOX, contains a small metal building used as a shop and for storage, and an unpaved area used for large truck parking. VIOX also maintains offices in a portion of a building north of the glass plant at the corner of South River Street and 6th Avenue South. The site and surrounding area are zoned for general industrial land use.

VIOX plans to construct a 18,400-square-foot addition onto its existing glass plant next year. The addition would be located on the 551 South River Street property. As part of this construction project, VIOX will be installing a sidewalk and altering the landscaping along the northern wall of the existing glass production facility.

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Tel 206.324.9530

Table 1 - Analytical Results for Soil Samples
VIOX

Sample ID	Sample Depth in feet	Lead Concentration in mg/kg	pH	Total Solids
HA-1 S-1 0-0.5	0 to 0.5	290	6.5	92.8
HA-1 S-2 1.5-2.0	1.5 to 2.0	56	7	94.5
HA-2 S-1 0-0.5	0 to 0.5	327	6.7	94.3
HA-2 S-2 1.5-2.0	1.5 to 2.0	125	7	95
HA-3 S-1 0-0.5	0 to 0.5	43.4	7	94.3
HA-3 S-2 1.5-2.0	1.5 to 2.0	142	7.1	92.8
HA-4 S-1 0-0.5	0 to 0.5	148	7.9	94.9
HA-4 S-2 1.5-2.0	1.5 to 2.0	47.2	7.6	93.7
HA-5 S-1 0-0.5	0 to 0.5	263	6.4	78.2
HA-5 S-2 1.5-2.0	1.5 to 2.0	12300	8	92
HA-5 S-2 1.5-2.0 (Dup)	1.5 to 2.0	145		
HA-5 S-2 1.5-2.0 A	1.5 to 2.0	156		
HA-5 S-2 1.5-2.0 B	1.5 to 2.0	140		
HA-5 S-2 1.5-2.0 C	1.5 to 2.0	97.2		
HA-6 S-1 2-2.5	2.0 to 2.5	128	8	88.7
HA-6 S-2 3-3.5	3 to 3.5	3.5	7.1	92.1
HA-6 S-3 3.75-4.25	3.75 to 4.25	107	7.2	87.5

(Dup) Duplicate of preceding sample; A, B, and C also reanalysis of sample HA 5 S-2.

4909/NorthWall.xls

Soil Exploration Location Plan

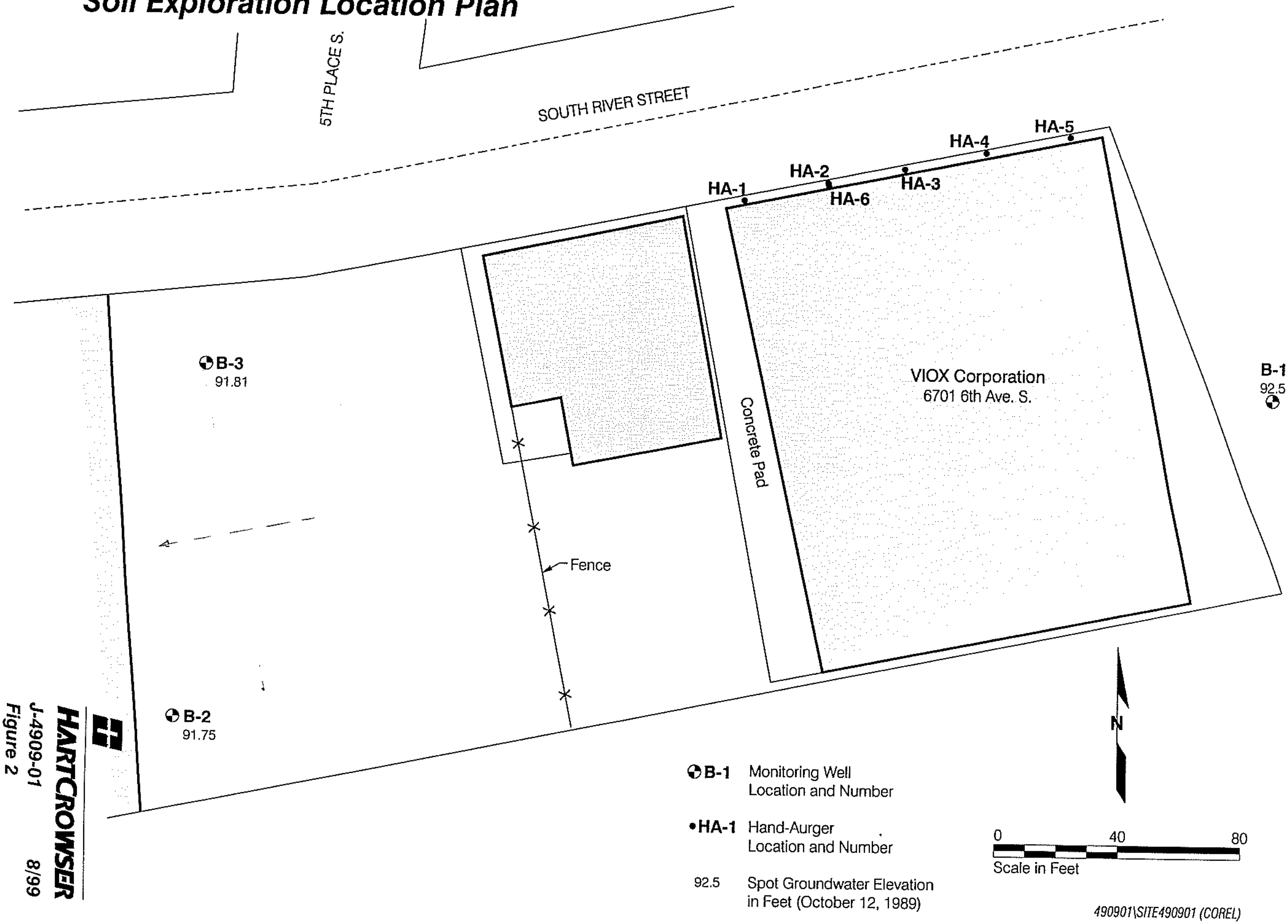

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Figure 2

VIOX - Mc Dowell Site
SIT 5,8

Voluntary Cleanup Action Report
VIOX/McDowell Site
551 South River Street
Seattle, Washington

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Prepared for
VIOX Corporation

April 13, 2001
J-4909

Table 1 - Lead Analytical Results for Soil Remaining on Site

Sample ID	Sample Depth below Ground Surface in Feet	Total Solids in %	Lead in mg/kg
MTCA Method A Industrial:			1,000
HC-1	2.5	91.6	16.2
HC-2	1.2	96.8	8.16
HC-3	0.5	96.2	43.9
HC-4	1.6	93.2	33.1
HC-5	0.5	86.0	46.3
HC-20	0.75	88.8	118
HC-21	0.75	89.5	7.58
HC-22	0.75	94.4	11.7
HC-23	0.75	93.8	50.8
HC-24	0.75	88.6	16.7
HC-25	0.75	93.5	41.6
HC-26	0.75	92.7	20.3
HC-27	0.75	88.8	27
HC-28	0.75	93.5	12.2
HC-29	0.75	91.9	24.9
HC-31	2.5	88.9	3,890
HC-35	2.3	85.4	2.53

Boxed value exceeds cleanup criteria

Table 2 - Metals Analytical Results for Soil Remaining on Site

	MTCA Method A Industrial	HC-5	HC-21	HC-22	HC-28	HC-29	HC-31	HC-35
Metals in mg/kg								
Arsenic	20	11.3	1.49	2.16	2.5	2.1	27.5	1.94
Cadmium	2	0.381	0.312 U	0.282 U	0.279 U	0.311 U	0.382 U	0.303 U
Chromium	2,000	13.9	11.9	21.7	52.1	26.4	27.8	31.7
Copper	2,960 (1)	20.5	11.4	12.7	14.7	12	11.6	10.8
Nickel	1,600 (1)	14.9	14.1	35	43	34.6	31.5	37.2
Lead	1,000	46.3	7.58	11.7	12.2	24.9	3,890	2.53
Zinc	24,000 (1)	55.6	23.1	28.8	35.2	28.7	32.5	27.3

U = Not detected at indicated detection limit.
(1) MTCA Method C industrial direct contact criteria.
Boxed value exceeds cleanup criteria

Table A-1 - Lead Analytical Results for Excavated Soil

Sample ID	Total Solids in %	Lead in mg/kg
MTCA Method A:		1000
HC-6	94.3	6390
HC-7	89.4	3960
HC-8	89.4	842
HC-9	92.5	108
HC-10	94.6	1450
HC-11	90.5	3200
HC-12	90.6	4510
HC-13	95.5	9.51
HC-14	96.8	22.2
HC-15	94.2	71.1
HC-16	95.0	474
HC-17	91.3	8230

Boxed value exceeds cleanup criteria

Table A-2 - Analytical Results for Excavated Containerized Soil

Sample ID	Total Solids in %	Lead in mg/kg
MTCA Method A Industrial:		1000
HC-WMHV910404	93.7	1220
HC-Stockpile	93.5	575
HC-MWHV910406	94.4	718
HC-MWHV910403	94.8	687
HC-MWHV910411	95.0	644
CWMV7160	90.5	1230

	CWMV7160
Metals in mg/kg	
Arsenic	14.3
Cadmium	0.36 U
Chromium	22.8
Copper	14.1
Nickel	31.7
Lead	1230
Zinc	37.1

U = Not detected at indicated detection limit.
Boxed value exceeds cleanup criteria

Table A-3 - TCLP Analytical Results for Excavated Containerized Soil

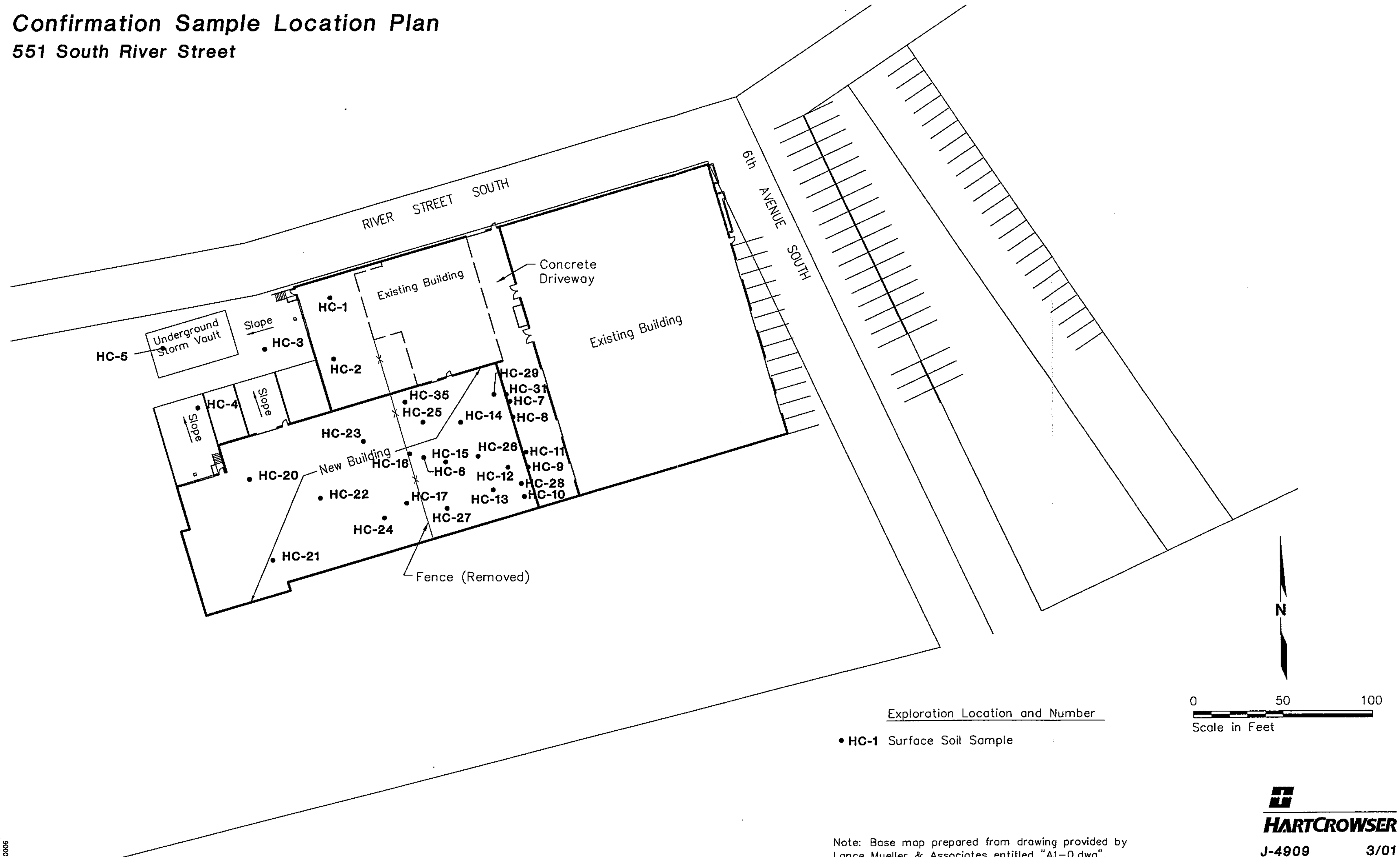
Sample ID	Lead in mg/L
Toxicity Characteristic Criteria:	5
CWMV-7186	0.227
CWMV-7484	5.51
CWMV-7363	0.973
CWMV-7153	0.128
CWMV-7105	0.456
CWMV-7247	0.24
WMHV-910211	7.07
910203	0.336
HC-WMHV910404	17.4
HC-Stockpile	4.66
HC-MWHV910406	10.1
HC-MWHV910403	8.88
HC-MWHV910411	7.94
CWMV7363	20.7

	CWMV7106	CWMV7160
Total Solids in %	74.2	90.5
Metals in mg/L		
Silver	0.05 UJ	0.05 UJ
Arsenic	0.5 U	0.5 U
Barium	1 U	1.64
Cadmium	0.005 U	0.005 U
Chromium	0.01 U	0.01 U
Mercury	0.001 U	0.001 U
Lead	4.99	12.4
Selenium	0.15 U	0.15 U

U = Not detected at indicated detection limit.
J = Estimated value.
Boxed value exceeds cleanup criteria

Confirmation Sample Location Plan

551 South River Street



Exploration Location and Number

• **HC-1** Surface Soil Sample

Note: Base map prepared from drawing provided by Lance Mueller & Associates entitled "A1-0.dwg", dated February 18, 1998.

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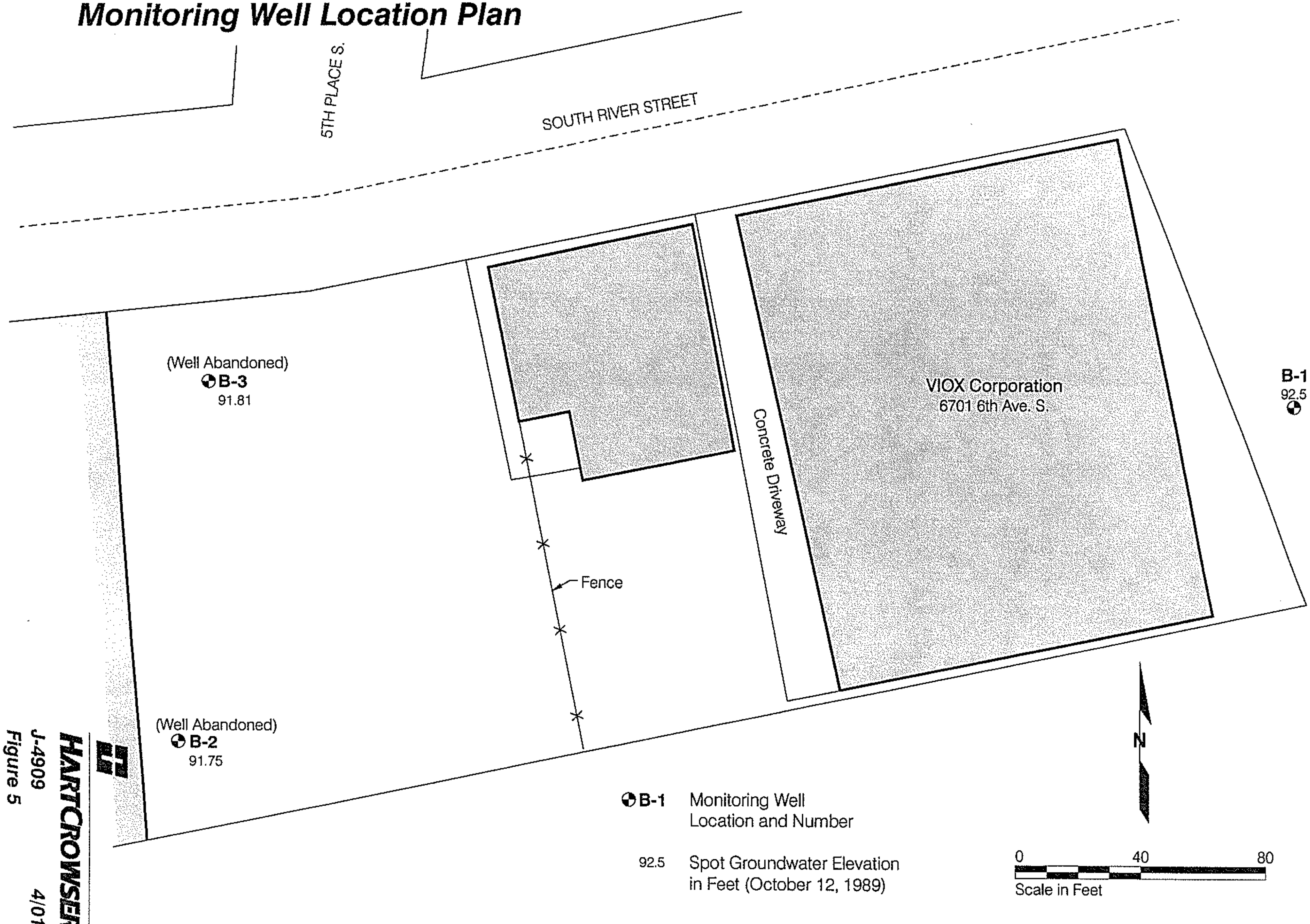
J-4909 *3/01*

Figure 2

dwl 5/10/01 1=50 charlie.pc2
49090006

Monitoring Well Location Plan



dwl 5/10/01 4909b.cdr

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Figure 5

Viox / McDowell Site
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September 20, 2001

Mr. Bill Coats
VIOX Corporation
6701 Sixth Avenue South
Seattle, WA 98108

Re: Summary of Well Installation and Groundwater Monitoring Results
VIOX/McDowell Site
Seattle, Washington
4909

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Dear Bill:

This letter report summarizes well installation and groundwater monitoring activities recently completed at the VIOX/McDowell site located in Seattle, Washington. The groundwater monitoring program was initiated to support a "No Further Action" determination issued by Ecology in June of 2001. As part of this determination, Ecology required that two rounds of groundwater monitoring be completed to demonstrate that groundwater quality was not being significantly impacted.

This letter report is presented in three sections:

- Well installation summary;
- Groundwater monitoring summary; and
- Schedule.

A groundwater data quality summary is presented in Table 1. The site vicinity map is presented on Figure 1. A monitoring well location plan, including groundwater elevation measurements collected in July 2001, is presented on Figure 2. Appendix A presents boring logs and well construction diagrams for the two new wells installed to monitor groundwater at the site. The groundwater testing laboratory report is included in Appendix B.

WELL INSTALLATION SUMMARY

Two groundwater monitoring wells (identified B-2R and B-3R) were installed at the site in July 2001 using a hollow-stem auger drill rig (Figure 2). These wells were installed to replace

1910 Fairview Avenue East
Seattle, Washington 98102-3699
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Tel 206.324.9530

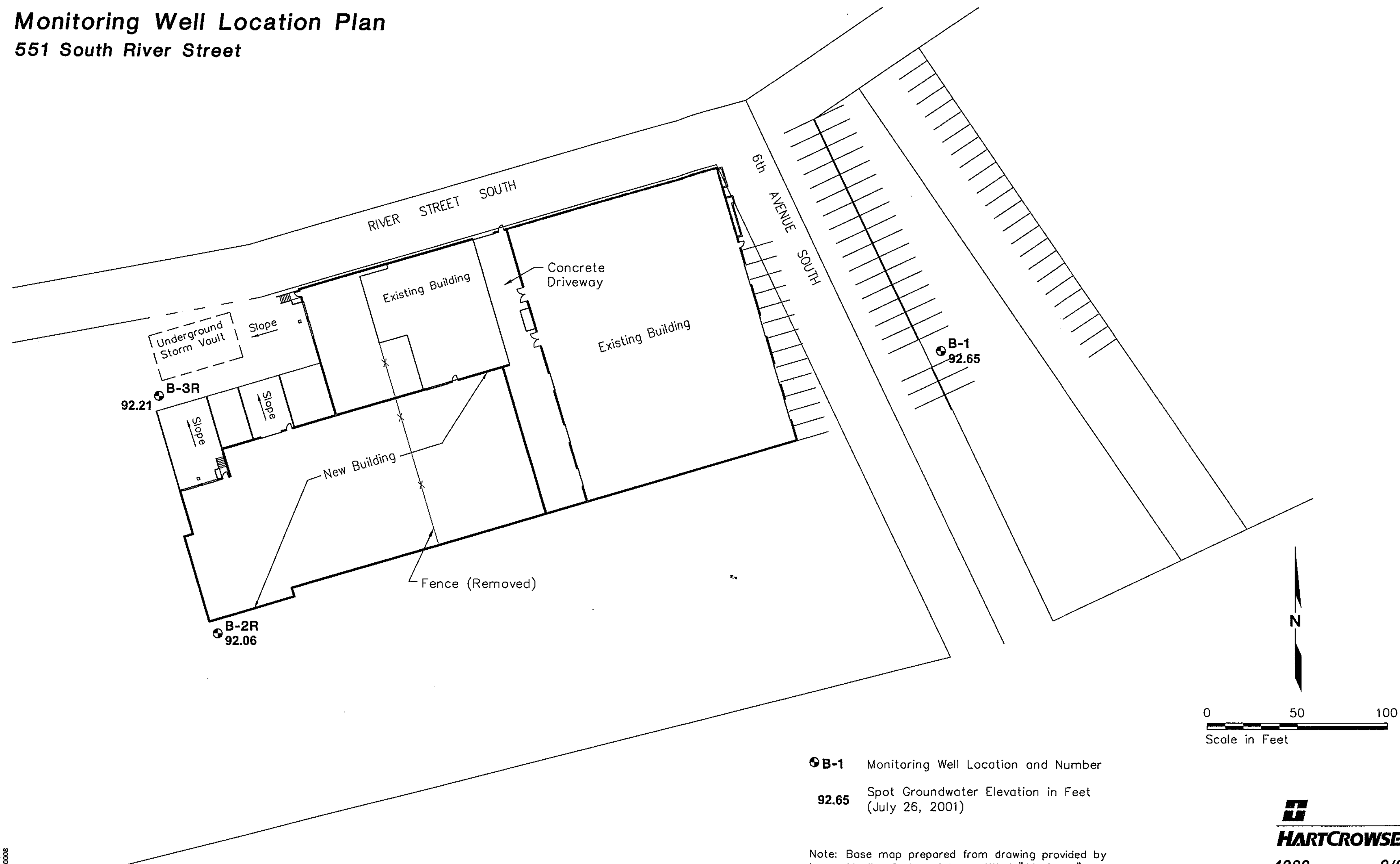
Table 1 - Groundwater Quality Data Summary

Analyte	Well B-1 7/26/01	Well B-2R 7/26/01	Well B-3R 7/26/01
Dissolved Arsenic	8.9	3.9	1.4
Dissolved Lead	1U	1U	1U

Concentrations are in ug/L (ppb) units.
U = not detected at indicated detection limit

Monitoring Well Location Plan

551 South River Street



B-1 Monitoring Well Location and Number

92.65 Spot Groundwater Elevation in Feet (July 26, 2001)

Note: Base map prepared from drawing provided by Lance Mueller & Associates entitled "A1–0.dwg", dated February 18, 1998.

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Figure 2

DTN 9/6/01 1=50 charlie.pc2
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VIOX/McDowell site
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December 21, 2001

Mr. Bill Coats
VIOX Corporation
6701 Sixth Avenue South
Seattle, WA 98108

Re: Groundwater Monitoring Results
VIOX/McDowell Site
Seattle, Washington
4909

Dear Bill:

This letter report summarizes groundwater monitoring activities recently completed at the VIOX/McDowell site located in Seattle, Washington. The groundwater monitoring program was initiated to support a "No Further Action" determination issued by Ecology in June of 2001. As part of this determination, Ecology required that two rounds of groundwater monitoring be completed following construction to demonstrate that groundwater quality was not being significantly impacted. The first round of post-construction groundwater monitoring was completed in July of 2001 and was summarized in a report dated September 20, 2001. The second round of post-construction groundwater monitoring was completed in November of 2001. Results of this sampling event along with previous groundwater monitoring events are discussed in this report.

This letter report is presented in three sections:

- Summary of Previous Groundwater Monitoring Events;
- Second Round Post-Construction Groundwater Monitoring Summary; and
- Conclusions.

Groundwater data quality summaries for pre- and post-construction sampling events are presented in Tables 1 and 2, respectively. The site vicinity map is presented on Figure 1. A monitoring well location plan, including groundwater elevation measurements collected in November 2001, is presented on Figure 2. The groundwater testing laboratory report from the second round of post-construction sampling is included in Appendix A.

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Table 1 - Pre-Construction Groundwater Quality Data Summary

Groundwater Sample Identification	Total Lead in ug/L	Dissolved Lead in ug/L	Total Arsenic in ug/L
Monitoring Well B-1			
Hart Crowser 1989	10 U	10 U	NA
CESI 1997	4	NA	18
Monitoring Well B-2			
Hart Crowser 1989	40	10 U	NA
CESI 1997	20	NA	14
Monitoring Well B-3			
Hart Crowser 1989	10 U	10 U	NA
CESI 1997	NA	NA	NA
Method A Drinking Water Criteria	15	15	5
Method B Marine Surface Water Criteria (a)	5.8	5.8	36

MTCA - meth A 5 5 5 ug/L
B - carcinog. ~~0.0...~~ N. LISTING 0.0583
B - none 4.8

Notes:

NA Not Analyzed

(a) Method B surface water values are based on Washington State marine ambient surface water criteria presented in Chapter 173-201A WAC using an assumed hardness of 75.4 mg/L.

U Not detected at indicated detection limit.

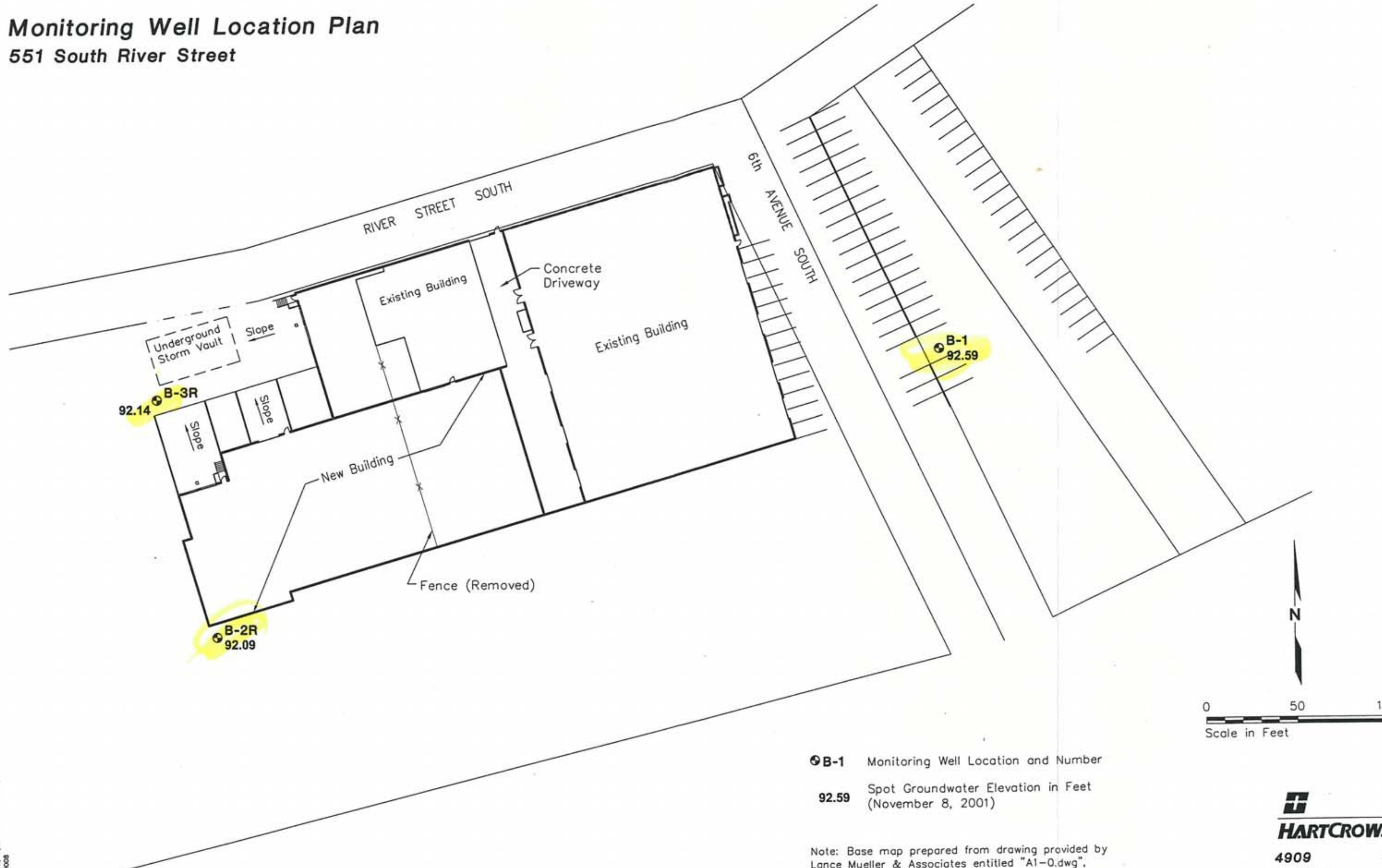
Table 2 - Post-Construction Groundwater Quality Data Summary

Analyte	Well B-1 7/26/01	Well B-1 11/8/01	Well B-2R 7/26/01	Well B-2R 11/8/01	Well B-3R 7/26/01	Well B-3R 11/8/01
Dissolved Arsenic	8.9	8.4	3.9	4.1	1.4	1.1
Dissolved Lead	1 U	1 U	1 U	1 U	1 U	1 U

Concentrations are in ug/L (ppb).
U = not detected at indicated detection limit

Monitoring Well Location Plan

551 South River Street



B-1 Monitoring Well Location and Number

92.59 Spot Groundwater Elevation in Feet (November 8, 2001)

Note: Base map prepared from drawing provided by Lance Mueller & Associates entitled "A1-0.dwg", dated February 18, 1998.

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4909 **9/01**

Figure 2

DTN 12/14/01 1=50 charlie.pc2
49090008

Appendix C–7
Relevant Pages from
Riveretz’s Auto Care Documents

UNDERGROUND STORAGE TANK SITE ASSESSMENT AND INDEPENDENT CLEANUP REPORT FOURTH AVENUE SOUTH AND SOUTH MICHIGAN STREET PROPERTY SEATTLE, WASHINGTON ERTS 562735

June 29, 2007
ECI Project No. E-12897-1

Prepared for
Fuel Tank Installation Company
11536 Seola Beach Drive Southwest
Seattle, Washington 98136

EARTH CONSULTING INCORPORATED
1805 136th Place Northeast.
Suite 201
Bellevue, Washington 98005
(425) 643-3780
Toll Free 1-888-739-6670

5.1 Sampling Nomenclature

Soil samples were assigned unique identifying numbers based upon the system described below.

1. Project: Fourth and Michigan (4M)
2. Sample type: CCS (Cleanup Confirmation Sample), Stockpile Sample (SS), Documentation Sample (DS)
3. Depth in feet below original grade, Composite Sample (comp)

Table 6
Cleanup Confirmation Soil Sample Analytical Results
Total Petroleum Hydrocarbons as Gasoline (TPHG) with BTEX
Methods NWTPH-Gx/BTEX and EPA 5035A
(Sample results are in mg/Kg [ppm])

Sample Number	Date Collected	Depth (feet)	TPHG	Benzene	Toluene	Ethyl-benzene	Xylenes
4M-CCS1-12	6/4/07	12	7	<0.02	<0.02	<0.02	<0.06
4M-CCS2-9	6/4/07	9	<2	<0.02	<0.02	<0.02	<0.06
4M-CCS3-12	6/4/07	12	<2	<0.02	<0.02	<0.02	<0.06
4M-CCS4-12	6/4/07	12	<2	<0.02	<0.02	<0.02	<0.06
4M-DS1-9d	6/4/07	9	**490**	**0.03**	0.08	<0.02	3.1
4M-DS2-9	6/4/07	9	<2	<0.02	<0.02	<0.02	<0.06
MTCA Method A CL			*30*	*0.03*	*7.0*	*6.0*	*9.0*

d = the sample was diluted.
Analytical results at or above MTCA Method A cleanup levels are in **bold.**

Table 8
Cleanup Confirmation Soil Sample Analytical Results
Low Level 1,2 Dibromoethane (EDB) by EPA 8260B
(Sample results are in mg/Kg [ppm])

Sample Number	Date Collected	Depth	EDB
4M-CCS3-12	6/4/07	12	<0.005
MTCA Method A CL			*0.005*

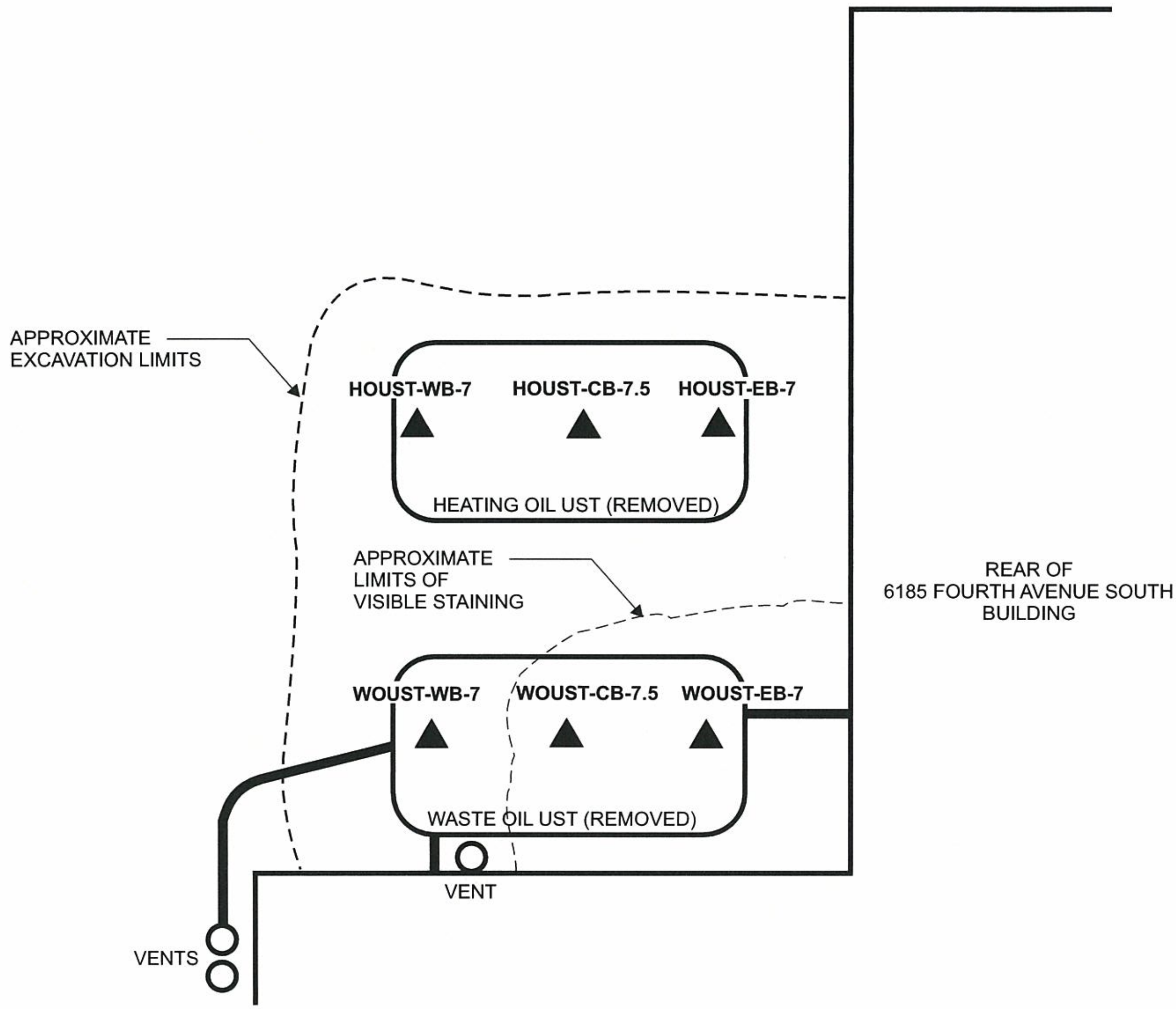
Table 9
Cleanup Confirmation Soil Sample Analytical Results
Total Petroleum Hydrocarbons as Diesel Extended (NWTPH-Dx)
(Sample results are in mg/Kg [ppm])

Sample Number	Date Collected	Depth	Diesel (C_{10}-C_{25})	Motor Oil (C_{25}-C_{36})
4M-SS1-C	6/4/07	stockpile	**3000** x	**10000**
4M-CCS1-12	6/4/07	12	<50	<250
4M-CCS2-9	6/4/07	9	<50	<250
4M-CCS3-12	6/4/07	12	<50	<250
4M-CCS4-12	6/4/07	12	<50	<250
4M-DS-9	6/4/07	9	**5100** x	**13000** X
4M-DS2-9	6/4/07	9	330 x	**2100**
MTCA Method A CL			*2000*	*2000*

x- the pattern of peaks present is not indicative of diesel.

Table 10
Cleanup Confirmation Soil Sample Analytical Results
PCBs Reported as Aroclors (A)1016-1262 using EPA Method 8082
(Sample results are in mg/Kg [ppm])

Sample #	Date Collected	A1221	A1232	A1016	A1242	A1248	A1254	A1260	A1262
4M-CCS1-12	4/11/07	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1



LEGEND

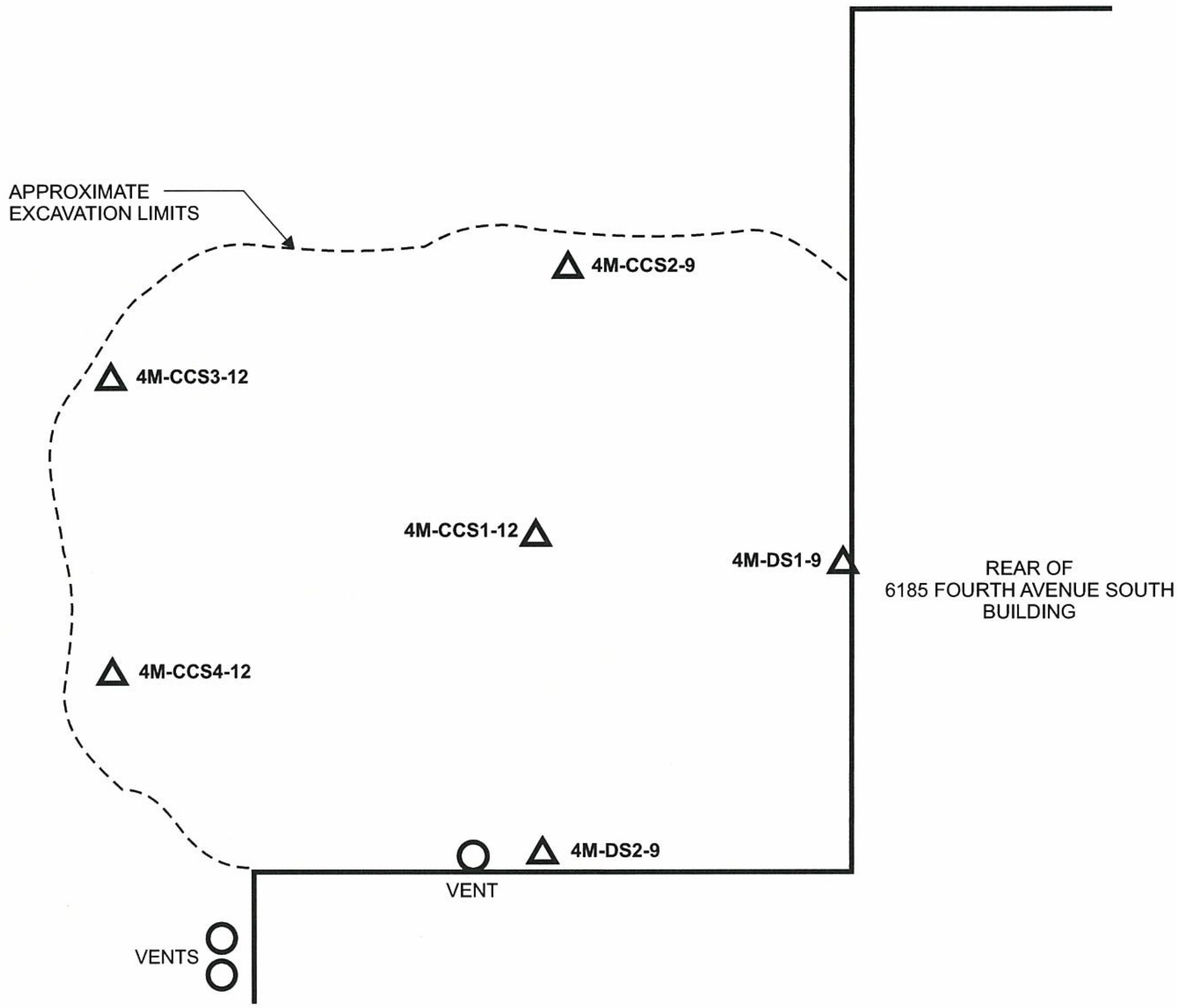
▲ WOUST-WB-7 — Approximate site assessment sample location

NORTH
NOT TO SCALE

EARTH CONSULTING INCORPORATED

SITE PLAN SHOWING TANKS AND
SITE ASSESSMENT SAMPLE LOCATIONS
4TH AND MICHIGAN
6185 4TH AVENUE SOUTH
SEATTLE, WASHINGTON

DRWN. DNM		PROJ. NO. 12897-1
CHKD. RNS	DATE 6/29/07	PLATE 2



LEGEND

4M-CCS3-12 △ Approximate cleanup confirmation sample location

4M-DS2-9 △ Approximate documentation sample under building location

NORTH
NOT TO SCALE

EARTH CONSULTING INCORPORATED

SITE PLAN SHOWING
CLEANUP CONFIRMATION SAMPLE LOCATIONS
4TH AND MICHIGAN
6185 4TH AVENUE SOUTH
SEATTLE, WASHINGTON

DRWN. DNM		PROJ. NO. 12897-1
CHKD. RNS	DATE 6/29/07	PLATE 3

Appendix E
Duwamish Marine Center Historical Data

E–1. Chemicals Detected in Soil

E–2. Chemicals Detected in Groundwater

E–3. Historical Owners and Tenants

E–4. Relevant Pages from Duwamish Marine Center Documents

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	1-Methylnaphthalene	0.72	24		<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	1-Methylnaphthalene	0.33	24		<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	1-Methylnaphthalene	0.078	24		<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	2-Methylnaphthalene	1.3	320	1.4	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	2-Methylnaphthalene	0.48	320	1.4	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	2-Methylnaphthalene	0.21	320	0.073	2.9
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	2-Methylnaphthalene	0.14	320	1.4	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	2-Methylnaphthalene	0.061	320	1.4	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Acenaphthene	3	4800	0.06	50
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Acenaphthene	0.68	4800	1.2	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Acenaphthene	0.14	4800	1.2	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Acenaphthene	0.061	4800	1.2	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Acenaphthene	0.013	4800	1.2	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Acenaphthylene	0.68		1.4	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Acenaphthylene	0.062		0.069	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Acenaphthylene	0.061		1.4	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Anthracene	2.4	2400	1.2	2.0
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Anthracene	0.42	2400	24	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Anthracene	0.13	2400	24	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Anthracene	0.13	2400	24	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Anthracene	0.098	2400	24	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Anthracene	0.014	2400	24	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Anthracene	0.01	2400	24	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Antimony	47	32		1.5
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Antimony	37	32		1.2
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Antimony	21	32		<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Aroclor 1242	34	0.5		68
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Aroclor 1242	6.0	0.5		12
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Aroclor 1242	5.8	0.5		12
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Aroclor 1242	5	0.5		10
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Aroclor 1242	3.7	0.5		7.4
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Aroclor 1242	2.3	0.5		4.6
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Aroclor 1242	1.7	0.5		3.4
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Aroclor 1242	1	0.5		2.0

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Aroclor 1242	0.53	0.5		1.1
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Aroclor 1242	0.50	0.5		1.0
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Aroclor 1242	0.24	1		<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Aroclor 1242	0.12	0.5		<1
Farallon Consulting 2002d	Mar-02	MW-1-5-6.5	5-6.5	Aroclor 1242	0.068	0.5		<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Aroclor 1254	3.1	0.5	0.065	48
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Aroclor 1254	2.5	0.5	1.3	5.0
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Aroclor 1254	1.8	0.5	1.3	3.6
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Aroclor 1254	1.7	0.5	1.3	3.4
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Aroclor 1254	1.7	0.5	1.3	3.4
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Aroclor 1254	1.6	0.5	1.3	3.2
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Aroclor 1254	0.97	0.5	1.3	1.9
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Aroclor 1254	0.38	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Aroclor 1254	0.19	1	0.065	2.9
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Aroclor 1254	0.14	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Aroclor 1254	0.13	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	MW-2-2-4	2-4	Aroclor 1254	0.091	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Aroclor 1254	0.086	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Aroclor 1260	2.4	0.5	1.3	4.8
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Aroclor 1260	1.7	0.5	0.065	26
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Aroclor 1260	0.79	0.5	1.3	1.6
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Aroclor 1260	0.39	0.5	1.3	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Aroclor 1260	0.15	0.5	0.065	2.3
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Aroclor 1260	0.15	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Aroclor 1260	0.12	0.5	1.3	<1
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Aroclor 1260	0.11	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Aroclor 1260	0.11	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Aroclor 1260	0.11	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Aroclor 1260	0.10	0.5	1.3	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-4.5'	4.5	Aroclor 1260	0.09	0.5	1.3	<1
The Riley Group, Inc. 2000	Jul-00	TP-1-2.5'	2.5	Aroclor 1260	0.081	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Aroclor 1260	0.060	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Aroclor 1260	0.057	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Arsenic	12	0.67	12000	18

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Benzo(a)anthracene	2.4		0.27	8.9
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Benzo(a)anthracene	0.43		5.4	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Benzo(a)anthracene	0.25		5.4	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Benzo(a)anthracene	0.17		5.4	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Benzo(a)anthracene	0.051		5.4	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Benzo(a)anthracene	0.018		5.4	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Benzo(a)pyrene	0.91	0.1	0.21	9.1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Benzo(a)pyrene	0.38	0.1	4.2	3.8
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Benzo(a)pyrene	0.37	0.1	4.2	3.7
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Benzo(a)pyrene	0.15	0.1	4.2	1.5
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Benzo(a)pyrene	0.043	0.1	4.2	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Benzo(a)pyrene	0.012	0.1	4.2	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Benzo(b)fluoranthene	1		0.45	2.2
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Benzo(b)fluoranthene	0.39		9.0	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Benzo(b)fluoranthene	0.36		9.0	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Benzo(b)fluoranthene	0.19		9.0	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Benzo(b)fluoranthene	0.046		9.0	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Benzo(b)fluoranthene	0.031		9.0	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Benzo(g,h,i)perylene	0.28		1.6	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Benzo(g,h,i)perylene	0.23		1.6	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Benzo(g,h,i)perylene	0.10		1.6	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Benzo(g,h,i)perylene	0.028		1.6	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Benzo(g,h,i)perylene	0.013		1.6	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Benzo(g,h,j)perylene	0.32		0.078	4.1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Benzo(k)fluoranthene	0.8		0.45	1.8
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Benzo(k)fluoranthene	0.34		9.0	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Benzo(k)fluoranthene	0.23		9.0	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Benzo(k)fluoranthene	0.13		9.0	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Benzo(k)fluoranthene	0.029		9.0	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Benzo(k)fluoranthene	0.024		9.0	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Cadmium	43	2	1.7	25
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Cadmium	7.1	2	34	3.6
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Cadmium	5.3	2	34	2.7
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Cadmium	2.4	2	34	1.2

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B5-6-9	6-9	Cadmium	1.9	2	34	<1
Farallon Consulting 2002d	Mar-02	B5-6-9	6-9	Cadmium	1.9	2	34	<1
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Cadmium	1.4	2	34	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Cadmium	1.1	2	1.7	<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Cadmium	1.1	2	34	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Cadmium	0.86	2	34	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Cadmium	0.65	2	34	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Cadmium	0.64	2	34	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Cadmium	0.53	2	34	<1
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Chromium	2700	19	5400	142
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Chromium	400	19	5400	21
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Chromium	260	19	5400	14
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Chromium	230	19	5400	12
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Chromium	150	19	5400	7.9
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Chromium	110	19	5400	5.8
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Chromium	80	19	270	4.2
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Chromium	61	19	5400	3.2
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Chromium	40	19	5400	2.1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Chromium	40	19	5400	2.1
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Chromium	38	19	5400	2.0
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Chromium	36	19	5400	1.9
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Chromium	33	19	5400	1.7
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Chromium	28	19	5400	1.5
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Chromium	26	19	5400	1.4
Farallon Consulting 2002d	Mar-02	MW1-5-6.5	5-6.5	Chromium	25	19	5400	1.3
Farallon Consulting 2002d	Mar-02	B12-0-1	0-1	Chromium	24	19	5400	1.3
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Chromium	23	19	5400	1.2
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Chromium	22	19	5400	1.2
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Chromium	21	19	270	1.1
Farallon Consulting 2002d	Mar-02	MW3-3.5-4	3.5-4	Chromium	21	19	5400	1.1
Farallon Consulting 2002d	Mar-02	MW-3-2.5-4	2.5-4	Chromium	21	19	5400	1.1
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Chromium	19	19	5400	1.0
Farallon Consulting 2002d	Mar-02	MW1-3-4.5	3-4.5	Chromium	16	19	5400	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Chromium	15	19	5400	<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	MW1-7.5-9	7.5-9	Chromium	13	19	270	<1
The Riley Group, Inc. 2000	Aug-00	B-4-3	10-11.5	Chromium	12	19	270	<1
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Chromium	12	19	5400	<1
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Chromium	10	19	5400	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Chromium	8.1	19	5400	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Chromium	7.4	19	5400	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Chromium	7.4	19	5400	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Chromium	7.2	19	5400	<1
Farallon Consulting 2002d	Mar-02	B11-0-3	0-3	Chromium	7	19	5400	<1
Farallon Consulting 2002d	Mar-02	B4-3-6	3-6	Chromium	5.1	19	5400	<1
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Chromium (hexavalent)	2.23	19	5400	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Chrysene	3.4		0.46	7.4
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Chrysene	0.52		9.2	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Chrysene	0.52		9.2	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Chrysene	0.45		9.2	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Chrysene	0.29		9.2	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Chrysene	0.1		9.2	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Chrysene	0.031		9.2	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Chrysene	0.031		9.2	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Copper	7400	3000	780	9.5
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Copper	6900	3000	780	8.8
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Copper	530	3000	780	<1
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Copper	320	3000	780	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Copper	290	3000	780	<1
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Copper	220	3000	780	<1
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Copper	210	3000	780	<1
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Copper	190	3000	780	<1
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Copper	150	3000	780	<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Copper	100	3000	780	<1
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Copper	99	3000	780	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Copper	91	3000	39	2.3
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Copper	91	3000	780	<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Copper	85	3000	780	<1
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Copper	71	3000	780	<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Copper	71	3000	780	<1
Farallon Consulting 2002d	Mar-02	MW3-3.5-4	3.5-4	Copper	62	3000	780	<1
Farallon Consulting 2002d	Mar-02	MW-3-2.5-4	2.5-4	Copper	62	3000	780	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Copper	58	3000	780	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Copper	58	3000	780	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Copper	45	3000	780	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Copper	43	3000	780	<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Copper	41	3000	780	<1
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Copper	36	3000	780	<1
The Riley Group, Inc. 2000	Aug-00	B-4-3	10-11.5	Copper	26	3000	39	<1
Farallon Consulting 2002d	Mar-02	MW1-3-4.5	3-4.5	Copper	23	3000	780	<1
Farallon Consulting 2002d	Mar-02	MW1-7.5-9	7.5-9	Copper	23	3000	39	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Copper	21	3000	780	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Copper	21	3000	780	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Copper	16	3000	780	<1
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Copper	15	3000	780	<1
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Copper	14	3000	780	<1
Farallon Consulting 2002d	Mar-02	B12-0-1	0-1	Copper	12	3000	780	<1
Farallon Consulting 2002d	Mar-02	MW1-5-6.5	5-6.5	Copper	12	3000	780	<1
Farallon Consulting 2002d	Mar-02	B11-0-3	0-3	Copper	9.5	3000	780	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Dibenzo(a,h)anthracene	0.096		0.033	2.9
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Dibenzo(a,h)anthracene	0.087		0.66	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Dibenzo(a,h)anthracene	0.011		0.66	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Diesel-Range Hydrocarbons	5100	2000		2.6
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Diesel-Range Hydrocarbons	4800	2000		2.4
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Diesel-Range Hydrocarbons	4800	2000		2.4
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Diesel-Range Hydrocarbons	1400	2000		<1
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Diesel-Range Hydrocarbons	1400	2000		<1
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Diesel-Range Hydrocarbons	730	2000		<1
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Diesel-Range Hydrocarbons	730	2000		<1
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Diesel-Range Hydrocarbons	350	2000		<1
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Diesel-Range Hydrocarbons	350	2000		<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Diesel-Range Hydrocarbons	210	2000		<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Diesel-Range Hydrocarbons	180	2000		<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Diesel-Range Hydrocarbons	180	2000		<1
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Diesel-Range Hydrocarbons	160	2000		<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Diesel-Range Hydrocarbons	97	2000		<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Diesel-Range Hydrocarbons	97	2000		<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Fluoranthene	12	3200	1.2	10
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Fluoranthene	1.3	3200	24	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Fluoranthene	0.38	3200	24	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Fluoranthene	0.3	3200	24	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Fluoranthene	0.082	3200	24	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Fluoranthene	0.028	3200	24	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Fluorene	4.3	3200	0.081	53
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Fluorene	0.63	3200	1.6	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Fluorene	0.17	3200	1.6	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Fluorene	0.064	3200	1.6	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Fluorene	0.021	3200	1.6	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Heavy Oil-Range Hydrocarbons	21000	2000		11
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Heavy Oil-Range Hydrocarbons	10000	2000		5.0
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Heavy Oil-Range Hydrocarbons	10000	2000		5.0
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Heavy Oil-Range Hydrocarbons	3700	2000		1.9
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Heavy Oil-Range Hydrocarbons	1800	2000		<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Heavy Oil-Range Hydrocarbons	1800	2000		<1
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Heavy Oil-Range Hydrocarbons	1800	2000		<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Heavy Oil-Range Hydrocarbons	1800	2000		<1
Farallon Consulting 2002d	May-02	TP-1-1.5	1.5	Heavy Oil-Range Hydrocarbons	1600	2000		<1
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Heavy Oil-Range Hydrocarbons	1600	2000		<1
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Heavy Oil-Range Hydrocarbons	1600	2000		<1
Farallon Consulting 2002d	Mar-02	MW-2-2-4	2-4	Heavy Oil-Range Hydrocarbons	1400	2000		<1
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Heavy Oil-Range Hydrocarbons	1400	2000		<1
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Heavy Oil-Range Hydrocarbons	1400	2000		<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Heavy Oil-Range Hydrocarbons	850	2000		<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Heavy Oil-Range Hydrocarbons	850	2000		<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Heavy Oil-Range Hydrocarbons	820	2000		<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Heavy Oil-Range Hydrocarbons	820	2000		<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Heavy Oil-Range Hydrocarbons	810	2000		<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Heavy Oil-Range Hydrocarbons	810	2000		<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Heavy Oil-Range Hydrocarbons	790	2000		<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Heavy Oil-Range Hydrocarbons	790	2000		<1
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Heavy Oil-Range Hydrocarbons	720	2000		<1
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Heavy Oil-Range Hydrocarbons	720	2000		<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Heavy Oil-Range Hydrocarbons	580	2000		<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Heavy Oil-Range Hydrocarbons	580	2000		<1
Farallon Consulting 2002d	Mar-02	B5-6-9	6-9	Heavy Oil-Range Hydrocarbons	570	2000		<1
Farallon Consulting 2002d	Mar-02	B5-6-9	6-9	Heavy Oil-Range Hydrocarbons	570	2000		<1
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Heavy Oil-Range Hydrocarbons	540	2000		<1
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	Heavy Oil-Range Hydrocarbons	540	2000		<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Heavy Oil-Range Hydrocarbons	440	2000		<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Heavy Oil-Range Hydrocarbons	390	2000		<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Heavy Oil-Range Hydrocarbons	390	2000		<1
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Heavy Oil-Range Hydrocarbons	270	2000		<1
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Heavy Oil-Range Hydrocarbons	270	2000		<1
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Heavy Oil-Range Hydrocarbons	160	2000		<1
Farallon Consulting 2002d	Mar-02	MW-3-2.5-4	2.5-4	Heavy Oil-Range Hydrocarbons	160	2000		<1
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Heavy Oil-Range Hydrocarbons	160	2000		<1
Farallon Consulting 2002d	Mar-02	MW3-2.5-4	2.5-4	Heavy Oil-Range Hydrocarbons	160	2000		<1
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Heavy Oil-Range Hydrocarbons	140	2000		<1
Farallon Consulting 2002d	Mar-02	MW-1-3-4.5	3-4.5	Heavy Oil-Range Hydrocarbons	120	2000		<1
Farallon Consulting 2002d	Mar-02	MW1-3-4.5	3-4.5	Heavy Oil-Range Hydrocarbons	120	2000		<1
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Heavy Oil-Range Hydrocarbons	100	2000		<1
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Heavy Oil-Range Hydrocarbons	100	2000		<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Heavy Oil-Range Hydrocarbons	82	2000		<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Heavy Oil-Range Hydrocarbons	82	2000		<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Indeno(1,2,3-c,d)pyrene	0.26		1.8	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Indeno(1,2,3-c,d)pyrene	0.23		1.8	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Indeno(1,2,3-c,d)pyrene	0.093		1.8	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Indeno(1,2,3-c,d)pyrene	0.016		1.8	<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Indeno(1,2,3-c,d)pyrene	0.013		1.8	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Indeno(1,2,3-cd)pyrene	0.31		0.088	3.5
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Lead	12000	250	67	179
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Lead	1400	250	1300	5.6
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Lead	850	250	1300	3.4
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Lead	670	250	1300	2.7
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Lead	540	250	1300	2.2
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Lead	430	250	1300	1.7
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Lead	360	250	1300	1.4
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Lead	340	250	1300	1.4
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Lead	340	250	1300	1.4
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Lead	330	250	1300	1.3
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Lead	310	250	1300	1.2
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Lead	210	250	1300	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Lead	200	250	1300	<1
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Lead	170	250	1300	<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Lead	140	250	1300	<1
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Lead	140	250	1300	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Lead	120	250	1300	<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Lead	85	250	1300	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Lead	70	250	67	1.0
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Lead	70	250	1300	<1
Farallon Consulting 2002d	Mar-02	MW3-3.5-4	3.5-4	Lead	70	250	1300	<1
Farallon Consulting 2002d	Mar-02	MW-3-2.5-4	2.5-4	Lead	70	250	1300	<1
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Lead	67	250	1300	<1
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Lead	67	250	1300	<1
Farallon Consulting 2002d	Mar-02	MW1-3-4.5	3-4.5	Lead	60	250	1300	<1
Farallon Consulting 2002d	Mar-02	MW1-5-6.5	5-6.5	Lead	47	250	1300	<1
The Riley Group, Inc. 2000	Aug-00	B-4-3	10-11.5	Lead	24	250	67	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Lead	12	250	1300	<1
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Lead	9.9	250	1300	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Lead	8.5	250	1300	<1
Farallon Consulting 2002d	May-02	EX1-11.0-11.5	11.0-11.5	Lead (total)	1500	250	67	22
Farallon Consulting 2002d	May-02	SP3		Lead (total)	1300	250	67	19

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	May-02	EX1-8.5-10.0	8.5-10.0	Lead (total)	510	250	67	7.6
Farallon Consulting 2002d	May-02	EX1-ESW-4.0	4.0	Lead (total)	510	250	1300	2.0
Farallon Consulting 2002d	May-02	EX1-SSW-3-4.0	3-4	Lead (total)	140	250	1300	<1
Farallon Consulting 2002d	May-02	EX1-ESW2-4.0	4.0	Lead (total)	99	250	1300	<1
Farallon Consulting 2002d	May-02	EX1-NSW-4.0	4.0	Lead (total)	95	250	1300	<1
Farallon Consulting 2002d	May-02	EX1-15.0-15.5	15.0-15.5	Lead (total)	79	250	67	1.2
Farallon Consulting 2002d	May-02	EX1-WSW-4.0	4.0	Lead (total)	45	250	1300	<1
Farallon Consulting 2002d	May-02	SP1		Lead (total)	19	250	67	<1
Farallon Consulting 2002d	May-02	SP2		Lead (total)	14	250	67	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Mercury	1.5	2	0.030	50
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Mercury	1.1	2	0.59	1.9
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Mercury	0.85	2	0.59	1.4
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Mercury	0.51	2	0.59	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Mercury	0.45	2	0.59	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Mercury	0.43	2	0.59	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Mercury	0.28	2	0.59	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Naphthalene	3.4	5	3.8	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Naphthalene	0.8	5	0.20	4.0
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Naphthalene	0.49	5	3.8	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Naphthalene	0.11	5	3.8	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Naphthalene	0.059	5	3.8	<1
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Nickel	510			
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Nickel	450			
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Nickel	320			
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Nickel	200			
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Nickel	200			
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Nickel	150			
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Nickel	140			
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Nickel	120			
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Nickel	58			
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Nickel	58			
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Nickel	52			
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Nickel	45			
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Nickel	42			

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Nickel	42			
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Nickel	39			
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Nickel	38			
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Nickel	37			
Farallon Consulting 2002d	Mar-02	MW3-3.5-4	3.5-4	Nickel	36			
Farallon Consulting 2002d	Mar-02	MW-3-2.5-4	2.5-4	Nickel	36			
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Nickel	35			
Farallon Consulting 2002d	Mar-02	B12-0-1	0-1	Nickel	34			
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Nickel	29			
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Nickel	27			
Farallon Consulting 2002d	Mar-02	MW1-3-4.5	3-4.5	Nickel	15			
Farallon Consulting 2002d	Mar-02	MW1-5-6.5	5-6.5	Nickel	13			
Farallon Consulting 2002d	Mar-02	MW1-7.5-9	7.5-9	Nickel	13			
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Nickel	12			
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Nickel	11			
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Nickel	11			
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Nickel	11			
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Nickel	8.2			
Farallon Consulting 2002d	Mar-02	B11-0-3	0-3	Nickel	7.9			
The Riley Group, Inc. 2000	Aug-00	B-4-3	10-11.5	Nickel	3.2			
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	PAHs (total)	2.29	0.14		16
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	PAHs (total)	2.01	0.14		14
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	PAHs (total)	1.02	0.14		7.3
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	PAHs (total)	0.3	0.14		2.1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	PAHs (total)	0.13	0.14		<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	PCBs (total)	34	0.5	1.3	68
The Riley Group, Inc. 2000	Jul-00	B-3-3	12.5-14	PCBs (total)	9.8	0.5	0.065	151
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	PCBs (total)	8.5	0.5	1.3	17
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	PCBs (total)	8.29	0.5	1.3	17
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	PCBs (total)	5.9	0.5	1.3	12
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	PCBs (total)	5.4	0.5	1.3	11
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5..5	PCBs (total)	2.3	0.5	1.3	4.6
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	PCBs (total)	2.13	0.5	1.3	4.3
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	PCBs (total)	1.86	0.5	1.3	3.7

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
The Riley Group, Inc. 2000	Jul-00	B-2-1	2.5-4.0	PCBs (total)	1.49	0.5	1.3	3.0
Farallon Consulting 2002d	Mar-02	B7-6-7.5	6-7.5	PCBs (total)	0.54	0.5	0.065	8.3
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	PCBs (total)	0.4	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	PCBs (total)	0.206	0.5	1.3	<1
The Riley Group, Inc. 2000	Jul-00	B-1-6	14-14.5	PCBs (total)	0.15	0.5	0.065	2.3
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	PCBs (total)	0.14	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	PCBs (total)	0.11	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	PCBs (total)	0.1	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	PCBs (total)	0.091	0.5	1.3	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-4.5'	4.5	PCBs (total)	0.09	0.5	1.3	<1
The Riley Group, Inc. 2000	Jul-00	TP-1-2.5'	2.5	PCBs (total)	0.081	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	MW1-5-6.5	5-6.5	PCBs (total)	0.068	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	PCBs (total)	0.06	0.5	1.3	<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	PCBs (total)	0.057	0.5	1.3	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Phenanthrene	14		0.49	29
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Phenanthrene	1.6		9.7	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Phenanthrene	0.66		9.7	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Phenanthrene	0.35		9.7	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Phenanthrene	0.087		9.7	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Phenanthrene	0.014		9.7	<1
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Pyrene	8.2	2400	1.4	5.9
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Pyrene	1	2400	28	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Pyrene	0.41	2400	28	<1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Pyrene	0.33	2400	28	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Pyrene	0.13	2400	28	<1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Pyrene	0.024	2400	28	<1
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Silver	4.6	400	0.61	7.5
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Silver	2.3	400	12	<1
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Silver	1.5	400	12	<1
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Silver	1.1	400	12	<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Silver	1	400	12	<1
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Silver	0.84	400	12	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Silver	0.62	400	12	<1
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Silver	0.56	400	12	<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Thallium	6.2			
The Riley Group, Inc. 2000	Aug-00	B-3-3	12.5-14	Zinc	31000	24000	38	816
The Riley Group, Inc. 2000	Aug-00	B-1-6	14-14.5	Zinc	2100	24000	38	55
The Riley Group, Inc. 2000	Jul-00	TP-3-5.5'	5.5	Zinc	1700	24000	770	2.2
Farallon Consulting 2002d	Mar-02	B4-0-3	0-3	Zinc	1400	24000	770	1.8
Farallon Consulting 2002d	Mar-02	B5-3-4	3-4	Zinc	860	24000	770	1.1
Farallon Consulting 2002d	Mar-02	B7-2-4	2-4	Zinc	480	24000	770	<1
Farallon Consulting 2002d	Mar-02	B3-0-3	0-3	Zinc	300	24000	770	<1
The Riley Group, Inc. 2000	Jul-00	TP-1-1.5'	1.5	Zinc	290	24000	770	<1
Farallon Consulting 2002d	Mar-02	B18-0-3	0-3	Zinc	290	24000	770	<1
Farallon Consulting 2002d	Mar-02	B16-0-1.5	0-1.5	Zinc	250	24000	770	<1
The Riley Group, Inc. 2000	Jul-00	TP-4-2'	2	Zinc	240	24000	770	<1
Farallon Consulting 2002d	Mar-02	B13-0-3	0-3	Zinc	230	24000	770	<1
Farallon Consulting 2002d	Mar-02	B1-0-3	0-3	Zinc	170	24000	770	<1
The Riley Group, Inc. 2000	Aug-00	B-2-1	2.5-4.0	Zinc	150	24000	770	<1
The Riley Group, Inc. 2000	Jul-00	TP-2-3.5'	3.5	Zinc	150	24000	770	<1
Farallon Consulting 2002d	Mar-02	MW3-3.5-4	3.5-4	Zinc	110	24000	770	<1
Farallon Consulting 2002d	Mar-02	MW-3-2.5-4	2.5-4	Zinc	110	24000	770	<1
Farallon Consulting 2002d	Mar-02	B2-0-3	0-3	Zinc	100	24000	770	<1
Farallon Consulting 2002d	Mar-02	B15-0-3	0-3	Zinc	99	24000	770	<1
Farallon Consulting 2002d	Mar-02	B17-0-3	0-3	Zinc	94	24000	770	<1
Farallon Consulting 2002d	Mar-02	B19-1.5-3	1.5-3	Zinc	83	24000	770	<1
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Zinc	83	24000	770	<1
Farallon Consulting 2002d	Mar-02	MW2-2-4	2-4	Zinc	83	24000	770	<1
Farallon Consulting 2002d	Mar-02	B8-2-3	2-3	Zinc	79	24000	770	<1
Farallon Consulting 2002d	Mar-02	MW1-7.5-9	7.5-9	Zinc	66	24000	38	1.7
Farallon Consulting 2002d	Mar-02	MW1-3-4.5	3-4.5	Zinc	64	24000	770	<1
The Riley Group, Inc. 2000	Aug-00	B-4-3	10-11.5	Zinc	42	24000	38	1.1
Farallon Consulting 2002d	Mar-02	B14-2-3	2-3	Zinc	41	24000	770	<1
Farallon Consulting 2002d	Mar-02	B6-0-3	0-3	Zinc	32	24000	770	<1
Farallon Consulting 2002d	Mar-02	B12-0-1	0-1	Zinc	29	24000	770	<1
Farallon Consulting 2002d	Mar-02	B9-1.5-2	1.5-2	Zinc	26	24000	770	<1
Farallon Consulting 2002d	Mar-02	B10-1-3	1-3	Zinc	24	24000	770	<1
Farallon Consulting 2002d	Mar-02	B11-0-3	0-3	Zinc	19	24000	770	<1

Table E-1
Chemicals Detected in Soil
Duwamish Marine Center

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	MW1-5-6.5	5-6.5	Zinc	18	24000	770	<1

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or soil-to-sediment screening lalue, whichever is lower.

mg/kg - Milligram per kilogram
DW - Dry weight
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Soil-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Table E-2
Chemicals Detected in Groundwater
Duwamish Marine Center

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	MW-3	1,1-Dichloroethene	2.2	400		<1
Farallon Consulting 2002d	Mar-02	MW-2	1,2,4-Trimethylbenzene	1	400		<1
Farallon Consulting 2002d	Mar-02	MW-2	1,2,4-Trimethylbenzene	1	400		<1
Farallon Consulting 2002d	Mar-02	MW-2	1,3,5-Trimethylbenzene	0.31	400		<1
Farallon Consulting 2002d	Mar-02	MW-2	1,3,5-Trimethylbenzene	0.31	400		<1
Farallon Consulting 2002d	Mar-02	MW-2	1-Methylnaphthalene	8.4	2.4		3.5
Farallon Consulting 2002d	Mar-02	MW-1	1-Methylnaphthalene	1.9	2.4		<1
Farallon Consulting 2002d	Mar-02	MW-3	1-Methylnaphthalene	1.1	2.4		<1
Farallon Consulting 2002d	Mar-02	MW-2	2-Methylnaphthalene	11	32	31	<1
Farallon Consulting 2002d	Mar-02	MW-1	2-Methylnaphthalene	3.8	32	31	<1
Farallon Consulting 2002d	Mar-02	MW-3	2-Methylnaphthalene	0.67	32	31	<1
Farallon Consulting 2002d	Mar-02	MW-2	Acenaphthene	13	960	9.3	1.4
Farallon Consulting 2002d	Mar-02	MW-3	Acenaphthene	5	960	9.3	<1
Farallon Consulting 2002d	Mar-02	MW-1	Acenaphthene	3.8	960	9.3	<1
Farallon Consulting 2002d	Mar-02	MW-2	Acenaphthylene	0.92		11	<1
Farallon Consulting 2002d	Mar-02	MW-3	Acetone	15	800		<1
Farallon Consulting 2002d	Mar-02	MW-2	Anthracene	5.7	4800	59	<1
Farallon Consulting 2002d	Mar-02	MW-2	Anthracene	5.7	4800	59	<1
Farallon Consulting 2002d	Mar-02	MW-2	Antimony	56	6.4		8.8
Farallon Consulting 2002d	Mar-02	MW-3	Antimony	7.9	6.4		1.2
Farallon Consulting 2002d	Mar-02	MW-1	Antimony	7.1	6.4		1.1
Farallon Consulting 2002d	Mar-02	MW-4	Antimony	5.6	6.4		<1
Farallon Consulting 2002d	Mar-02	MW-4	Aroclor 1242	0.67	0.1		6.7
Farallon Consulting 2002d	Mar-02	MW-2	Aroclor 1242	0.15	0.1		1.5
Farallon Consulting 2002d	Mar-02	MW-4	Aroclor 1254	0.17	0.1	0.86	1.7
Farallon Consulting 2002d	Mar-02	MW-2	Aroclor 1260	0.13	0.1	0.86	1.3
Farallon Consulting 2002d	Mar-02	MW-4	Aroclor 1260	0.11	0.1	0.31	1.1
Farallon Consulting 2002d	Mar-02	MW-2	Arsenic	220	0.058	370	3793
Farallon Consulting 2002d	May-02	MW-2	Arsenic	13	0.058	370	224
Farallon Consulting 2002d	Mar-02	MW-3	Arsenic	12	0.058	370	207

Table E-2
Chemicals Detected in Groundwater
Duwamish Marine Center

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	MW-4	Arsenic	8	0.058	370	138
Farallon Consulting 2002d	May-02	MW-4	Arsenic	5.7	0.058	370	98
The Riley Group, Inc. 2000	Aug-00	B-3-W	Arsenic	3.9	0.058	370	67
The Riley Group, Inc. 2000	Aug-00	B-2-W	Arsenic	3.6	0.058	370	62
The Riley Group, Inc. 2000	Aug-00	B-3-W	Benzene	2.7	0.8		3.4
Farallon Consulting 2002d	Mar-02	MW-2	Benzo(a)anthracene	11		0.63	17
Farallon Consulting 2002d	Mar-02	MW-3	Benzo(a)anthracene	0.1		0.63	<1
Farallon Consulting 2002d	Mar-02	MW-4	Benzo(a)anthracene	0.023		0.63	<1
Farallon Consulting 2002d	Mar-02	MW-2	Benzo(a)pyrene	13	0.012	0.27	1083
Farallon Consulting 2002d	Mar-02	MW-3	Benzo(a)pyrene	0.084	0.012	0.27	7.0
Farallon Consulting 2002d	Mar-02	MW-2	Benzo(b)fluoranthene	9.6		0.56	17
Farallon Consulting 2002d	Mar-02	MW-3	Benzo(b)fluoranthene	0.074		0.56	<1
Farallon Consulting 2002d	Mar-02	MW-4	Benzo(b)fluoranthene	0.018		0.56	<1
Farallon Consulting 2002d	Mar-02	MW-2	Benzo(g,h,i)perylene	7		0.029	241
Farallon Consulting 2002d	Mar-02	MW-3	Benzo(g,h,i)perylene	0.05		0.029	1.7
Farallon Consulting 2002d	Mar-02	MW-2	Benzo(k)fluoranthene	13		0.029	448
Farallon Consulting 2002d	Mar-02	MW-3	Benzo(k)fluoranthene	0.072		0.57	<1
Farallon Consulting 2002d	Mar-02	MW-4	Benzo(k)fluoranthene	0.017		0.57	<1
Farallon Consulting 2002d	Mar-02	MW-2	Cadmium	12	5	3.4	3.5
Farallon Consulting 2002d	Mar-02	MW-3	Chloroethane	0.51	150		<1
Farallon Consulting 2002d	Mar-02	MW-2	Chromium	140	50	320	2.8
Farallon Consulting 2002d	Mar-02	MW-3	Chromium	58	50	320	1.2
Farallon Consulting 2002d	Mar-02	MW-4	Chromium	24	50	320	<1
Farallon Consulting 2002d	Mar-02	MW-1	Chromium	20	50	320	<1
Farallon Consulting 2002d	May-02	MW-3	Chromium	19	50	320	<1
Farallon Consulting 2002d	Mar-02	MW-2	Chrysene	15		1.9	7.9
Farallon Consulting 2002d	Mar-02	MW-3	Chrysene	0.14		1.9	<1
Farallon Consulting 2002d	Mar-02	MW-4	Chrysene	0.031		1.9	<1
Farallon Consulting 2002d	Mar-02	MW-2	cis-1,2-Dichloroethene	0.24	80		<1
Farallon Consulting 2002d	Mar-02	MW-2	cis-1,2-Dichloroethene	0.24	80		<1

Table E-2
Chemicals Detected in Groundwater
Duwamish Marine Center

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	MW-2	Copper	810	590	120	6.8
Farallon Consulting 2002d	Mar-02	MW-3	Copper	140	590	120	1.2
Farallon Consulting 2002d	Mar-02	MW-1	Copper	49	590	120	<1
Farallon Consulting 2002d	Mar-02	MW-4	Copper	45	590	120	<1
Farallon Consulting 2003a	Dec-02	MW-2	Copper	39	590	120	<1
Farallon Consulting 2002d	Mar-02	MW-2	Dibenzo(a,h)anthracene	0.68		0.013	52
Farallon Consulting 2002d	Mar-02	MW-3	Dibenzo(a,h)anthracene	0.021		0.013	1.6
Farallon Consulting 2002d	Apr-02	MW-2	Diesel-Range Hydrocarbons	2700	500		5.4
Farallon Consulting 2002d	Mar-02	MW-2	Diesel-Range Hydrocarbons	2700	500		5.4
The Riley Group, Inc. 2000	Aug-00	B-2-W	Diesel-Range Hydrocarbons	520	500		1.0
The Riley Group, Inc. 2000	Aug-00	B-3-W	Diesel-Range Hydrocarbons	520	500		1.0
Farallon Consulting 2004	Feb-04	MW-3	Diesel-Range Hydrocarbons	370	500		<1
Farallon Consulting 2004	Aug-04	MW-3	Diesel-Range Hydrocarbons	320	500		<1
Farallon Consulting 2004	Nov-03	MW-3	Diesel-Range Hydrocarbons	280	500		<1
The Riley Group, Inc. 2000	Aug-00	B-2-W	Ethylbenzene	15	700		<1
Farallon Consulting 2002d	Aug-00	B-2R-W	Ethylbenzene	15	700		<1
The Riley Group, Inc. 2000	Aug-00	B-3-W	Ethylbenzene	2.1	700		<1
Farallon Consulting 2002d	Aug-00	B-3R-W	Ethylbenzene	2.1	700		<1
Farallon Consulting 2002d	Mar-02	MW-2	Ethylbenzene	0.4	700		<1
Farallon Consulting 2002d	Mar-02	MW-2	Ethylbenzene	0.4	700		<1
Farallon Consulting 2002d	Mar-02	MW-2	Fluoranthene	24	640	170	<1
Farallon Consulting 2002d	Mar-02	MW-2	Fluorene	9.7	640	7.0	1.4
Farallon Consulting 2002d	Mar-02	MW-3	Fluorene	1.5	640	7.0	<1
Farallon Consulting 2002d	Mar-02	MW-1	Fluorene	1	640	7.0	<1
Farallon Consulting 2002d	Apr-02	MW-2	Heavy Oil-Range Hydrocarbons	4900	500		9.8
Farallon Consulting 2002d	Mar-02	MW-2	Heavy Oil-Range Hydrocarbons	4900	500		9.8
The Riley Group, Inc. 2000	Aug-00	B-3-W	Heavy Oil-Range Hydrocarbons	1600	500		3.2
Farallon Consulting 2002d	Apr-02	MW-4	Heavy Oil-Range Hydrocarbons	820	500		1.6
Farallon Consulting 2002d	Mar-02	MW-4	Heavy Oil-Range Hydrocarbons	820	500		1.6
The Riley Group, Inc. 2000	Aug-00	B-2-W	Heavy Oil-Range Hydrocarbons	650	500		1.3

Table E-2
Chemicals Detected in Groundwater
Duwamish Marine Center

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Farallon Consulting 2004	Feb-04	MW-3	Heavy Oil-Range Hydrocarbons	550	500		1.1
Farallon Consulting 2002d	Mar-02	MW-2	Indeno(1,2,3-c,d)pyrene	6.8		0.033	206
Farallon Consulting 2002d	Mar-02	MW-3	Indeno(1,2,3-c,d)pyrene	0.05		0.033	1.5
Farallon Consulting 2002d	Mar-02	MW-2	Lead	2100	15	13	162
Farallon Consulting 2002d	Mar-02	MW-3	Lead	89	15	13	6.8
Farallon Consulting 2002d	Mar-02	MW-1	Lead	59	15	13	4.5
Farallon Consulting 2002d	Mar-02	MW-4	Lead	7	15	13	<1
Farallon Consulting 2002d	May-02	MW-3	Lead	1.2	15	13	<1
Farallon Consulting 2002d	Mar-02	MW-2	Mercury	2	2	0.0074	270
Farallon Consulting 2002d	Mar-02	MW-3	Mercury	0.55	2	0.0074	74
Farallon Consulting 2004	May-04	MW-3	Mercury (total)	0.5	2	0.0074	68
Farallon Consulting 2002d	Mar-02	MW-2	Naphthalene	140	160	92	1.5
Farallon Consulting 2002d	Mar-02	MW-3	Naphthalene	49	160	92	<1
Farallon Consulting 2002d	Mar-02	MW-2	Naphthalene	41	160	92	<1
Farallon Consulting 2002d	Mar-02	MW-3	Naphthalene	17	160	92	<1
Farallon Consulting 2002d	Mar-02	MW-1	Naphthalene	2.7	160	92	<1
Farallon Consulting 2002d	Mar-02	MW-2	Nickel	240			
Farallon Consulting 2002d	Mar-02	MW-4	Nickel	37			
The Riley Group, Inc. 2000	Aug-00	B-2-W	Nickel	21			
Farallon Consulting 2003a	Dec-02	MW-2	Nickel	7.2			
Farallon Consulting 2002d	Mar-02	MW-2	PAHs (total)	69.08			
Farallon Consulting 2002d	Mar-02	MW-3	PAHs (total)	0.541			
Farallon Consulting 2002d	Mar-02	MW-4	PAHs (total)	0.089			
Farallon Consulting 2002d	Mar-02	MW-4	PCB (total)	0.95	0.044	1.5	22
Farallon Consulting 2002d	Mar-02	MW-2	PCB (total)	0.28	0.044	1.5	6.4
Farallon Consulting 2002d	Mar-02	MW-2	Pentachlorophenol	3.5	0.73	10	4.8
Farallon Consulting 2002d	Mar-02	MW-2	Phenathrene	29		23	1.3
Farallon Consulting 2002d	Mar-02	MW-2	Pyrene	24	480	20	1.2
Farallon Consulting 2002d	Mar-02	MW-2	Selenium	34	80		<1
Farallon Consulting 2002d	Mar-02	MW-4	Selenium	33	80		<1

Table E-2
Chemicals Detected in Groundwater
Duwamish Marine Center

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Farallon Consulting 2002d	Mar-02	MW-3	Selenium	10	80		<1
The Riley Group, Inc. 2000	Aug-00	B-3-W	Selenium	6.4	80		<1
Farallon Consulting 2002d	Mar-02	MW-1	Tetrachloroethene	0.69	0.081		8.5
Farallon Consulting 2002d	Mar-02	MW-2	Tetrachloroethene	0.69	0.081		8.5
The Riley Group, Inc. 2000	Aug-00	B-3-W	Toluene	3.1	640		<1
Farallon Consulting 2002d	Aug-00	B-3R-W	Toluene	3.1	640		<1
The Riley Group, Inc. 2000	Aug-00	B-2-W	Toluene	2.7	640		<1
Farallon Consulting 2002d	Aug-00	B-2R-W	Toluene	2.7	640		<1
Farallon Consulting 2002d	Mar-02	MW-2	Toluene	0.27	640		<1
Farallon Consulting 2002d	Mar-02	MW-2	Toluene	0.27	640		<1
Farallon Consulting 2002d	Aug-00	B-3R-W	Xylenes (m&p)	6.5	1000		<1
Farallon Consulting 2002d	Aug-00	B-2R-W	Xylenes (m&p)	6.2	1000		<1
Farallon Consulting 2002d	Mar-02	MW-2	Xylenes (m&p)	0.86	1000		<1
Farallon Consulting 2002d	Mar-02	MW-2	Xylenes (m&p)	0.86	1000		<1
Farallon Consulting 2002d	Aug-00	B-3R-W	Xylenes (o)	4.4	1000		<1
Farallon Consulting 2002d	Aug-00	B-2R-W	Xylenes (o)	4.1	1000		<1
Farallon Consulting 2002d	Mar-02	MW-2	Xylenes (o)	0.55	1000		<1
Farallon Consulting 2002d	Mar-02	MW-2	Xylenes (o)	0.55	1000		<1
The Riley Group, Inc. 2000	Aug-00	B-3-W	Xylenes (total)	10.9	1000		<1
The Riley Group, Inc. 2000	Aug-00	B-2-W	Xylenes (total)	10.3	1000		<1
Farallon Consulting 2002d	Mar-02	MW-2	Zinc	2000	4800	76	26
Farallon Consulting 2002d	Mar-02	MW-1	Zinc	500	4800	76	6.6
The Riley Group, Inc. 2000	Aug-00	B-3-W	Zinc	300	4800	76	3.9
Farallon Consulting 2002d	Mar-02	MW-3	Zinc	150	4800	76	2.0
The Riley Group, Inc. 2000	Aug-00	B-2-W	Zinc	65	4800	76	<1

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, whichever is lower.

Table E-2
Chemicals Detected in Groundwater
Duwamish Marine Center

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor

ug/L - Microgram per Liter
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Table E-3
Historical Owners and Tenants
Duwamish Marine Center

Company	Approximate Dates of Operation[a]
Arrow Fuel Co.	1951-1966
Truax Machine & Tool Co.	1951-1976
Utility Machine Co.	1951-1966
American Sawmill Equipment Co.	1961-1966
Crosby Bankert (manufacturing agent)	1966-1986?
Gibson Tractor Agency	1961-1966
Junk House Co.	1961-1976
Myron Smith Merchandise Broker	1961-1986?
ResistoFlex (manufacturing agent)	1961-1966
Seattle Machine Co.	1961-1966
Tubesales Tubing & Pipe	1961-1966
AAA Building Maintenance	1966-1971
DeWar & Associates (manufacturing agent)	1966-1986?
Lippincott Co. (manufacturing agent)	1966-1986?
NW Plastics Industries (manufacturing agent)	1966-1986?
Boger Manufacturing & Fabrication	1976-1981?
Eppo Machine Works	1976-1981?
Precision Northwest Grinding	1976-1986
River Rock Distribution Quarry	1976-1981
Brockery Plastics	1981-1986
Hale's Construction and Associates	1981-1986
Kipper & Sons Engineering Plant	1981-1986
Load Cells, Inc.	1981-1991
Smokeeter® Distribution Office	1981-1998
Alaska General Freight	1986-1991
Hanson Metal Fabricators	1986-1991
L.S. Bitter Co.	1991-1996
Service Battery	1991-1996
Strousse Geis & Associates	1991-1998
J. Hoov	1996-1998
Accurate Machining	1998-unknown
CMG, Inc.	1998-unknown

[a] Approximate dates of operation are based on a review of Polk and Cole Street directories previously performed by Environmental Associates, Inc. (Environmental Associates 2000).

Appendix E-4
Relevant Pages from
Duwamish Marine Center Documents

The Riley Group, Inc.
Geotechnical Engineering • Environmental • Wetland Services

PRELIMINARY PHASE II SUBSURFACE INVESTIGATION

DUWAMISH MARINE CENTER PROPERTY
6365 FIRST AVENUE SOUTH
SEATTLE, WASHINGTON 98108

September 13, 2000

PREPARED BY:

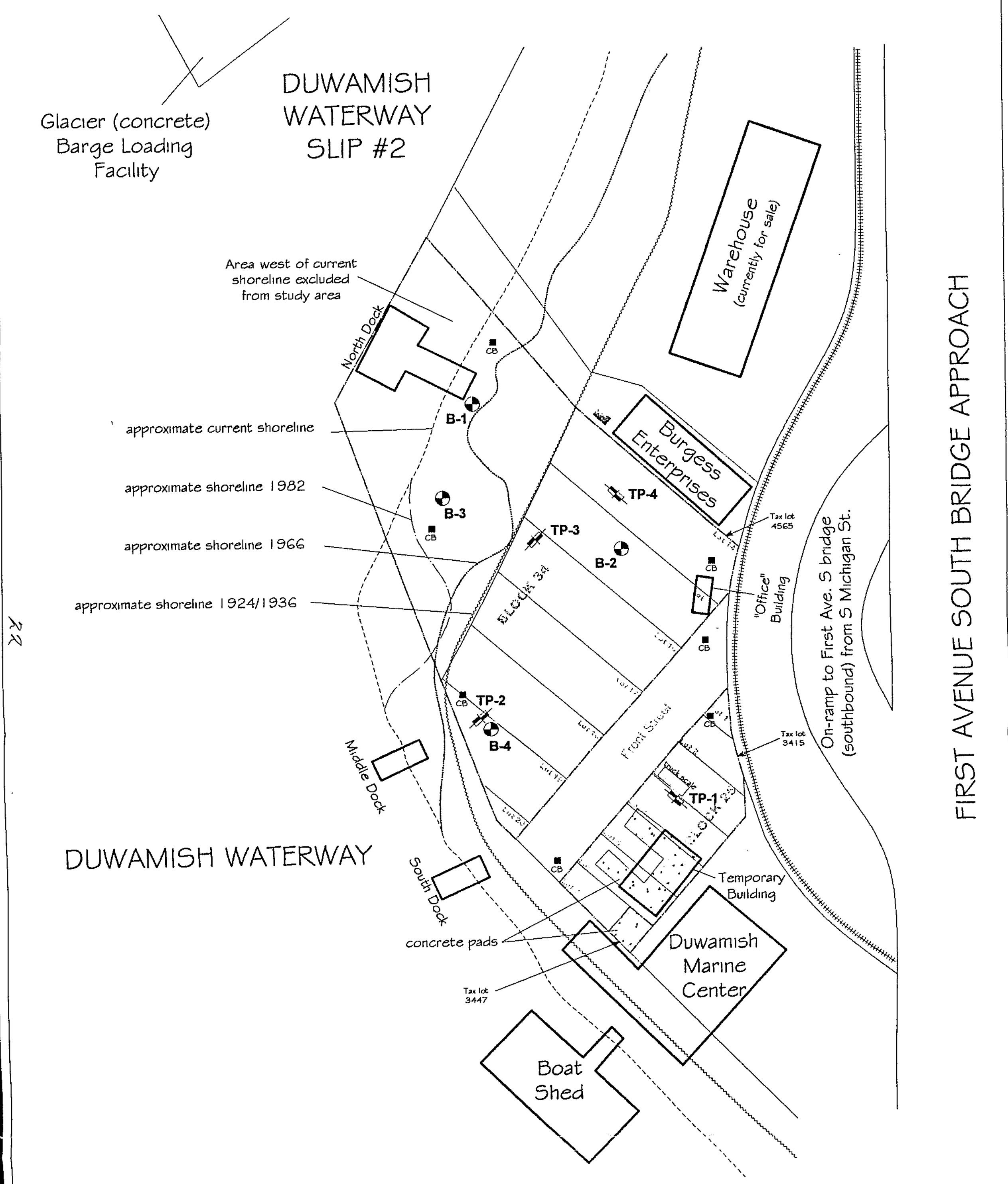
The Riley Group, Inc.
10728 Lake City Way NE
Seattle, WA 98125

PREPARED FOR:

Mr. Jim Gilmur
% Duwamish Marine Center
16 South Michigan Street
Seattle, Washington 98108

Riley Project No. 2000-122

Offices located in Washington, Oregon and California
10728 Lake City Way N.E. • Seattle, WA 98125 • Tel (206) 417-0551 • Fax (206) 417-0552
http:www.Riley-Group.com



Legend

Subject property boundaries (3 tax lots)	TP-1 Location of test pit (TP) excavation completed 7/17/2000	Former Burgess Enterprises UST location
Other property line/feature	B-1 Location of boring (B) completed 8/3/2000	CB On-site catch basin

Inferred direction of shallow-seated groundwater flow
(may be different at south and west edges of the upland portion of the site)

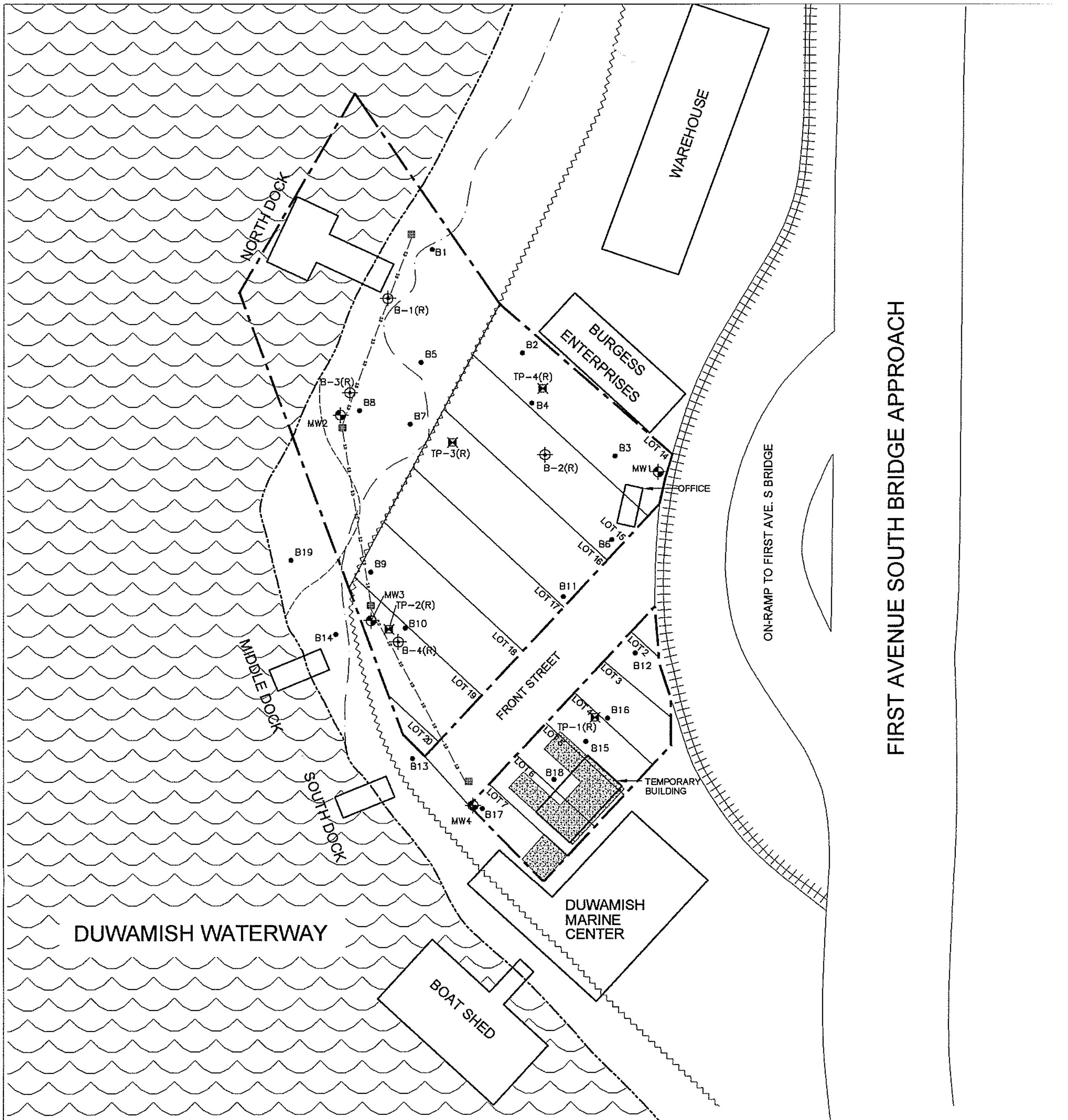
NOTE: *Development locations are approximate and are based upon building permit plans.*

The Riley Group, Inc.
10728 LAKE CITY WAY NE
SEATTLE, WASHINGTON 98125

Duwamish Marine Center Property		
Riley Project #2000-122	*Site Exploration Plan*	*Figure 2*
Drawn by: D. Holmes	*Date: 8/31/2000*	
Site Address: 6365 First Avenue South, Seattle WA 98108		

N

0 100'
Approximate scale: 1" = 100'



LEGEND

TP-1(R)	TEST PIT 7/17/2000 (THE RILEY GROUP)		SUBJECT PROPERTY BOUNDARY
B-1(R)	BORING 8/3/2000 (THE RILEY GROUP)		APPROXIMATE CURRENT SHORELINE
B1	BORING 3/13-14/2002 (FARALLON)		APPROXIMATE SHORELINE 1982
MW-4	MONITORING WELL 3/18/2002 (FARALLON)		APPROXIMATE SHORELINE 1966
	CONCRETE PADS		APPROXIMATE SHORELINE 1982/1936
	CATCH BASIN AND DRAINAGE LINE		

0 100 200

APPROXIMATE SCALE IN FEET

N

FARALLON CONSULTING
320 3rd Ave. NE, Suite 200
Issaquah, WA 98027

FIGURE 2

SITE PLAN
DUWAMISH MARINE CENTER
6365 FIRST AVE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 781-001

Drawn By: DEW	Checked By: PJ	Date: 4/4/02	Disk Reference: 781-001

FARALLON CONSULTING
Quality Service for Environmental Solutions

320 3rd Ave. NE, Suite 200
Issaquah, WA 98027

T: 425 . 427.0061
F: 425 . 427.0067

SITE CLOSURE REPORT

GILMUR/HALE FAMILY TRUST SITE
6365 FIRST AVENUE SOUTH
SEATTLE, WASHINGTON

Submitted by:
Farallon Consulting, L.L.C.
320 3rd Avenue NE, Suite 200
Issaquah, Washington 98027

Farallon PN: 781-001

For:
Mr. Jim Gilmur
16 South Michigan Street
Seattle, Washington 98108

September 25, 2002

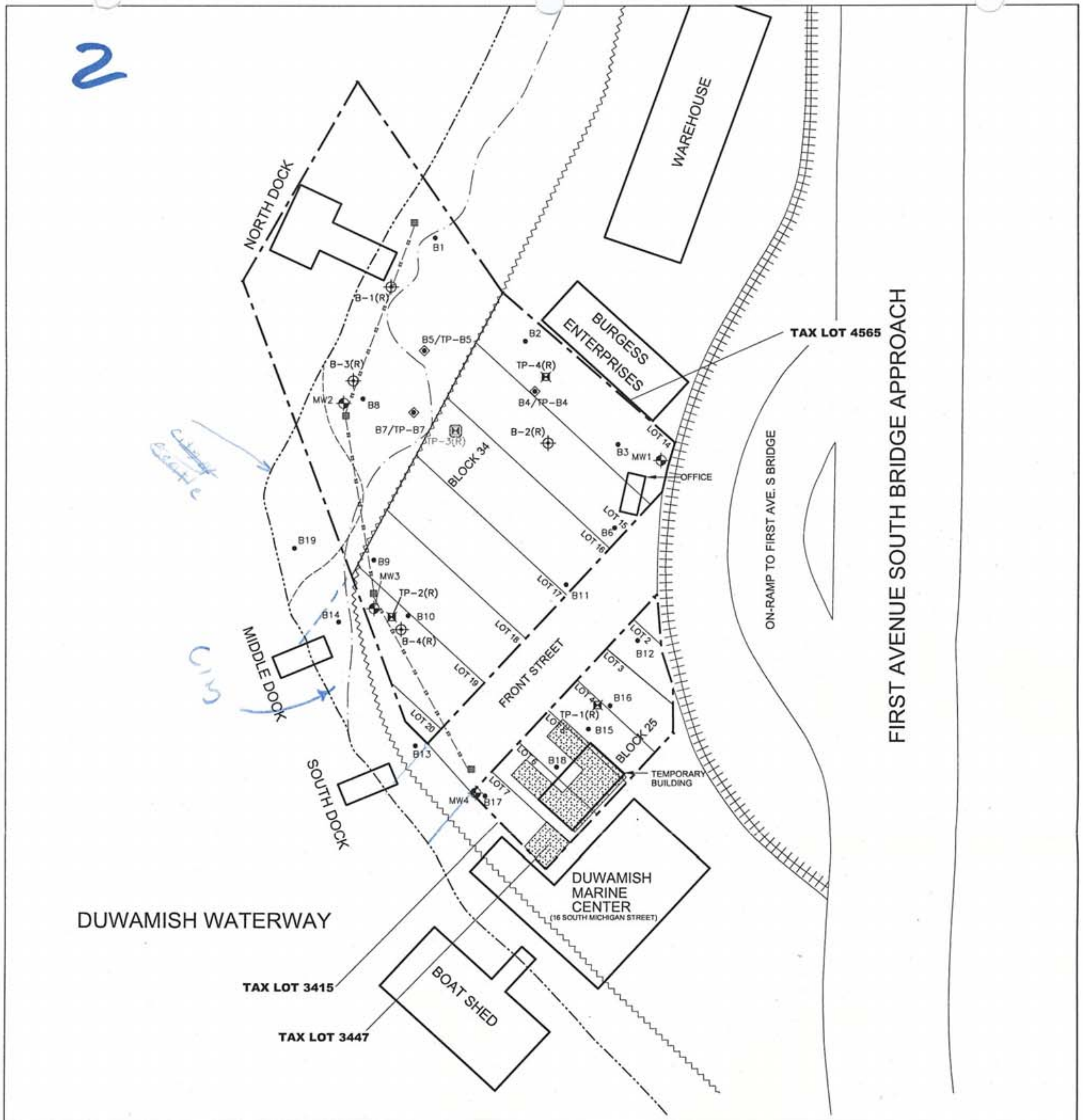
State of Washington
Hydrogeologist
1952
Licensed Geologist
Lauren L. G. Carroll

Prepared by:

Lauren Carroll
Senior Hydrogeologist

Reviewed by:

Peter Jewett
Principal



LEGEND

TP-1(R)	TEST PIT 7/17/2000 (THE RILEY GROUP)		CONCRETE PADS
B-1(R)	BORING 8/3/2000 (THE RILEY GROUP)		CATCH BASIN AND DRAINAGE LINE
B1	BORING 3/13-14/2002 (FARALLON)		SITE BOUNDARY
MW-4	MONITORING WELL 3/18/2002 (FARALLON)		APPROXIMATE CURRENT SHORELINE
TP-B7	TEST PIT 5/13/02 (FARALLON)		APPROXIMATE SHORELINE 1982
TP-3(R)	TEST PIT IN AREA EXCAVATED FOR INTERIM ACTION		APPROXIMATE SHORELINE 1966
			APPROXIMATE SHORELINE 1924/1936
	AREA EXCAVATED FOR INTERIM ACTION MAY 2002	LOT 19	LOT BOUNDARY AND LOT NUMBER

0 100 200

APPROXIMATE SCALE IN FEET

N

FARALLON CONSULTING
320 3rd Ave. NE, Suite 200
Issaquah, WA 98027

FIGURE 2

SITE PLAN
GILMUR/HALE FAMILY TRUST
6365 FIRST AVE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 781-001

Drawn By: DEW	Checked By: LC	Date: 8/9/02	Disk Reference: 781-001

FARALLON CONSULTING
Quality Service for Environmental Solutions

320 3rd Ave. NE, Suite 200
Issaquah, WA 98027

T: 425 . 427.0061
F: 425 . 427.0067

December 8, 2004

Mr. John Keeling
Toxics Cleanup Program
Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue Southeast
Bellevue, Washington 98008

RE: REPORT OF COMPLIANCE MONITORING AND REQUEST FOR NO FURTHER ACTION DETERMINATION FOR GROUNDWATER AND SOIL
GILMUR/HALE FAMILY TRUST SITE
6365 FIRST AVENUE SOUTH, SEATTLE, WASHINGTON
FARALLON PN: 781-001
VCP # 21945598

Dear Mr. Keeling:

Farallon Consulting, L.L.C. (Farallon) has prepared this *Report of Compliance Monitoring and Request for No Further Action Determination for Groundwater and Soil* for the Gilmur/Hale Family Trust Site located at 6365 First Avenue South in Seattle, Washington (herein referred to as the Site). This letter report was prepared to document the activities and results of compliance groundwater monitoring conducted to provide sufficient data to meet the requirements for a No Further Action (NFA) determination for groundwater at the Site in accordance with the Washington State Department of Ecology (Ecology) Model Toxics Control Act Cleanup Regulation (MTCA) (Washington Administrative Code 173-340-350 [WAC 173-340-350]). The compliance monitoring activities were conducted pursuant to the comments provided by Ecology in correspondence to Farallon dated August 11, 2003.

SITE DESCRIPTION

The Site is located in the northeast quarter of Section 30, Township 24 North, Range 4 East in Seattle, Washington. The Site is located on the east side of the Duwamish Waterway, between Slip No. 2 and Slip No. 3, in an area zoned for industrial use. A Site Location Map and Site Plan are provided as Figures 1 and 2, respectively.

The Site consists of three tax parcels which are identified as Tax Lots 4565, 3415, and 3447. Front Street is located between Tax Lot 4565 to the northwest, and Tax Lots 3415 and 3447 to the southeast (Figure 2). Tax Lot 4565 consists of approximately 98,720 square feet of property. A portion of Tax Lot 4565 (approximately 23,360 square feet) is submerged in the Duwamish Waterway beneath Slip No. 2. Tax Lots 3415 and 3447 consist of a total of approximately 22,762 square feet of property.

Table 1
Summary of Groundwater Compliance Monitoring Analytical Results
Gilmur/Hale Family Trust
Seattle, Washington
Farallon PN: 781-001

Well	Date Sampled	Total Petroleum Hydrocarbons[1]	PCB Mixtures[2]	Metals	
				Dissolved Copper[3]	Total Mercury[4]
MW-3	11/5/2003	<690	ND<0.047	ND<11	ND<0.50
MW-3	2/6/2004	920	ND<0.048	ND<10	ND<0.50
MW-3	5/12/2004	ND<660	ND<0.047	ND<10	0.5
MW-3	8/20/2004	<720	ND<0.10	ND<10	ND<0.50
Surface Water Marine Chronic Criterion (μg/l) [6]		1,000 [7]	0.03	3	0.025

NOTE:

Results in BOLD denote concentrations are above site-specific cleanup levels.

ND < - constituent was not detected above the laboratory practical quantitation limit.

< - TPH summation of DRO and ORO was not detected above the indicated concentration.

[1]Summation of DRO and ORO, as analyzed by Washington State Department of Ecology Method NWTPH-Dx.

[2]Analyzed by EPA Method 8082

[3]Analyzed by EPA Method 200.8

[4]Analyzed by EPA Method 7470A

[5]MTCA Chapter 173-340 WAC.

[6]WAC 173-201A-040

[7]Surface water cleanup level for TPH mixtures was calculated based on a summation of the MTCA Method A groundwater cleanup levels, per WAC 173-340-720.

DRO= total petroleum hydrocarbons as diesel-range organics

MTCA = Washington State Department of Ecology Model Toxics Control Act

ORO=total petroleum hydrocarbons as oil-range organics

PCBs = polychlorinated biphenyls

μg/l = micrograms per liter

Appendix F
Former Frank's Used Cars
Historical Data

F–1. Chemicals Detected in Soil

F–2. Chemicals Detected in Groundwater

Table F-1
Chemicals Detected in Soil
Former Frank's Used Cars

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
NATEX 1991	Feb-91	Frank-1		Aroclor-1248	0.65	0.5	1.3	1.3
Environmental Associates 1993	1992	Surface Composite 3		Arsenic	17	0.67	12000	25
Environmental Associates 1993	1992	Surface Composite 2		Arsenic	13	0.67	12000	19
Environmental Associates 1993	1992	Surface Composite 1		Arsenic	12	0.67	12000	18
Environmental Associates 1993	1992	Surface Composite 3		Barium	210	16000		<1
Ecology 1991i	Feb-91	Frank-1		Cadmium	14.5 J	2	34	7.3
Environmental Associates 1993	1992	Surface Composite 3		Cadmium	3.7	2	34	1.9
Environmental Associates 1993	1992	Surface Composite 2		Cadmium	2.7	2	34	1.4
Environmental Associates 1993	1992	Surface Composite 1		Cadmium	1.6	2	34	<1
Ecology 1991i	Feb-91	Frank-1		Chromium	372	19	5400	20
Environmental Associates 1993	1992	Surface Composite 3		Chromium	21	19	5400	1.1
Environmental Associates 1993	1992	TP2-2	4	Chromium	21	19	5400	1.1
Environmental Associates 1993	1992	Surface Composite 2		Chromium	18	19	5400	<1
Environmental Associates 1993	1992	Surface Composite 1		Chromium	15	19	5400	<1
Ecology 1991i	Feb-91	Frank-1		Copper	321	3000	780	<1
NATEX 1991	Feb-91	Frank-1		Ethylbenzene	18	6		3.0
NATEX 1991	Feb-91	Frank-1		Ethylbenzene	17 D	6		2.8
Environmental Associates 1993	1992	Surface Composite 2		Heavy Oil-Range Hydrocarbons	810	2000		<1
Environmental Associates 1993	1992	Surface Composite 3		Heavy Oil-Range Hydrocarbons	450	2000		<1
Environmental Associates 1993	1992	Surface Composite 1		Heavy Oil-Range Hydrocarbons	94	2000		<1
Ecology 1991i	Feb-91	Frank-1		Lead	995	250	1300	4.0
Environmental Associates 1993	1992	Surface Composite 3		Lead	370	250	1300	1.5
Environmental Associates 1993	1992	Surface Composite 2		Lead	230	250	1300	<1
Environmental Associates 1993	1992	Surface Composite 1		Lead	71	250	1300	<1
Environmental Associates 1993	1992	Surface Composite 2		Mercury	0.19	2	0.59	<1
Environmental Associates 1993	1992	Surface Composite 3		Mercury	0.11	2	0.59	<1
Ecology 1991i	Feb-91	Frank-1		Nickel	86.1			
Environmental Associates 1993	1992	Surface Composite 3		PCBs (total)	0.60	0.5	1.3	1.2
Environmental Associates 1993	1992	TP2-2	4	Selenium	75	400		
Environmental Associates 1993	1992	Surface Composite 1		Selenium	23	400		
Environmental Associates 1993	1992	Surface Composite 3		Selenium	23	400		
Environmental Associates 1993	1992	Surface Composite 2		Selenium	18	400		
Environmental Associates 1993	1992	Surface Composite 3		Silver	7.6	400	12	<1
NATEX 1991	Feb-91	Frank-1		Toluene	31 D	7		4.4

Table F-1
Chemicals Detected in Soil
Former Frank's Used Cars

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Environmental Associates 1993	1992	TP5-2	4	Total Petroleum Hydrocarbons	150	2000		<1
Environmental Associates 1993	1992	TP1-1	3	Total Petroleum Hydrocarbons	46	2000		<1
NATEX 1991	Feb-91	Frank-1		Total Volatile Petroleum Hydrocarbons	550 J	100		5.5
NATEX 1991	Feb-91	Frank-1		Xylene (total)	96 D	9		11
Ecology 1991i	Feb-91	Frank-1		Zinc	1332	24000	770	1.7

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.

mg/kg - Milligram per kilogram
DW - Dry weight
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

PCB - Polychlorinated biphenyl
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
J - Estimated value between the method detection limit and the laboratory reporting limit.
D - Diluted sample

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Soil-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Table F-2
Chemicals Detected in Groundwater
Former Frank's Used Cars

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
NATEX 1991	Feb-91	Frank-2	Acetone	41 J	800		<1

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or groundwater-to-sediment screening level, whichever is lower.

ug/L - Microgram per Liter
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
J - Estimated value between the method detection limit and the laboratory reporting limit.

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Appendix G
Former Consolidated Freightways Historical Data

G–1. Former Chemicals Detected in Soil

G–2. Chemicals Detected in Groundwater

G–3. Relevant Pages from Former Consolidated Freightways Documents

Table G-1
Chemicals Detected in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	2-Methylnaphthalene	16	320	0.073	219
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	2-Methylnaphthalene	16	320	0.073	219
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	2-Methylnaphthalene	11	320	0.073	151
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	2-Methylnaphthalene	0.14	320	1.4	<1
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Acenaphthene	1.8	4800	0.060	30
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Acenaphthene	1.1	4800	1.2	<1
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Acenaphthene	0.93	4800	0.060	16
Golder Associates 1998a	Apr-98	CF-T1		Acenaphthene	0.21	4800	0.060	3.5
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Acenaphthene	0.071	4800	0.060	1.2
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Anthracene	2.2	2400	1.2	1.8
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Anthracene	0.12	2400	24	<1
Golder Associates 1998b	Oct-98	CF-SP-COMP		Barium	29	16000		<1
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Benzo(a)anthracene	0.094		0.27	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Benzo(a)anthracene	0.06		5.4	<1
Golder Associates 1998a	Apr-98	CF-T1		Benzo(a)anthracene	0.052		0.27	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Benzo(a)pyrene	0.049	0.1	4.2	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Benzo(b)fluoranthene	0.063		9	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Benzo(g,h,i)perylene	0.033		1.6	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Benzo(k)fluoranthene	0.047		9.0	<1
Golder Associates 1998b	Oct-98	CF-SP-COMP		Chromium	13	19	270	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-2V		Chromium	11.3	19	270	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-2F		Chromium	9.9	19	270	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-1V		Chromium	9.1	19	270	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-1F		Chromium	7.2	19	270	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Chrysene	0.17		9.2	<1
Golder Associates 1998a	Apr-98	CF-T1		Chrysene	0.097		0.46	<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-3		Diesel-Range Hydrocarbons	43602	2000		22
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-1		Diesel-Range Hydrocarbons	41294	2000		21
Fluor Daniel GTI 1998	Jul-98	SW-1		Diesel-Range Hydrocarbons	28700	2000		14
Golder Associates 1998b	Oct-98	SW-1		Diesel-Range Hydrocarbons	28700	2000		14
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-4		Diesel-Range Hydrocarbons	27812	2000		14

Table G-1
Chemicals Detected in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Shannon & Wilson 1997	Oct-97	P-2	5-8	Diesel-Range Hydrocarbons	19000	2000		10
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Diesel-Range Hydrocarbons	13000	2000		6.5
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-11		Diesel-Range Hydrocarbons	12643	2000		6.3
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Diesel-Range Hydrocarbons	12000	2000		6.0
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Diesel-Range Hydrocarbons	8800	2000		4.4
Fluor Daniel GTI 1998	Jul-98	SP-1		Diesel-Range Hydrocarbons	7970	2000		4.0
Golder Associates 1998b	Oct-98	SP-1		Diesel-Range Hydrocarbons	7970	2000		4.0
Golder Associates 1998b	Oct-98	CF-SP-5		Diesel-Range Hydrocarbons	7700 D	2000		3.9
Blymyer Engineers, Inc. 1988	Jun-88	MW-5	5	Diesel-Range Hydrocarbons	4797	2000		2.4
Fluor Daniel GTI 1998	Jul-98	PL-2		Diesel-Range Hydrocarbons	4780	2000		2.4
Golder Associates 1998b	Oct-98	PL-2		Diesel-Range Hydrocarbons	4780	2000		2.4
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-10		Diesel-Range Hydrocarbons	4446	2000		2.2
Fluor Daniel GTI 1998	Jul-98	SP-2		Diesel-Range Hydrocarbons	3890	2000		1.9
Golder Associates 1998b	Oct-98	SP-2		Diesel-Range Hydrocarbons	3890	2000		1.9
Shannon & Wilson 1997	Oct-97	P-4	5-8	Diesel-Range Hydrocarbons	3500	2000		1.8
Blymyer Engineers, Inc. 1988	Jun-88	S-1V		Diesel-Range Hydrocarbons	3389	2000		1.7
Blymyer Engineers, Inc. 1988	Jun-88	S-2F		Diesel-Range Hydrocarbons	3187	2000		1.6
Blymyer Engineers, Inc. 1988	Jun-88	S-1F		Diesel-Range Hydrocarbons	2939	2000		1.5
Fluor Daniel GTI 1998	Jul-98	SW-4		Diesel-Range Hydrocarbons	2700	2000		1.4
Golder Associates 1998b	Oct-98	SW-4		Diesel-Range Hydrocarbons	2700	2000		1.4
Fluor Daniel GTI 1998	Jul-98	SP-3		Diesel-Range Hydrocarbons	2000	2000		1.0
Golder Associates 1998b	Oct-98	SP-3		Diesel-Range Hydrocarbons	2000	2000		1.0
Golder Associates 1998b	Oct-98	CF-SP-1		Diesel-Range Hydrocarbons	1600 X1	2000		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-2		Diesel-Range Hydrocarbons	438	2000		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-5		Diesel-Range Hydrocarbons	238	2000		<1
Shannon & Wilson 1997	Oct-97	P-5	7.5-9	Diesel-Range Hydrocarbons	180	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	MW-3B	9-9.5	Diesel-Range Hydrocarbons	160	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	MW-4C	15	Diesel-Range Hydrocarbons	102	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	S-2V		Diesel-Range Hydrocarbons	98	2000		<1
Shannon & Wilson 1997	Oct-97	P-6	6-7.5	Diesel-Range Hydrocarbons	96	2000		<1
Shannon & Wilson 1997	Oct-97	P-7	7.5-9	Diesel-Range Hydrocarbons	90	2000		<1

Table G-1
Chemicals Detected in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Fluor Daniel GTI 1998	Jul-98	TPB-1		Diesel-Range Hydrocarbons	72.1	2000		<1
Golder Associates 1998b	Oct-98	TPB-1		Diesel-Range Hydrocarbons	72.1	2000		<1
Golder Associates 1998b	Oct-98	CF-SP-3		Diesel-Range Hydrocarbons	52	2000		<1
Golder Associates 1998b	Oct-98	CF-SP-4		Diesel-Range Hydrocarbons	47 X1	2000		<1
Fluor Daniel GTI 1998	Jul-98	PL-1		Diesel-Range Hydrocarbons	20.5	2000		<1
Golder Associates 1998b	Oct-98	PL-1		Diesel-Range Hydrocarbons	20.5	2000		<1
Golder Associates 1998a	Apr-98	CF-T3		Diesel-Range Hydrocarbons	20	2000		<1
Golder Associates 1998a	Apr-98	MW-2-5.5	5.5	Diesel-Range Hydrocarbons	18	2000		<1
Golder Associates 1998a	Apr-98	RW1-13	13	Diesel-Range Hydrocarbons	18	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	MW-5B	10	Diesel-Range Hydrocarbons	15	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	MW-2A	4-4.5	Diesel-Range Hydrocarbons	13	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	MW-1A	4-4.5	Diesel-Range Hydrocarbons	12	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	MW-1C	14-14.5	Diesel-Range Hydrocarbons	11	2000		<1
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Ethylbenzene	7.4	6		1
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Ethylbenzene	4.4	6		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-7		Ethylbenzene	1.8	6		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-9		Ethylbenzene	0.09	6		<1
Golder Associates 1998a	Apr-98	CF-T1		Fluoranthene	0.21	3200	1.2	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Fluoranthene	0.18	3200	24	<1
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Fluorene	2.5	3200	0.081	31
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Fluorene	2	3200	0.081	25
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Fluorene	1.9	3200	1.6	1.2
Golder Associates 1998a	Apr-98	CF-T1		Fluorene	0.21	3200	0.081	2.6
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Fluorene	0.15	3200	1.6	<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-7		Gasoline-Range Hydrocarbons	731	100		7.3
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-9		Gasoline-Range Hydrocarbons	319	100		3.2
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-6		Gasoline-Range Hydrocarbons	80	100		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-8		Gasoline-Range Hydrocarbons	50	100		<1
Golder Associates 1998b	Oct-98	CF-SP-1		Heavy Oil-Range Hydrocarbons	6000	2000		3.0
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Heavy Oil-Range Hydrocarbons	520	2000		<1
Golder Associates 1998b	Oct-98	CF-SP-5		Heavy Oil-Range Hydrocarbons	230 X1	2000		<1

Table G-1
Chemicals Detected in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Golder Associates 1998a	Apr-98	CF-T3		Heavy Oil-Range Hydrocarbons	53	2000		<1
Golder Associates 1998a	Apr-98	MW3-6.5	6.5	Heavy Oil-Range Hydrocarbons	48	2000		<1
Golder Associates 1998a	Apr-98	MW3-5.0	5.0	Heavy Oil-Range Hydrocarbons	32	2000		<1
Blymyer Engineers, Inc. 1988	Jun-88	S-1V		Lead	14.2	250	67	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-2F		Lead	11	250	67	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-1F		Lead	9.9	250	67	<1
Blymyer Engineers, Inc. 1988	Jun-88	S-2V		Lead	8.6	250	67	<1
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Naphthalene	8.1	5	3.8	2.1
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Naphthalene	6.5	5	0.20	33
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Naphthalene	6.2	5	0.20	31
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Naphthalene	0.049	5	3.8	<1
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Phenanthrene	7		0.49	14
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Phenanthrene	4.9		9.7	<1
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Phenanthrene	3.6		0.49	7
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Phenanthrene	0.22		9.7	<1
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Pyrene	0.7	2400	28	<1
Golder Associates 1998a	Apr-98	CF-T1		Pyrene	0.68	2400	1.4	<1
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Pyrene	0.63	2400	1.4	<1
Golder Associates 1998a	Apr-98	RW1-7.0	7.0	Pyrene	0.62	2400	1.4	<1
Golder Associates 1998a	Apr-98	MW2-2.0	2.0	Pyrene	0.19	2400	28	<1
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Toluene	4.4	7		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-7		Toluene	0.64	7		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-6		Toluene	0.42	7		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-8		Toluene	0.18	7		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-9		Toluene	0.08	7		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-6		Toluene	0.07	7		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-11		Total Petroleum Hydrocarbons	11970	2000		6.0
Blymyer Engineers, Inc. 1988	Jun-88	S-1V		Total Petroleum Hydrocarbons	4274	2000		2.1
Blymyer Engineers, Inc. 1988	Jun-88	S-2F		Total Petroleum Hydrocarbons	4072	2000		2.0
Blymyer Engineers, Inc. 1988	Jun-88	S-1F		Total Petroleum Hydrocarbons	3383	2000		1.7
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-10		Total Petroleum Hydrocarbons	2045	2000		1.0

Table G-1
Chemicals Detected in Soil
Former Consolidated Freightways

Source	Sample Date	Sample Location	Sample Depth (ft)	Chemical	Soil Conc'n (mg/kg DW)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level (Based on CSL)[b] (mg/kg)	Exceedance Factor
Blymyer Engineers, Inc. 1988	Jun-88	S-2V		Total Petroleum Hydrocarbons	193	2000		<1
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Xylenes (m,p)	30	9		3.3
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Xylenes (m,p)	29	9		3.2
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-7		Xylenes (m,p)	8.67	9		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-6		Xylenes (m,p)	0.5	9		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-9		Xylenes (m,p)	0.5	9		<1
Golder Associates 1998a	Apr-98	RW2-7.0	7.0	Xylenes (o)	26	9		2.9
Golder Associates 1998a	Apr-98	RW2-4.0	4.0	Xylenes (o)	18	9		2.0
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-7		Xylenes (o)	4.05	9		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	T-9		Xylenes (o)	0.52	9		<1

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.

mg/kg - Milligram per kilogram
DW - Dry weight
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

PAH - Polycyclic aromatic hydrocarbon
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
D - Diluted sample
X1 - Laboratory defined data qualifier. Qualifier definition was not included in source document.

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Soil-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Table G-2
Chemicals Detected in Groundwater
Former Consolidated Freightways

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Golder Associates 1998a	Jun-98	RW-2	2-Methylnaphthalene	39000	32	31	1258
Golder Associates 1998a	Jun-98	RW-1	2-Methylnaphthalene	26000	32	31	839
Golder Associates 1998a	Jun-98	MW-2	2-Methylnaphthalene	180	32	31	5.8
Golder Associates 1998a	Jun-98	RW-2	Acenaphthene	1300	960	9.3	140
Golder Associates 1998a	Jun-98	RW-1	Acenaphthene	1100	960	9.3	118
Golder Associates 1998a	Jun-98	MW-2	Acenaphthene	840	960	9.3	90
Golder Associates 1998a	Jun-98	RW-1	Anthracene	150	4800	59	2.5
Golder Associates 1998a	Jun-98	RW-2	Benzene	210	0.8		263
Golder Associates 2000b	Aug-99	RW-2	Benzene	83	0.8		104
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-2	Benzene	13	0.8		16
Blymyer Engineers, Inc. 1988	Aug-88	W-1	Chromium	800	50	320	16
Blymyer Engineers, Inc. 1988	Aug-88	W-1	Diesel-Range Hydrocarbons	2862000	500		5724
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-1	Diesel-Range Hydrocarbons	2538000	500		5076
Shannon & Wilson 1997	Oct-97	P-2	Diesel-Range Hydrocarbons	2200000	500		4400
Fluor Daniel GTI 1998	Jul-98	TP-1	Diesel-Range Hydrocarbons	138000	500		276
Golder Associates 2000b	Aug-99	GP-14	Diesel-Range Hydrocarbons	34000	500		68
Golder Associates 2000b	Aug-99	GP-10	Diesel-Range Hydrocarbons	29000	500		58
Golder Associates 1998a	Jun-98	RW-2	Diesel-Range Hydrocarbons	5400	500		11
Golder Associates 2000b	Aug-99	GP-11	Diesel-Range Hydrocarbons	2500	500		5.0
Golder Associates 1998a	Jun-98	MW-2	Diesel-Range Hydrocarbons	2200	500		4.4
Golder Associates 2000b	Aug-99	MW-2	Diesel-Range Hydrocarbons	1900	500		3.8
Shannon & Wilson 1997	Oct-97	P-4	Diesel-Range Hydrocarbons	1700	500		3.4
Golder Associates 2000b	Aug-99	MW-3	Diesel-Range Hydrocarbons	1500	500		3.0
Golder Associates 2000b	Aug-99	RW-2	Diesel-Range Hydrocarbons	1500	500		3.0
Golder Associates 1998a	Jun-98	RW-1	Diesel-Range Hydrocarbons	1400	500		2.8
Golder Associates 2000b	Aug-99	GP-6	Diesel-Range Hydrocarbons	1400	500		2.8
Golder Associates 2000b	Aug-99	GP-1	Diesel-Range Hydrocarbons	1200	500		2.4
Golder Associates 2000b	Aug-99	GP-9	Diesel-Range Hydrocarbons	1200	500		2.4
Golder Associates 1998a	Jun-98	MW-3	Diesel-Range Hydrocarbons	1000	500		2.0
Golder Associates 2000b	Aug-99	GP-5	Diesel-Range Hydrocarbons	980	500		2.0
Golder Associates 2000b	Aug-99	GP-4	Diesel-Range Hydrocarbons	800	500		1.6
Golder Associates 2000b	Aug-99	GP-7	Diesel-Range Hydrocarbons	720	500		1.4
Golder Associates 2000b	Aug-99	GP-13	Diesel-Range Hydrocarbons	580	500		1.2
Golder Associates 2000b	Aug-99	GP-2	Diesel-Range Hydrocarbons	400	500		<1

Table G-2
Chemicals Detected in Groundwater
Former Consolidated Freightways

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Shannon & Wilson 1997	Oct-97	P-7	Diesel-Range Hydrocarbons	400	500		<1
Golder Associates 2000b	Aug-99	GP-3	Diesel-Range Hydrocarbons	260	500		<1
Golder Associates 2000b	Aug-99	GP-8	Diesel-Range Hydrocarbons	260	500		<1
Golder Associates 2000b	Aug-99	MW-1	Diesel-Range Hydrocarbons	160	500		<1
Golder Associates 2000b	Aug-99	GP-12	Diesel-Range Hydrocarbons	160	500		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-2	Ethylbenzene	317	700		<1
Golder Associates 1998a	Jun-98	RW-2	Ethylbenzene	100	700		<1
Golder Associates 2000b	Aug-99	RW-2	Ethylbenzene	20	700		<1
Golder Associates 1998a	Jun-98	RW-1	Fluorene	2900	640	7.0	414
Golder Associates 1998a	Jun-98	RW-2	Fluorene	2100	640	7.0	300
Golder Associates 1998a	Jun-98	MW-2	Fluorene	800	640	7.0	114
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-2	Gasoline-Range Hydrocarbons	158000	800		198
Blymyer Engineers, Inc. 1988	Aug-88	W-1	Heavy Oil-Range Hydrocarbons	3812000	500		7624
Golder Associates 2000b	Aug-99	GP-14	Heavy Oil-Range Hydrocarbons	2500	500		5.0
Golder Associates 2000b	Aug-99	GP-10	Heavy Oil-Range Hydrocarbons	2100	500		4.2
Golder Associates 2000b	Aug-99	MW-3	Heavy Oil-Range Hydrocarbons	1800	500		3.6
Golder Associates 2000b	Aug-99	GP-6	Heavy Oil-Range Hydrocarbons	1800	500		3.6
Golder Associates 1998a	Jun-98	MW-3	Heavy Oil-Range Hydrocarbons	1100	500		2.2
Golder Associates 2000b	Aug-99	GP-11	Heavy Oil-Range Hydrocarbons	860	500		1.7
Golder Associates 2000b	Aug-99	GP-1	Heavy Oil-Range Hydrocarbons	690	500		1.4
Golder Associates 1998a	Jun-98	RW-2	Heavy Oil-Range Hydrocarbons	680	500		1.4
Golder Associates 1998a	Jun-98	MW-2	Heavy Oil-Range Hydrocarbons	660	500		1.3
Golder Associates 2000b	Aug-99	GP-3	Heavy Oil-Range Hydrocarbons	590	500		1.2
Golder Associates 2000b	Aug-99	MW-2	Heavy Oil-Range Hydrocarbons	580	500		1.2
Golder Associates 2000b	Aug-99	GP-4	Heavy Oil-Range Hydrocarbons	490	500		<1
Golder Associates 2000b	Aug-99	RW-2	Heavy Oil-Range Hydrocarbons	450	500		<1
Golder Associates 2000b	Aug-99	GP-12	Heavy Oil-Range Hydrocarbons	390	500		<1
Golder Associates 2000b	Aug-99	GP-7	Heavy Oil-Range Hydrocarbons	360	500		<1
Golder Associates 2000b	Aug-99	GP-13	Heavy Oil-Range Hydrocarbons	330	500		<1
Golder Associates 2000b	Aug-99	GP-8	Heavy Oil-Range Hydrocarbons	300	500		<1
Golder Associates 2000b	Aug-99	GP-2	Heavy Oil-Range Hydrocarbons	280	500		<1
Golder Associates 2000b	Aug-99	GP-9	Heavy Oil-Range Hydrocarbons	280	500		<1
Golder Associates 2000b	Aug-99	MW-1	Heavy Oil-Range Hydrocarbons	250	500		<1
Blymyer Engineers, Inc. 1988	Aug-88	W-1	Lead	1900	15	13	146

Table G-2
Chemicals Detected in Groundwater
Former Consolidated Freightways

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level (Based on CSL)[b] (ug/L)	Exceedance Factor
Golder Associates 1998a	Jun-98	RW-2	Naphthalene	43000	160	92	467
Golder Associates 1998a	Jun-98	RW-1	Naphthalene	11000	160	92	120
Golder Associates 1998a	Jun-98	RW-1	Phenanthrene	2500		23	109
Golder Associates 1998a	Jun-98	RW-2	Phenanthrene	2300		23	100
Golder Associates 1998a	Jun-98	MW-2	Phenanthrene	720		23	31
Golder Associates 1998a	Jun-98	RW-2	Pyrene	270	480	20	14
Golder Associates 1998a	Jun-98	RW-2	Toluene	13	640		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-2	Toluene	9	640		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-2	Xylenes (m,p)	1790	1000		1.8
Golder Associates 1998a	Jun-98	RW-2	Xylenes (m,p)	220	1000		<1
Blymyer & Sons Engineers, Inc. 1988a	Apr-88	W-2	Xylenes (o)	264	1000		<1
Golder Associates 1998a	Jun-98	RW-2	Xylenes (o)	88	1000		<1
Golder Associates 2000b	Aug-99	RW-2	Xylenes (total)	45	1000		<1

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA cleanup level or groundwater-to-sediment screening level, whichever is lower.

ug/L - Microgram per Liter
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level
SMS - Sediment Management Standard (Washington Administrative Code 173-204)

[a] - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database
[b] - Groundwater-to-sediment screening level, based on sediment CSLs (from SAIC 2006).

Appendix G-3
Relevant Pages from
Former Consolidated Freightways
Documents

PHASE I

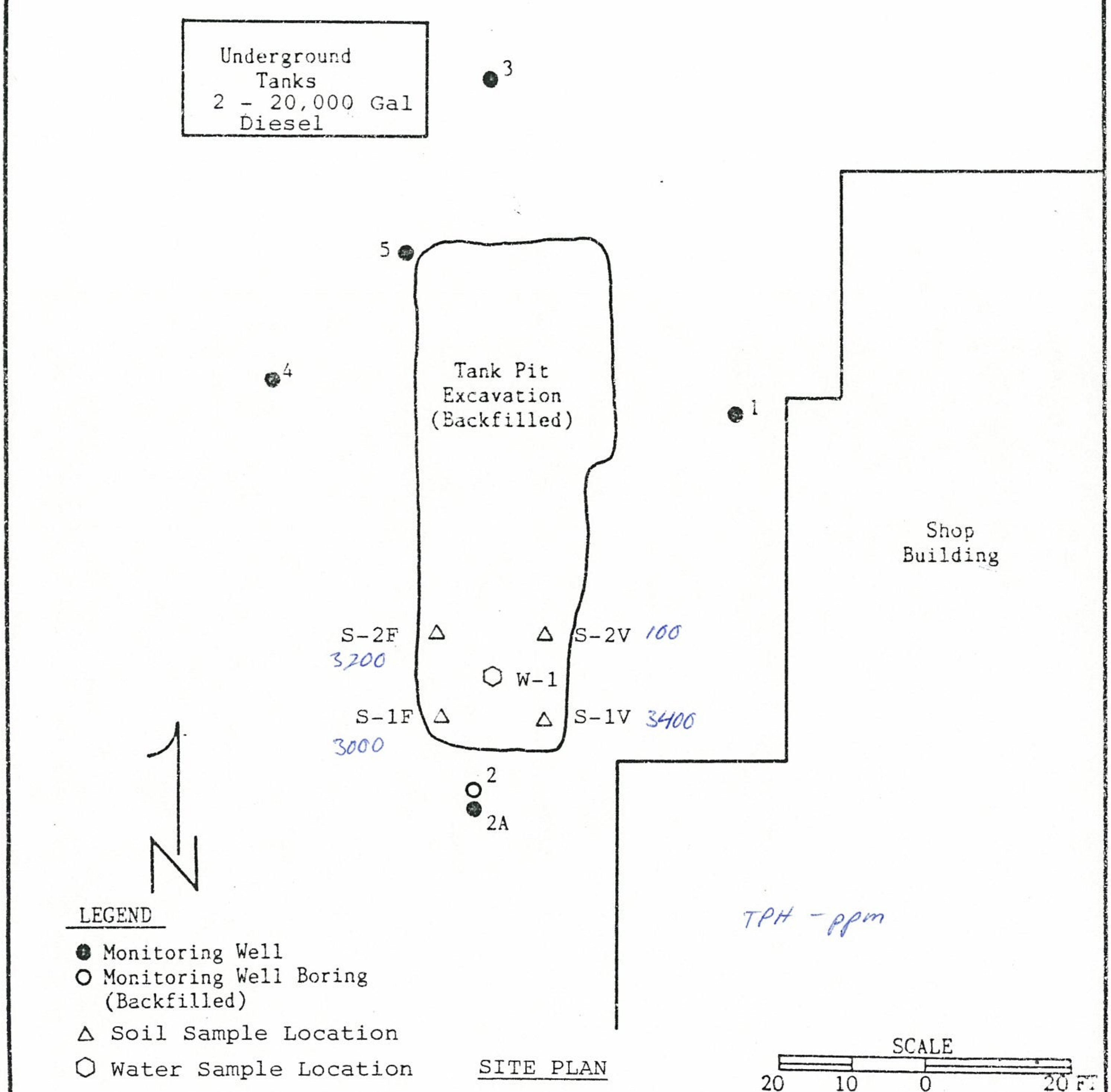
CONTAMINATION INVESTIGATION

FOR

CONSOLIDATED FREIGHTWAYS
6050 EAST MARGINAL WAY SOUTH
SEATTLE, WASHINGTON

BEI JOB 8818
AUGUST 3, 1988

FIGURE 2



SITE PLAN

Consolidated Freightways
Seattle, WA

BLYMYER ENGINEERS, INC.

DIETERICH POST REORDER NO. 116233

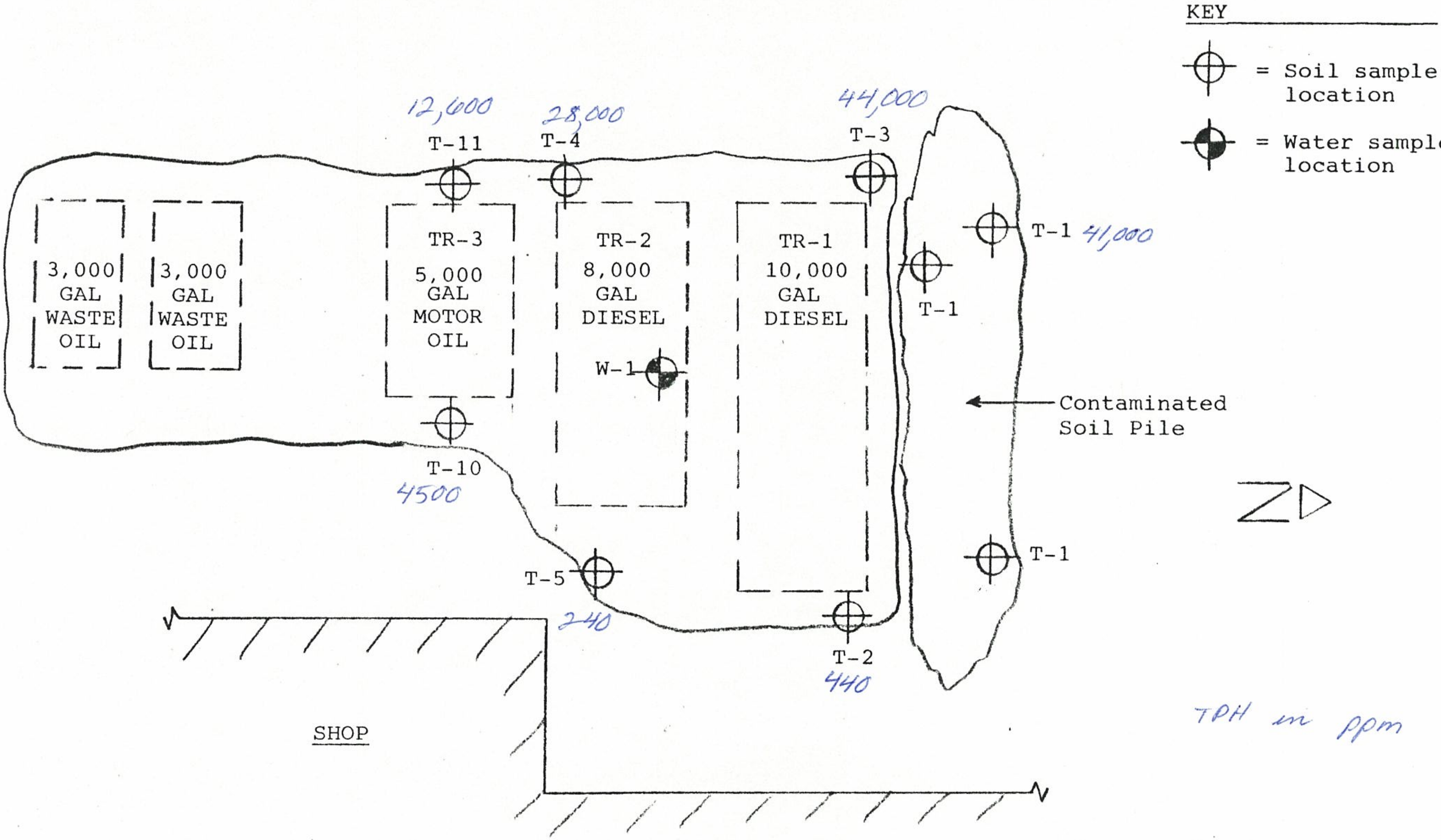


FIGURE 3

Diesel Tank Excavation
Sample Location Map
Consolidated Freightways
6050 E. Marginal Way, S.
Seattle, WA

Job No. 8818

BLYMYER & SONS engineers, inc.

LUST # 2626
VCP # NW0410

Report to:

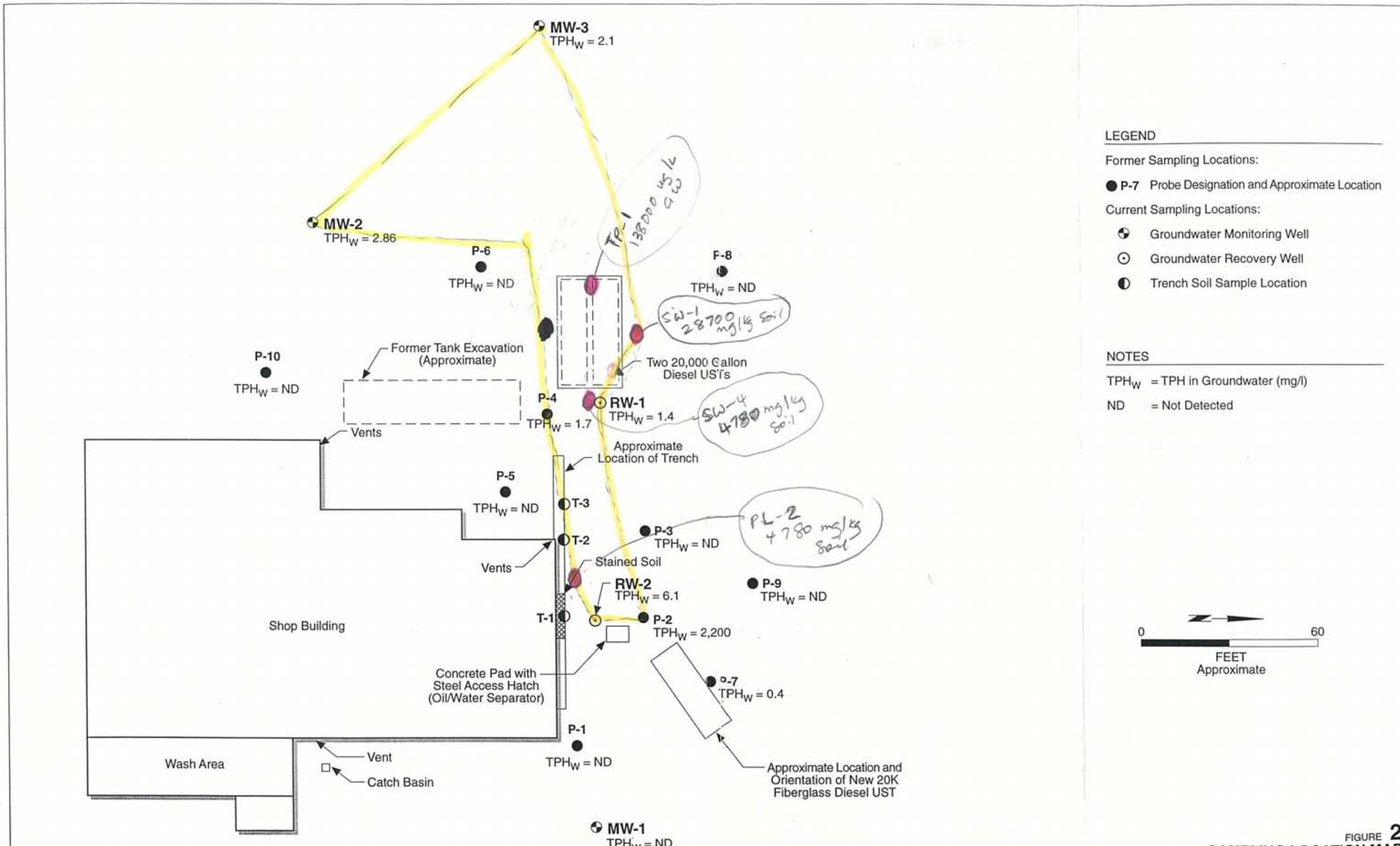
BLYMYER ENGINEERS, INC.
Alameda, CA

Site Investigation/ Risk Assessment for the Consolidated Freightways Site
Seattle, WA

Submitted by:

Golder Associates

June 1998
983 1065

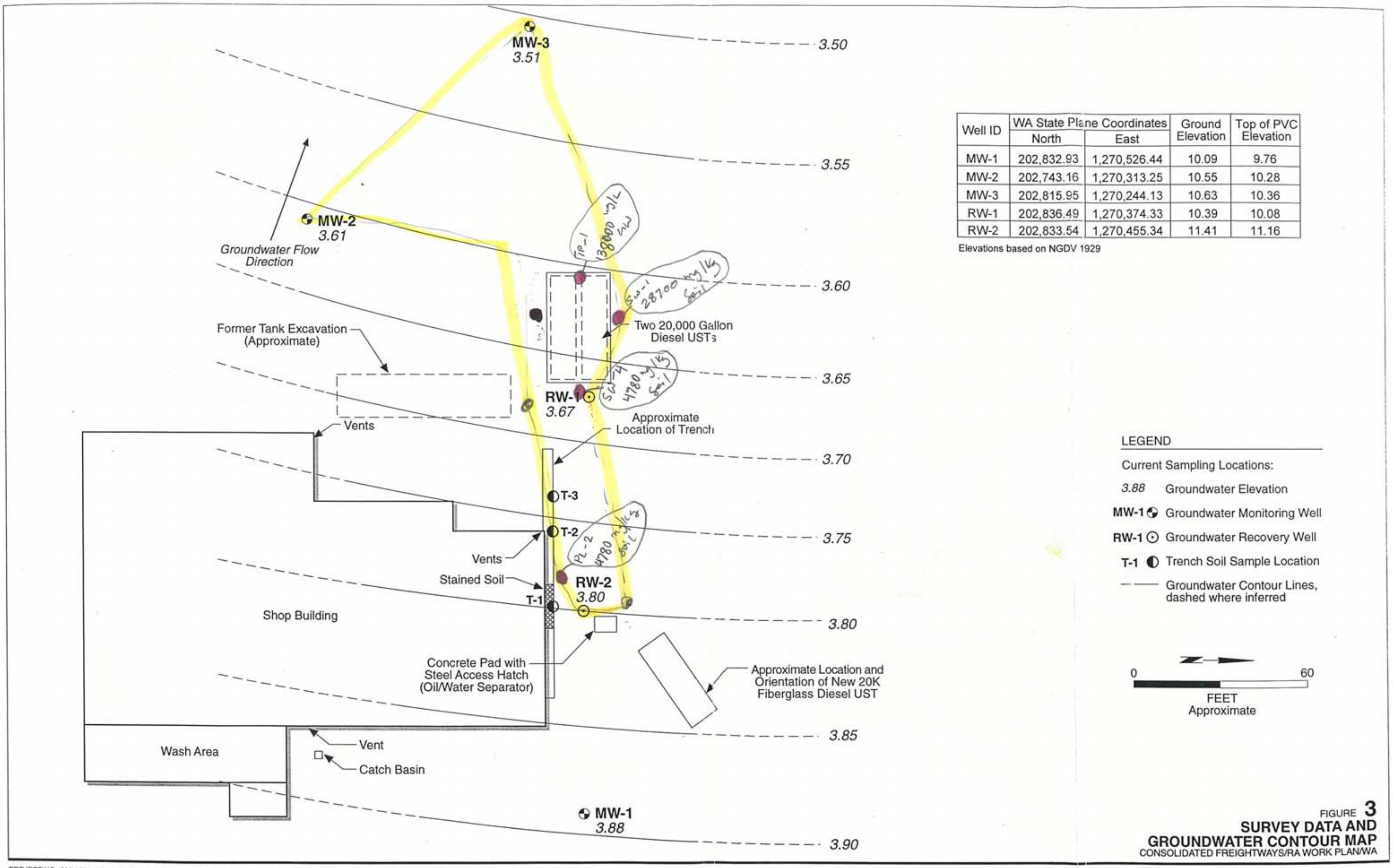


Source: Shannon & Wilson Site and Exploration Plan, Figure 2, T-1764-02, October 1997.

FIGURE 2
SAMPLING LOCATION MAP
CONSOLIDATED FREIGHTWAYS/RA WORK PLAN/WA

PROJECT NO. 983 1065.100 DRAWING NO. 77261 DATE 5/22/98 DRAWN BY EA

Golder Associates



Well ID	WA State Plane Coordinates North	WA State Plane Coordinates East	Ground Elevation	Top of PVC Elevation
MW-1	202,832.93	1,270,526.44	10.09	9.76
MW-2	202,743.16	1,270,313.25	10.55	10.28
MW-3	202,815.95	1,270,244.13	10.63	10.36
RW-1	202,836.49	1,270,374.33	10.39	10.08
RW-2	202,833.54	1,270,455.34	11.41	11.16

Elevations based on NGDV 1929

FIGURE 3
SURVEY DATA AND GROUNDWATER CONTOUR MAP
CONSOLIDATED FREIGHTWAYS/RA WORK PLAN/WA

PROJECT NO. 983 1065.100 DRAWING NO. 77386 DATE 4/30/98 DRAWN BY EA

Golder Associates

FLUOR DANIEL GTI

REPORT OF PERMANENT UST DECOMMISSIONING AND CLOSURE AT CONSOLIDATED FREIGHTWAYS FACILITY 6050 EAST MARGINAL WAY SEATTLE, WASHINGTON

Fluor Daniel GTI Project 101386

September 22, 1998

Prepared for:

Jeanna Hudson
Blymeyer Engineers INC.
1829 Clement Avenue
Alameda, California 94501-1395

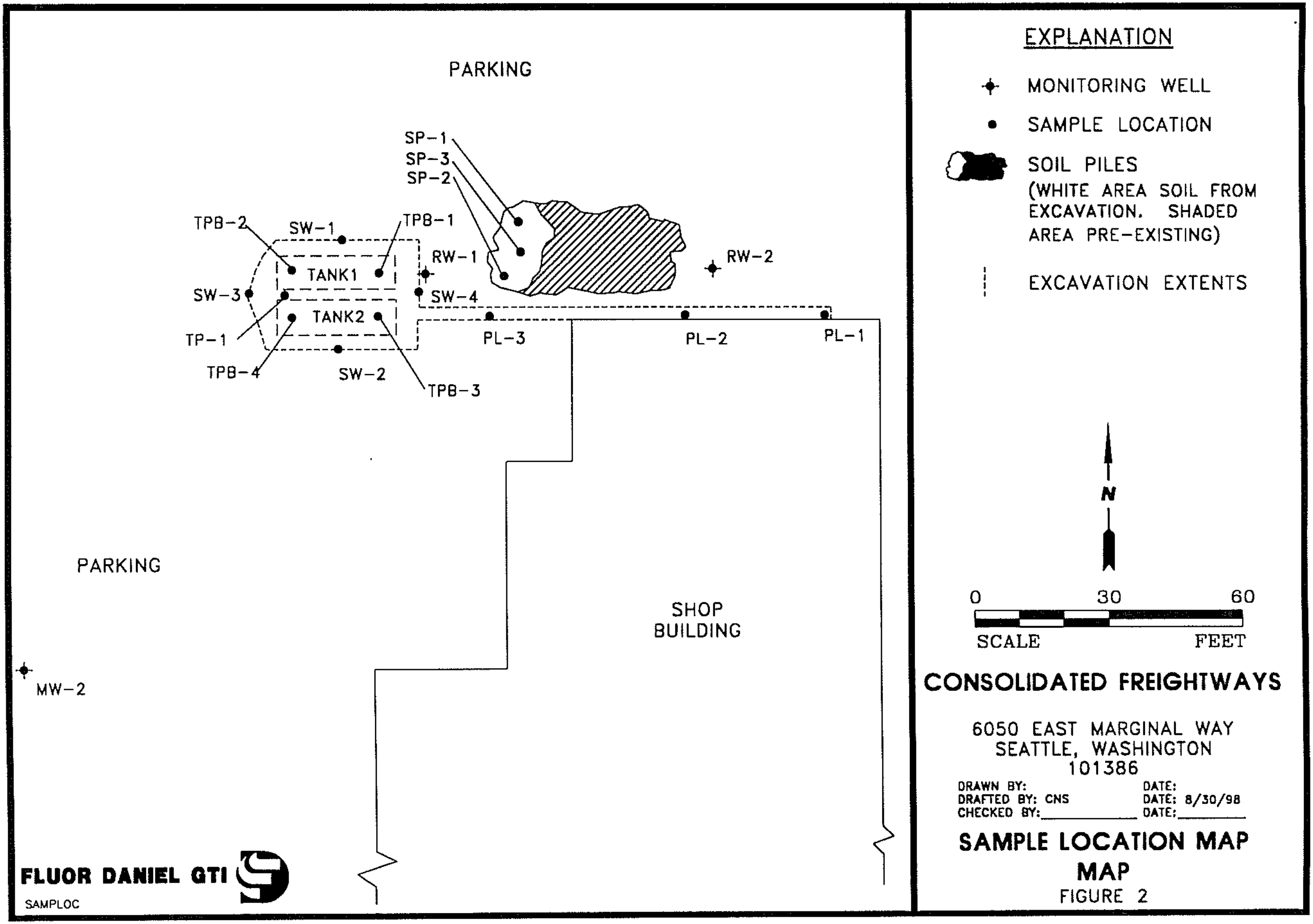
Submitted by:
Fluor Daniel GTI, Inc.

Chris Storey
Associate Engineer

Approved by:
Fluor Daniel GTI, Inc.

Stanley C. Haskins, R.G.
Project Manager

555 South Renton Village Place, Suite 700 / Renton, WA 98055 USA (425) 228-9645 FAX (425) 228-9793


PARKING
SP-1
SP-3
SP-2
TPB-2
SW-1
TPB-1
RW-1
RW-2
TANK1
TANK2
SW-3
SW-4
TP-1
TPB-4
SW-2
TPB-3
PL-3
PL-2
PL-1
PARKING
SHOP BUILDING
MW-2
FLUOR DANIEL GTI
SAMPLOC
EXPLANATION
MONITORING WELL
SAMPLE LOCATION
SOIL PILES
(WHITE AREA SOIL FROM EXCAVATION. SHADED AREA PRE-EXISTING)
EXCAVATION EXTENTS
N
0 30 60
SCALE FEET
CONSOLIDATED FREIGHTWAYS
6050 EAST MARGINAL WAY
SEATTLE, WASHINGTON
101386
DRAWN BY: DATE:
DRAFTED BY: CNS DATE: 8/30/98
CHECKED BY: DATE:
SAMPLE LOCATION MAP
MAP
FIGURE 2

Golder Associates Inc.

18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333
Telephone (425) 883-0777
Fax (425) 882-5498

LUST # 2626
VCP # NW0410

GROUNDWATER MONITORING WORK PLAN

FOR

CONSOLIDATED FREIGHTWAYS 6050 EAST MARGINAL WAY SOUTH SEATTLE, WASHINGTON

Prepared for:

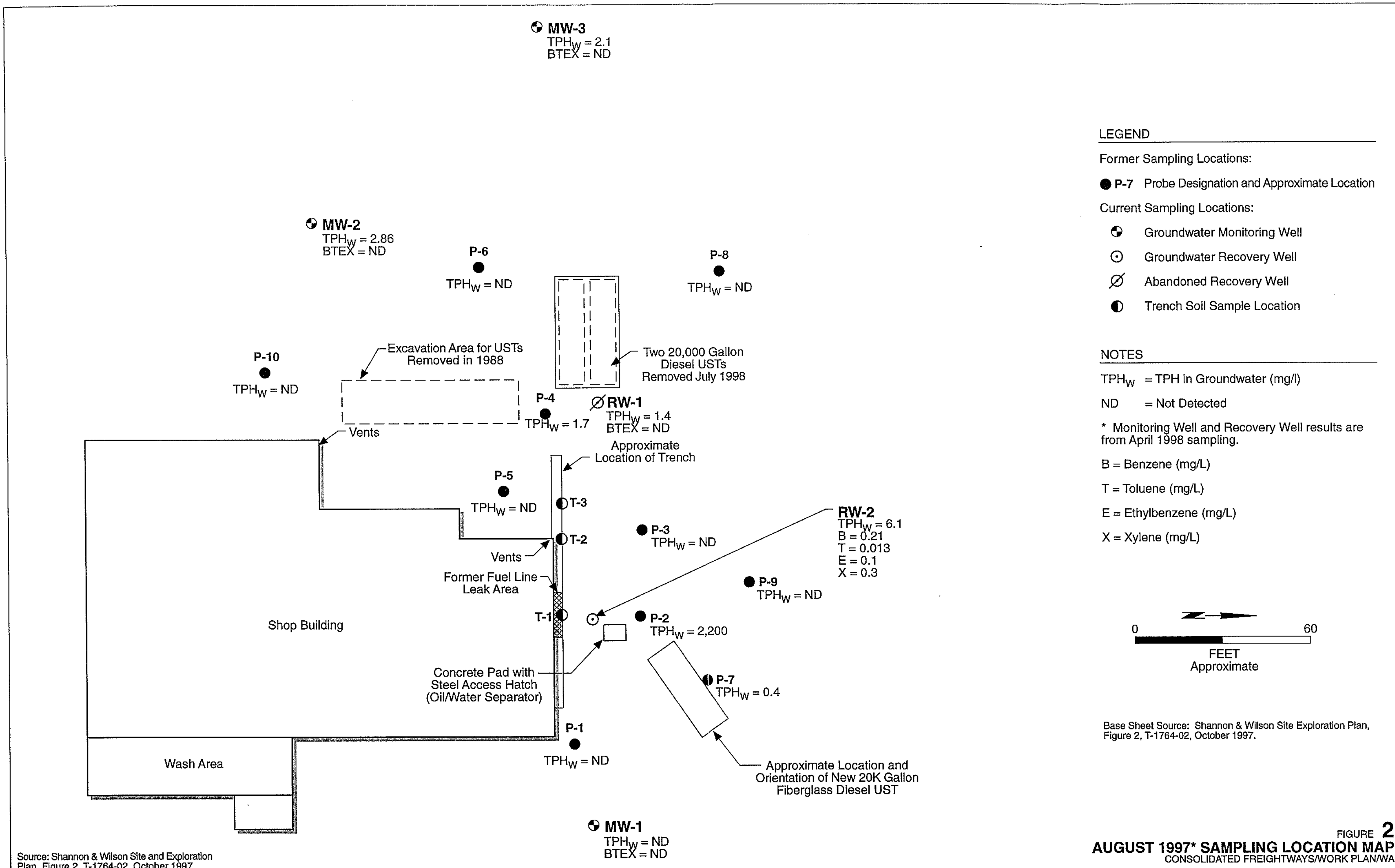
Consolidated Freightways
Menlo Park, California

Submitted by:

Golder Associates Inc.
Redmond, Washington

February 24, 2000

983-1065.700
0224rhl1.doc

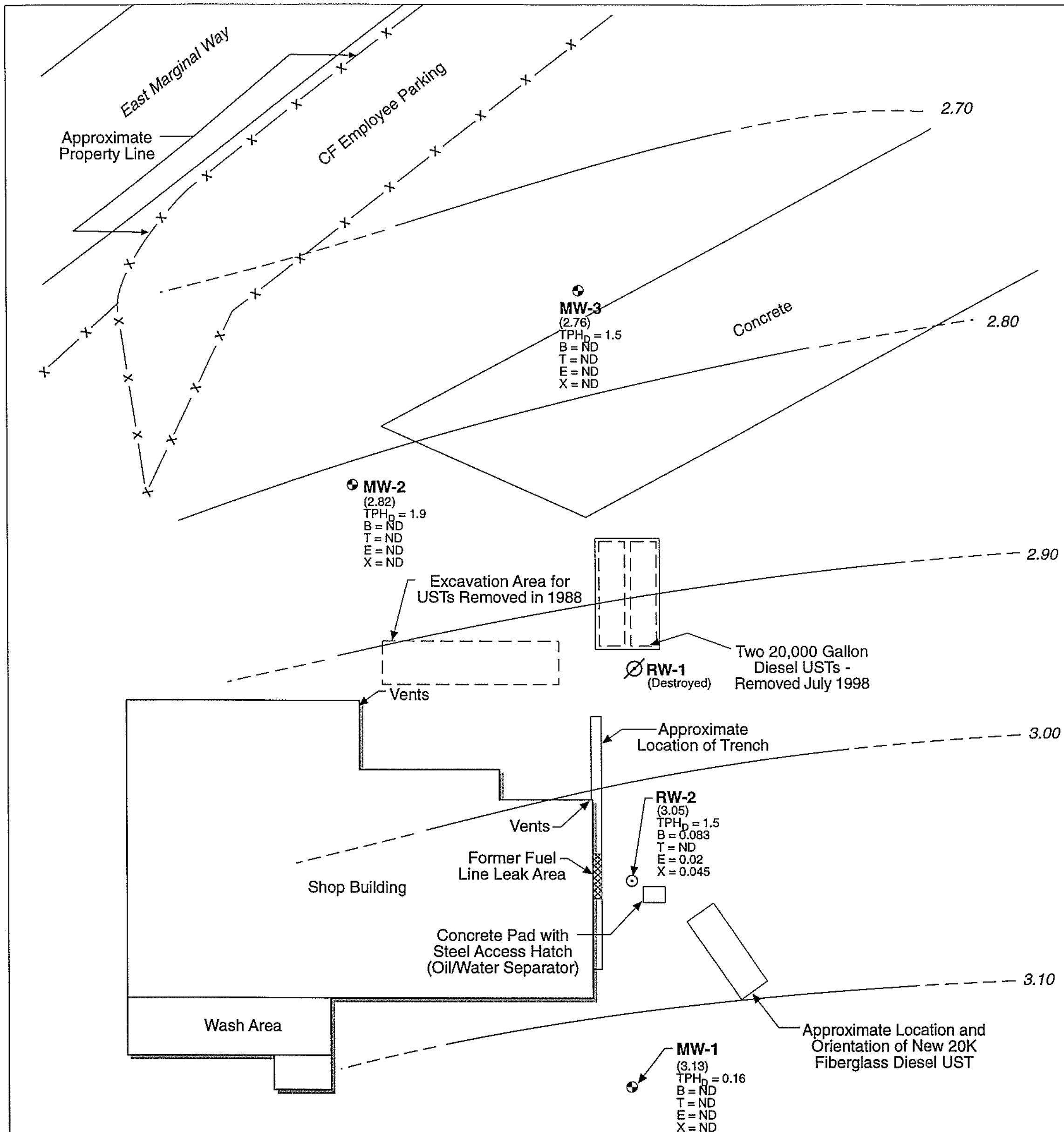


Source: Shannon & Wilson Site and Exploration Plan, Figure 2, T-1764-02, October 1997.

FIGURE 2
AUGUST 1997* SAMPLING LOCATION MAP
CONSOLIDATED FREIGHTWAYS/WORK PLAN/WA

PROJECT NO. 983 1065.700 DRAWING NO. 85371 DATE 2/18/00 DRAWN BY TK

Golder Associates



LEGEND

Former Sampling Locations:

MW-1 Groundwater Monitoring Well

RW-2 Groundwater Recovery Well

Abandoned Recovery Well

(3.13) Groundwater Elevation, ft asl

Groundwater Contour Lines Dashed Where Inferred

—x— Fencing

NOTES

TPH$_D$ = TPH Diesel in Groundwater (mg/l)

B = Benzene (mg/L)

T = Toluene (mg/L)

E = Ethylbenze (mg/L)

X = Xylene (mg/L)

ND = Not Detected

GP-10/GP-14 are duplicate samples

Sampling Conducted August 17, 1999

FIGURE 3

RESULTS OF AUGUST 1999 GROUNDWATER MONITORING WELL SAMPLING

CONSOLIDATED FREIGHTWAYS/WORK PLAN/WA

PROJECT NO. 983 1065.700 DRAWING NO. 85372 DATE 2/18/00 DRAWN BY TK

Golder Associates

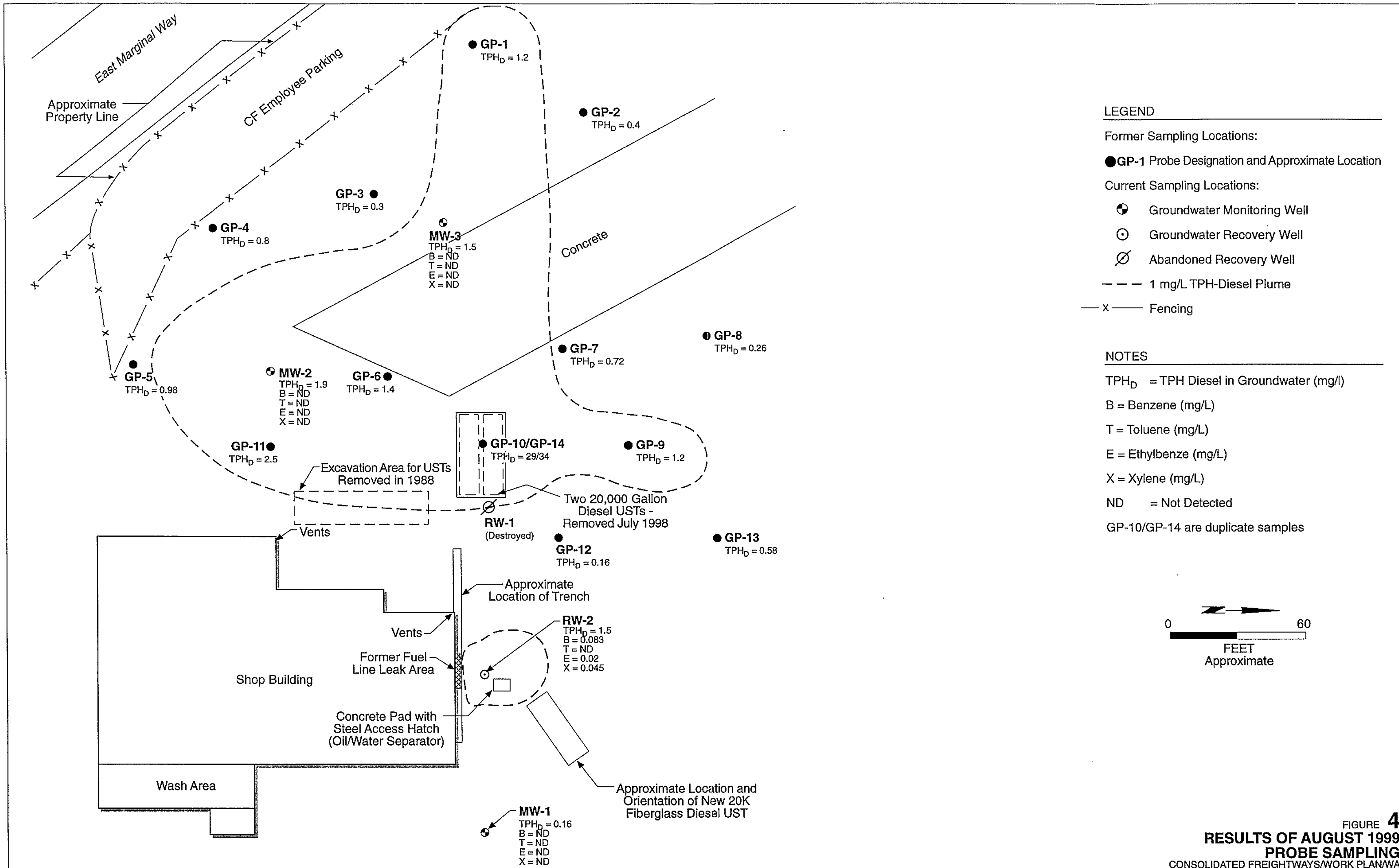


FIGURE 4
RESULTS OF AUGUST 1999 PROBE SAMPLING
CONSOLIDATED FREIGHTWAYS/WORK PLAN/WA

PROJECT NO. 983 1065.700 DRAWING NO. 91009 DATE 2/18/00 DRAWN BY EA

Golder Associates