

Lower Duwamish Waterway RM 0.9 to 1.0 East Slip 1

Summary of Existing Information and Identification of Data Gaps

Prepared for



Washington State Department of Ecology
Toxics Cleanup Program
300 Desmond Drive
Lacey, Washington 98504

Prepared by



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

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Acronyms and Abbreviations

BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BIA	Bureau of Indian Affairs
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
COC	chemical of concern
CSCSL	Confirmed and Suspected Contaminated Sites List
CSL	Cleanup Screening Level
CSO	combined sewer overflow
DOI	Department of the Interior
DW	dry weight
EAA-1	Early Action Area 1
ECHO	Enforcement and Compliance History Online
Ecology	Washington State Department of Ecology
EOF	emergency overflow
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FBI	Federal Bureau of Investigation
FSD	Ecology Facility/Site Database
GIS	Geographic Information Systems
GSA	U.S. General Services Administration
HPAH	high molecular weight polynuclear aromatic hydrocarbon
ISIS	Integrated Site Information System
LAET	Lowest Apparent Effects Threshold
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LPAH	low molecular weight polynuclear aromatic hydrocarbon
LUST	leaking underground storage tank
mgy	million gallons per year
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mgy	million gallons per year
MOU	Memorandum of Understanding
MTCA	Model Toxics Control Act
NFA	No Further Action
ng/kg	nanograms per kilogram
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NWRO	Northwest Regional Office
OC	organic carbon
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl

Acronyms and Abbreviations (Continued)

PCT	polychlorinated terphenyl
PID	photoionization detector
ppm	parts per million
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
SHA	Site Hazard Assessment
SIC	Standard Industrial Classification
SMS	Sediment Management Standards
SPU	Seattle Public Utilities
sq ft	square foot
SQS	Sediment Quality Standard
SVOC	semivolatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
TEQ	toxic equivalency quotient
TOC	total organic carbon
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WQC	water quality criteria
WQS	water quality standard
WWTP	wastewater treatment plant

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) 0.9-1.0 East¹ (Slip 1), 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 RM 0.9-1.0 East drainage basin. The purpose of the Data Gaps report is to:

- Identify chemicals of potential concern in sediments within the RM 0.9-1.0 East source control area;
- Evaluate potential contaminant migration pathways to RM 0.9-1.0 East sediments;
- 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 (EPA) National Priorities List in September 2001 due to chemical contaminants in sediment. The key parties involved in the LDW Superfund site are the Lower Duwamish Waterway Group (LDWG; comprises 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 clean-up strategies for the LDW through the RI/FS process. Ecology was granted the authority² to investigate upland sources of contamination and to develop plans to reduce contaminant migration to waterway sediments. LDWG collected data during the Phase I Remedial Investigation (RI) that were used to identify candidate locations for early cleanup action. Seven candidate early action sites (or Tier 1 sites) were identified. Ecology's *Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007* (Ecology 2007) identified another eight areas where source control actions may be necessary. RM 0.9-1.0 East (Slip 1) 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, as shown in Figure 1.

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

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 0.9-1.0 East Source Control Area was identified in previous documents as Tier 2 Area 14 (T2A-14).

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 basic 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* (EPA 2002), and the Washington State Sediment Management Standards (SMS; 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 RM 0.9-1.0 East, Ecology requested that Science Applications International Corporation (SAIC) prepare this Data Gaps report.

1.2 Report Organization

Section 2 of this report provides background information on the RM 0.9-1.0 East source control area, including location, physical characteristics, chemicals of concern, and pathways by which contaminants may reach sediments. Sections 3 and 4 describe potential sources of contaminants and data gaps that must be addressed in order to develop a SCAP for the site. Section 5 provides a summary of data gaps, and Section 6 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 sediment recontamination within the RM 0.9-1.0 East source control area (Figure 2), including outfalls and adjacent properties. This report does not identify or assess the possibility of migration from sources outside of the RM 0.9-1.0 East drainage basin.⁴

Air pollution is a potential source of contaminants to sediments with origins outside of the RM 0.9-1.0 East drainage basin. 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 RM 0.9-1.0 East sediments. 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.

Data presented in this report are limited to RM 0.9-1.0 East, adjacent properties, and direct discharges. This report focuses only on sources that have the potential to recontaminate RM 0.9-1.0 East area sediments in the event that sediment remediation is required. This 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 RM 0.9-1.0 East.

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.

⁴ The area referred to herein as the 'RM 0.9-1.0 East drainage basin' is actually a sub-drainage of the LDW drainage basin, and is defined by stormwater collection systems and outfalls. In other words, the area from which stormwater drains to RM 0.9-1.0 East is defined as the RM 0.9-1.0 East drainage basin, as shown in Figure 5.

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2.0 RM 0.9-1.0 East (Slip 1)

The RM 0.9-1.0 East Source Control Area is located along the eastern side of the LDW Superfund Site between river mile 0.9 and 1.0 as measured from the southern end of Harbor Island (Figure 1). Several facilities are located directly adjacent to RM 0.9-1.0 East. From north to south, these facilities are:

- U.S. General Services Administration (GSA) - Federal Center South (commonly known as Federal Center South),
- Snopac Products, Inc. (Snopac), and
- Manson Construction Company (Manson).

Slip 1 is situated between Federal Center South and Manson Construction (Figure 2). To the east of these properties are East Marginal Way S. and other industrial facilities. To the north of Federal Center South are Diagonal Way and Port of Seattle Terminal 108, and to the south of Manson Construction are Cadman Cement and Lehigh NW Cement.

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 RM 0.9-1.0 East include automobile manufacturing, missile manufacturing, food products manufacturing and distribution, 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 1 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 RM 0.9-1.0 East is generally to the west-southwest, toward the LDW and Slip 1.

Bottom sediment composition is variable throughout the LDW, ranging from sands to mud. Typically, the sediment consists of slightly sandy silt with varying amounts of organic detritus. Coarser sediments are present in nearshore areas adjacent to storm drain discharges (Weston 1999); finer grained sediments are typically located in remnant mudflats and along channel side

slopes. Sediments within RM 0.9-1.0 East consist of 32 to 92 percent fines (dry weight [DW]) and in the range of 1.6 to 2.8 percent total organic carbon (TOC) (Windward 2003, 2005a, 2005b, 2007a, 2007b).

Seven private outfalls are present along the shoreline in this area (Figure 2). It could not be determined if these outfalls are currently in use. Based on a 1976 facility plan, stormwater from approximately three-fourths of the Federal Center South property is drained by these outfalls (GSA 1976).

In an effort to more thoroughly understand and evaluate historical facility operations and development in the RM 0.9-1.0 East source control area, SAIC reviewed historical aerial photographs from 1936 to 2004. At a minimum, these photographs represent conditions during roughly each decade. Additional photographs are available; however, if no apparent changes were identified, photographs less than a decade apart were not included in this summary. The aerial photographs and complete descriptions for the years 1936, 1946, 1956, 1969, 1977, 1990, 1999, and 2004 are provided in Appendix B. The descriptions are summarized below.

- 1936: Slip 1 is already well defined and appears similar to the current size and shape. There is a floating pier or barge located along the eastern edge of the slip. A narrow dock extends at a northwestern angle from the southeast corner of the slip. Although it cannot be verified from the photograph alone, it is possible that there is already a wharf constructed around the wetted edge of the slip as indicated by the straight, seemingly sharp edges of the slip and associated shadowing.
- 1946: This photograph documents the increased development taking place along the LDW. The initial stages of a large wharf construction (or reconstruction) project taking place along the south side of Slip 1, adjacent to the northern edge of the Manson property, is visible. A small land mass, possibly fill, is located to the north of the construction wharf. The narrow dock extending out into the slip in a northwestern angle has been removed and it appears that a wider dock has been constructed over the east side of Slip 1, as indicated by the increased distance between the Snopac building and associated shadowing. Several small boats or barges are stored in the southeastern corner of the slip, adjacent to the wider dock. The northern edge of the slip served as moorage for a large freighter-type boat.
- 1956: The southern wharf construction project had been completed. There appears to be a ramp extending off the wharf out into the LDW, which may have served to load/unload barges and/or ships. It seems that there was a shift in the function of the slip towards increased industrial-type use. Unidentifiable barges or boats are moored along the eastern and southern edge of the slip and the southeast tip of Slip 1 appears to be filled in or covered by a pier.
- 1969: What appears to be a narrow pier extending over half the length of the slip from roughly the middle of the east side in a westerly direction had been constructed. In addition, the northeast corner of the slip appears to have undergone additional small boat slip and dock construction. A large barge is moored on the southern wharf as well as other miscellaneous barges and boats, including what appears to be a crane.
- 1977: Slip 1 served as moorage for more large freighters and barges, and the small boat dock had been removed from the northeast corner.

- 1990: A small dock located in the northeast corner was constructed paralleling the east edge of the slip. The LDW has undergone considerable development of the shoreline on both sides through the extent of the available photo.
- 1999: Little change has taken place within Slip 1. The nature and extent of activities along the LDW appear to have attracted various large barges and ships, which are moored on both sides of the river.
- 2004: Slip 1 remains dominated by barges that appear to be associated with Manson construction. The slip itself has undergone no significant changes. Activities along the LDW continue to attract numerous large barges and ships.

2.2 Slip 1 PCB Spill

In 1974, polychlorinated biphenyl (PCB) transformer fluid (Aroclor 1242) spilled into Slip 1 when an electric transformer was dropped and broken on the northern wharf. Divers observed pools of free PCB at the bottom of the slip.⁵ Initial cleanup efforts recovered approximately 80 gallons of the 255-gallon spill. A treatment facility, consisting of dredge pumps, mobile treatment plant, holding tanks for dredged material, and a clarifier, was established on the southern portion of the Federal Center South property adjacent to Slip 1. Barrels of contaminated sludge were temporarily stored in a building at Federal Center South (EPA 1975, as cited in Windward 2008).

The remaining fluid had apparently been dispersed throughout Slip 1 and into the LDW (Harper-Owes 1985). In 1976, PCB-contaminated sludge was dredged from Slip 1 and the LDW near Slip 1. Approximately 10 million gallons of sludge were disposed of on the Chiyoda property (located within the Early Action Area 1 [EAA-1] source control area) by the U.S. Army Corps of Engineers (USACE) (Ecology 2004b). Following the second cleanup effort, USACE estimated that approximately 98 percent of the spilled PCB had been recovered (King County Department of Natural Resources et al. 2001). Slip 1 has not been dredged since 1976 (Windward 2007c).

Sediment samples collected by the LDWG in 2005 and 2006 showed the presence of PCBs at concentrations exceeding the SMS in surface and subsurface sediments within Slip 1 and upstream and downstream of Slip 1 (Windward 2005a, 2005b, 2007a, 2007b).

2.3 Chemicals of Concern in Sediment

Chemicals detected in sediment samples collected near RM 0.9-1.0 East are listed in Appendix A. Surface and subsurface sediment sample locations within and adjacent to RM 0.9-1.0 East are summarized in Table 1. Chemical detections exceeding the SMS are summarized in Tables 2 and 3. Sampling locations are shown in Figure 3.

Laboratory detection limits exceeded the SMS for three chemicals that were not detected in any of the sediment samples collected near RM 0.9-1.0 East: hexachlorobenzene; hexachlorobutadiene, and n-nitrosodiphenylamine. These chemicals may or may not be present in sediment at concentrations exceeding the SMS.

⁵ <http://kustbevakningen.se/ra/volume2/annex3accidents/pcb.htm>

2.3.1 Sediment Investigations

Sediment samples have been collected from the area near RM 0.9-1.0 East as part of the following investigations:

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

Ten samples were collected in the vicinity of RM 0.9-1.0 East (Figure 3). Chemicals detected at these sample locations are listed in Appendix A. Samples were analyzed for PCBs and polychlorinated terphenyls (PCTs).

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

Seven surface sediment samples and two subsurface samples from one station were collected in the vicinity of RM 0.9-1.0 East (Figure 3). Chemicals detected at these sample locations are listed in Appendix A. Samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, PCBs as Aroclors and congeners, dioxins/furans, and TOC.

- **LDW Phase 2 Remedial Investigation, Round 1 and 2 Surface Sediment Sampling (Windward 2005a, 2005b)**

Six surface sediment samples were collected during two rounds of sampling for the Phase 2 RI in 2005. Chemicals detected at these sampling locations are listed in Appendix A. All samples were analyzed for the SMS list of chemicals, SVOCs, and PCBs. A subset of samples were also analyzed for organochlorine pesticides (two samples), organometals (two samples), and PCB as Aroclors and congeners (one sample).

- **LDW Phase 2 RI Subsurface Sediment Sampling (Windward 2007a)**

Nineteen sediment samples were collected from five coring locations in 2006 (Figure 3). Chemicals detected at these sample locations are listed in Appendix A. Samples were analyzed for metals, SVOCs, and PCBs. In addition, the samples from location LDW-SC20 were analyzed for dioxins/furans.

- **LDW Phase 2 Remedial Investigation, Round 3 Surface Sediment Sampling (Windward 2007b)**

Five surface sediment samples were collected in 2006 (Figure 3). Chemicals detected at these sample locations are listed in Appendix A. The samples were analyzed for metals, SVOCs, and PCBs. One sample was also analyzed for dioxins/furans.

In August 2003, subsurface sediment samples were collected during an event named Lehigh NW. Two samples, C2 and C3, were collected just south of RM 0.9-1.0 East, adjacent to the Lehigh NW Cement facility. The area of the LDW from which these samples were collected was dredged in 2004 (Windward 2007c). Chemicals detected at these sample locations are listed in Appendix A.

2.3.2 Identification of Chemicals of Concern

A chemical of concern (COC) is defined in this report as a chemical that is present in RM 0.9-1.0 East sediments 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. The SQS values correspond to a sediment quality level that will result in no adverse effects on biological resources and no significant human health risk. CSLs represent minor adverse effects levels and are used as an upper regulatory threshold for making decisions about source control and cleanup.

A chemical was identified as a COC for RM 0.9-1.0 East if it was detected in surface or subsurface sediment at concentrations above the SQS and/or CSL. 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.

Additional contaminants may be present in soil, groundwater, stormwater, or stormwater solids at concentrations above regulatory criteria and/or soil-to-sediment or groundwater-to-sediment screening levels (SAIC 2006). These screening levels were 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 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. Potential upland COCs are discussed as appropriate in Sections 3 and 4.

Sediment COCs for RM 0.9-1.0 East are listed below. In general, COCs were present in sediment samples at concentrations only slightly above the SQS or CSL values; the greatest exceedances were observed for arsenic at location B3b (surface sediment), acenaphthene, fluorene, and dibenzofuran at location LDW-SS35 (surface sediment), PCBs at locations LDW-

SS37 (surface sediment) and DR021, LDW-SC16, and LDW-SC20 (subsurface sediment), and zinc at location LDW-SC17 (subsurface sediment) (Figure 3).

COC	Surface Sediment		Subsurface Sediment	
	> SQS	> CSL	> SQS	> CSL
Metals				
Arsenic	●	○	○	○
Cadmium			○	○
Chromium			○	○
Copper	○	○		
Lead			○	○
Mercury	○	○	○	○
Zinc	○	○	●	○
PAHs				
2-Methylnaphthalene	○	○		
Acenaphthene	●	○	○	
Benzo(a)anthracene	○			
Benzo(a)pyrene	○			
Benzo(g,h,i)perylene	○			
Benzo(a)fluoranthene (total)	○			
Chrysene	○			
Dibenzo(a,h)anthracene	○			
Fluoranthene	○		○	
Fluorene	●	○	○	
Indeno(1,2,3-cd)pyrene	○			
Naphthalene	○	○		
Phenanthrene	○	○	○	
Total HPAH	○		○	
Total LPAH	○	○		
Phthalates				
Bis(2-ethylhexyl)phthalate			○	○
Other SVOCs				
1,2,4-Trichlorobenzene			○	
Benzoic acid			○	○
Dibenzofuran	●	○	○	
PCBs				
PCBs (total)	●	○	●	○

○ Maximum exceedance factor <10

● Maximum exceedance factor ≥ 10

Exceedance factors are shown in Tables 2 and 3.

Results for these chemicals are discussed in more detail below.

Metals

Arsenic concentrations exceeded the SQS and CSL in two surface sediment samples, B3b and LDW-SS31. Both samples were collected adjacent to the Snopac Products and Manson

Construction facilities. The greater exceedances were observed in sample B3b; the arsenic concentration exceeded the SQS by a factor of 13 (Table 2, Figure 3). Arsenic concentrations exceeding the SQS and CSL were observed in the subsurface sample, LDW-SC17, collected adjacent to the above-listed surface sediment samples. Cadmium, chromium, copper, lead, and zinc concentrations also exceeded the SQS and/or CSL in one or more of these surface or subsurface sampling locations. The zinc concentration in the 6- to 8.6-foot subsurface sample at LDW-SC17 (4,550 milligrams per kilogram [mg/kg]), exceeded the SQS by a factor of 11.

Mercury concentrations exceeded the SQS and/or the CSL in four surface samples (DR018 and LDW-SS35, LDW-SS37, and LDW-SS319). Samples DR018 and LDW-SS319 were collected within Slip 1, sample LDW-SS35 was collected just south of the Manson parcel, and LDW-SS37 was collected south of RM 0.9-1.0 East between Kellogg Island and the Cadman Seattle/Lehigh Northwest facility. Mercury concentrations in the subsurface samples exceeded the SQS and CSL at locations DR021 (adjacent to surface sample SS319), SC16 (adjacent to Federal Center South parcel at the mouth of Slip 1), and SC17 (adjacent to Snopac and Manson).

Zinc concentrations also exceeded the SQS in surface sample LDW-SS32 (collected on the south side of Slip 1 adjacent to Manson) and subsurface samples LDW-SC16 and LDW-DR021.

Polynuclear Aromatic Hydrocarbons (PAHs)

PAH concentrations exceeding the SQS and CSL were detected in two surface samples, B3b and LDW-SS35, and two subsurface sediment samples, LDW-SC16 and LDW-SC17. Sample location LDW-SS35 is adjacent to the southwestern corner of the Manson parcel and location LDW-SC16 is within Slip 1. The greatest PAH exceedance factors observed were 16 and 11 for acenaphthene and fluorene, respectively, in sample LDW-SS35. Concentrations of other SVOCs (excluding phthalates) exceeding the SQS and CSL were also present in these samples.

Phthalates

Phthalates concentrations exceeding the SQS and CSL were detected at two subsurface locations, DR021 and LDW-SC16, both of which are located near the mouth of Slip 1. Bis(2-ethylhexyl)phthalate (BEHP) exceedance factors ranged from 1.5 to 2.2.

PCBs

PCBs in surface sediments were greatest in sample LDW-SS37; the exceedance factor was 18. In subsurface sediments the greatest PCB concentrations were reported in the samples collected from Slip 1. The greatest exceedance was observed in the 0- to 2-foot sample from sample station LDW-SC20; the exceedance factor was 18.

Other COCs

Although not addressed in the SMS, dioxins and furans are considered to be COCs at RM 0.9-1.0 East due to their presence in relatively high concentrations (2,3,7,8-TCDD concentrations up to 2.94 nanograms per kilogram [ng/kg]; Appendix A).

2.3.3 COCs in RM 0.9-1.0 East Sediments

COCs were identified based on the results of sediment sampling conducted between 1991 and 2007. Chemicals that exceeded the SQS in at least one surface or subsurface sediment sample offshore of the RM 0.9-1.0 East source control area are considered COCs.

The following chemicals are considered to be COCs in sediment at RM 0.9-1.0 East:

- Metals: Arsenic, cadmium, chromium, copper, lead, mercury, and zinc;
- PAHs: 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzofluoranthenes (total calc'd), chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, total high molecular weight polynuclear aromatic hydrocarbon (HPAH) and total low molecular weight PAH (LPAH);
- Phthalates: BEHP;
- Other SVOCs: 1,2,4-trichlorobenzene, benzoic acid, and dibenzofuran;
- PCBs; and
- Dioxins/furans.

2.4 Potential Pathways to Sediment

Potential sources of sediment recontamination to RM 0.9-1.0 East include direct discharges via outfalls and direct and/or indirect discharges from three adjacent properties. Parcel ownership in the vicinity of RM 0.9-1.0 East is shown in Figure 4.

Transport pathways that could contribute to the recontamination of Slip 1 sediments 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 and 4.

2.4.1 Direct Discharges via Outfalls

Direct discharges may occur from public or private storm drain systems, combined sewer overflows (CSOs), and emergency overflows (EOFs).

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.

Untreated municipal/industrial wastewater and stormwater can potentially be discharged through CSOs to the LDW during these storm events. The City of Seattle owns and operates the local sanitary sewer collectors and trunk lines, while King County owns and operates the larger interceptor lines that transport flow from the local systems to the West Point Wastewater Treatment Plant (WWTP). 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.

Of the county CSO outfalls along the LDW, the Michigan CSO, S. Brandon Street CSO, and Hanford No. 1 (discharging via the city's Diagonal Avenue S. CSO/storm drain [SD]) outfalls had the highest average combined sewer overflow volumes between 1999 and 2005. Annual stormwater discharge volumes are usually substantially higher than annual CSO discharge volumes because storm drains discharge whenever it rains, and CSOs only discharge during storm events that 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).⁶

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 flows are sent to CSO treatment facilities for primary treatment and disinfection prior to discharge. County CSOs discharge untreated wastewater only when flows exceed the capacity of these systems (King County 2007).⁷

As a result, some areas of the CSO drainage basins may discharge 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

⁶ It should be noted that stormwater discharges are regulated under a separate NPDES permit.

⁷ City CSOs are generally smaller and flows are not treated prior to discharge.

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.

Seven private outfalls are present in the RM 0.9-1.0 East area. Contaminants discharged via these outfalls could directly affect waterway sediments. There are no CSO or EOF outfalls within the RM 0.9-1.0 East source control area.⁸

2.4.2 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 all adjacent properties are paved, with the exception of an approximately 1-acre, triangular-shaped area, approximately on the western shoreline of the Federal Center South parcel. Therefore, surface runoff is a potential pathway for transport of COCs to the LDW and Slip 1.

2.4.3 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 Slip 1. Contaminated groundwater has been documented at adjacent properties with groundwater flow directions toward Slip 1.

Many seeps have been identified along RM 0.9-1.0 East (Windward 2004). Arsenic, copper, lead, and zinc have been detected in one seep (Seep 76) sampled adjacent to Manson Construction Company within Slip 1. Copper was detected in Seep 75, located adjacent to the Federal Center South property (Table 4).

2.4.4 Bank Erosion

The banks of the LDW shoreline are susceptible to erosion by wind and surface water, particularly in areas where banks are steep. Shoreline armoring and the presence of vegetation reduce the potential for bank erosion. Contaminants in soils along the banks of the LDW could be released directly to sediments via erosion. Little information was available on the construction of the banks and the potential for sediment recontamination via this pathway.

Based on a review of oblique aerial photographs, it appears that wharfs have been built out over all the banks of Slip 1. Few areas of natural shoreline exist within the RM 0.9-1.0 East area. These include a triangular-shaped area just north of Slip 1 on the Federal Center South property and a rectangular-shaped area at the southwest corner of the Manson property.⁹ These aerial photographs are included in Appendix B (Figures B-9 through B-11).

⁸ The Diagonal CSO is located to the north of RM 0.9-1.0 East and the Brandon Street CSO is located at approximately RM 1.1.

⁹ Ecology Shoreline Aerial Photos: <http://apps.ecy.wa.gov/shorephotos/>

2.4.5 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 RM 0.9-1.0 East 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 at RM 0.9-1.0 East or in areas that drain to the LDW. Although chemical deposition from air directly to the LDW probably occurs, this transport mechanism is not likely to result in sediment concentrations above local background levels. The facilities in this source control area are not likely to represent a point source of air pollutants; therefore, this pathway is not discussed further in this report.

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

2.4.6 Spills to the LDW

Near-water and over-water activities have the potential to impact adjacent sediments from spills of material containing COCs. Several facilities within the RM 0.9-1.0 East source control area conduct loading and unloading of materials from barges. Accidental spills during loading/unloading operations may result in transport of contaminants to sediment. In 1974 a spill occurred during loading operations, releasing approximately 255 gallons of PCBs to Slip 1 (Section 2.2).

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3.0 Potential for Sediment Recontamination from Outfalls

3.1 Public Outfalls

No public (city or county) outfalls discharge to RM 0.9-1.0 East.

3.2 Private Outfalls

There are seven private outfalls on the Federal Center South parcel; none of these outfalls are covered under an NPDES permit. Four of these private outfalls may discharge to Slip 1 (Figure 5). Based on a 1976 utility survey map, stormwater from approximately three-fourths of the Federal Center South property drains to Slip 1. From the information available, it could not be determined if these outfalls are still in use.

Outfall No.	Diameter/Material
2004	8-inch/concrete
2005	8-inch/concrete
2245	32-inch/steel
2246	8-inch/concrete
2247	8-inch/concrete
5000	32-inch/steel
5001	32-inch/steel

Bold text indicates outfalls that may discharge to Slip 1.

3.3 Data Gaps

It is not known if these outfalls are currently in use or the sources of discharge to the outfalls, if any. Additional information from the GSA and Federal Center South is needed to determine the status of the outfalls. If the outfalls are in use, information is needed to determine source(s) of discharge to the outfalls. Catch basin solid samples may be needed to determine if COCs are present in the storm drain system.

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4.0 Potential for Sediment Recontamination from Adjacent Properties

4.1 Federal Center South

Parcel Summary: Federal Center South	
Address	4645 East Marginal Way S.
Property Owner	U.S. GSA
Tax Parcel No.	3573200975
Parcel Size	32.99 acres (1,437,044 sq ft)
Facility/Site ID	10233917 (Federal Center South) 22526187 (U.S. DOI BIA) 84498157 (USAF Waterport Logistics Office)
SIC Code(s)	9199 General Government, NEC (Federal Center South) 9631 Regulation, Administration of Utilities (U.S. DOI BIA) 4822 Telegraph and Other Communications (USAF Waterport Logistics Office)
EPA ID No.	WA8470031891 (Federal Center South) WA8210800183 (inactive as of December 31, 1993) (U.S. DOI BIA) WA0572790046 (inactive as of December 31, 1993) (USAF Waterport Logistics Office)
NPDES Permit No.	NA
UST/LUST ID No.	10042 (Federal Center South)

The Federal Center South parcel is the northern-most parcel adjacent to RM 0.9-1.0 East and Slip 1 (Figure 4). The 32.99-acre parcel is zoned for industrial use.¹⁰ It is bordered on the north by Diagonal Avenue S., on the west by the LDW, on the south by Slip 1 and Snopac, and on the east by East Marginal Way S.

According to King County tax records there are three buildings on the parcel (Figure 6):

- A 424,367 sq ft office building built in 1931 (Building 1201),
- A 353,561 sq ft shop and warehouse building built in 1940 (Building 1202), and
- A 9,617 sq ft storage warehouse built in 1969.

Based on aerial photographs and a site reconnaissance visit in April 2008, it appears that there are five buildings on the property, including a smaller office-type building on the southeast portion of the property, which is currently shared by the Federal Marine and Defense Services and the Department of the Interior (DOI) Bureau of Indian Affairs (BIA).

¹⁰ King County GIS Center Parcel Viewer: http://www.metrokc.gov/gis/mapportal/PViewer_main.htm

Underground tunnels and pipelines connect Building 1201 to Building 1206 (former Ford Factory Oil House, currently occupied by BIA). Building 1201 is presently occupied by a variety of agencies including USACE.

A portion of Building 1201 is built on a wharf which extends from the southern and southeastern shorelines of the property into Slip 1. The DOI BIA building is also located on the wharf. Based on aerial photographs of the shoreline, it is not apparent if there is any type of retaining wall or riprap on the bank (Appendix B).

The parcel is paved or covered by buildings. There are some landscaped planter areas; however, there are no exposed areas of native soil, except for a small area in the northwest corner of the parcel and a triangular-shaped area along the southwestern shoreline (Figure B-10). The parcel is generally flat and ranges in elevation from 5 to 10 feet above mean sea level (Herrera 2000).

This parcel is also included in EAA-1, (RM 0.1-0.9 East). Groundwater from the majority of the property flows toward the LDW within EAA-1. Additionally, there are outfalls at the western property line, that discharge to the LDW within EAA-1.

The property is also included in the RM 0.9-1.0 East (Slip 1) source control area because groundwater from the southern and southeastern portions of the property, flowing to the west-southwest, discharges to Slip 1. In addition, there are four private outfalls at the southern property line that may discharge to Slip 1 (Figure 2).

4.1.1 Physical Setting

Artificial fill is present beneath the Federal Center South site. The fill material consists of sand with varying amounts of gravel, and the thickness of the fill layer ranges from 1 to 7 feet below ground surface (bgs). Native, alluvial soil beneath the site consists of medium-grain brown sand interbedded with grey silt from the ground surface to approximately 6 feet bgs depending on the thickness of the overlying fill material. At 6 feet bgs, the sand grades to fine-grain brown sand. Peat and clay are observed in some areas of the property at 12 feet bgs (Herrera 1999).

Groundwater beneath the site is encountered between 4.5 feet and 10.5 feet bgs. Groundwater flows to the west and southwest towards the LDW (Herrera 1999). In this area, groundwater is recharged by direct infiltration and seepage from surface waters, precipitation, and surface runoff (Herrera 2000).

4.1.2 Current Operations

The Federal Center South houses several government agencies, including USACE, the DOI BIA, the U.S Air Force (USAF) Waterport Logistics office, and the Federal Bureau of Investigation (FBI). A federal motor pool and daycare also operate on the property.¹¹

¹¹ US GSA website:
http://www.gsa.gov/Portal/gsa/ep/contentView.do?P=PLCC&contentId=19636&contentType=GSA_BASIC

Five USTs have been removed or closed-in-place at the property. The USTs were used to store heating fuel (two tanks), unleaded gasoline (two tanks), and used oil (one tank). There is one operational UST, which is used to store diesel, at the property.

Stormwater Discharges

As discussed in Section 3, there are seven private outfalls on the property. Four of these outfalls may discharge to Slip 1. A 1976 utility survey map indicates that stormwater collected on the roofs of Building 1201 and the southern two-thirds of Building 1202 drains to Slip 1. Stormwater from the parking area in the northeast portion of the property and from the area north of Building 1206 may also drain to Slip 1. Stormwater from the remaining one-third of Building 1202 and the western portion of the property likely drains to the LDW north of Slip 1; however, this could not be confirmed from the available information. Additionally, the 1976 map shows eight catch basins or yard drains that discharged directly to Slip 1 (GSA 1976) (Figure 5). The 1976 utility survey maps are included in Appendix C.

An Ecology inspection in 1993 reported that there are storm drain lines on the property, which discharge to the LDW (Ecology 2004b). A 2001 Phase I Environmental Site Assessment (ESA) report indicates the presence of floor drains and drain lines but does not indicate if the drains connect to the sanitary sewer or the storm sewer system (Herrera 2001a). In 2004, King County and SPU directed Federal Center South to clean the facility storm drain lines and to repair missing and damaged storm drain system components (SPU and King County 2005).

Materials Handling

In 1988, the GSA planned to construct an open storage area for 2,500 drums of aviation gasoline at Federal Center South. The storage area was planned to be 70 feet by 105 feet with a 12-inch perimeter berm to contain accidental spills. Non-contaminated liquids were to be discharged in the stormwater or sewage systems and contaminated liquids were to be disposed of as hazardous wastes (Ecology 1988a).

An undated Spill Prevention Control and Countermeasure Plan, prepared for the Open Fuel Storage for USAF Waterport Logistics Office, indicates that a 90-foot by 105-foot concrete slab was installed to temporarily store fuel drums in transit to other facilities. The area was designed to prevent an accidental release from entering the facility stormwater system. Stormwater flows through an oil/water separator prior to entering the facility stormwater system. In the event of a spill, the plan indicates that fuel oil will be cleaned from the storage facilities prior to discharging stormwater into the stormwater system. The plan indicates that stormwater from the containment area discharges to one of the private outfalls (possibly 2245, 5000, or 5001) located on the northern shore of Slip 1 (USAF date unknown). The approximate location of the drum storage facility is shown on Figure 6.

The drum storage facility was operating north of Building 1201 in 1993 (Ecology 1993a).

According to a 1993 inspection report, wastes generated at the facility include:

- Waste oils, including vehicular, diesel, compressor, and refrigeration oil;
- Waste solvent;
- Spent paints and lacquers;
- PCB-contaminated wastes;
- Asbestos; and
- Water treatment solutions from air conditioners and boilers (Ecology 1993a).

Regulatory History

A first notification of Dangerous Waste Activities was filed for this facility in June 1987. Asbestos is listed as the waste stream; apparently asbestos removal was ongoing at this time in the facility's history. In April 1992, a revised Notification of Dangerous Waste Activities associated with the RCRA ID for this facility was submitted to Ecology (Ecology 1992). According to a 1993 inspection report, the revision was requested to change the facility contact name and address (Ecology 1993a).

Ecology performed a hazardous waste inspection in 1993. Potential sources of contamination identified during the inspection included the following (Ecology 1993a, Ecology 2004b):

- Water in boilers that was treated with algaecides, biocides, and a fungicide was discharged to a drain during boiler maintenance.
- Chemically treated coolant water from air condition units was periodically discharged to a floor drain that discharged to the LDW.
- Secondary containment of an outdoor drum storage area was inadequate and relied on an oil/water separator connected to storm drain lines discharging to the LDW.
- Discrepancies related to the storage, segregation, labeling, and manifesting of dangerous wastes.
- Bulging drums containing gasoline and jet fuel were stored too close to the edge of the drum storage area; any leaks or spills from these drums would flow outside the containment area.

In March 1993, Ecology directed BIA to remove boxes and drums containing thinners, starting [sic] fluid, paint, flammable liquids, oil, corrosives, and batteries from the northeast corner of the facility within 30 days and to appropriately manage the drums containing gasoline and jet fuel that were stored in the drum containment area (Ecology 1993b).

In July 1993, Ecology directed the GSA to characterize the boiler and air conditioner treatment solutions to determine if these were hazardous wastes and to re-evaluate the facility's status as a small quantity generator of hazardous waste (Ecology 1993c). GSA determined that treatment solutions were nonhazardous wastes. GSA retained its status as a small quantity generator and directed the property tenants to obtain individual RCRA ID numbers for any hazardous waste activities (GSA 1993).

UST removal actions at the property identified petroleum and solvent contamination in soil and groundwater. According to the ISIS database, cleanup activities related to this contamination

were completed in July 2003 under Ecology's Voluntary Cleanup Program (VCP). The facility VCP number is NW1135. The facility was removed from the VCP program in June 2006 due to inactivity (Ecology 2008f).

The facility was subject to a joint King County and SPU inspection in June 2004 as part of the LDW Source Control Program (SPU and King County 2005). According to SPU, stormwater from this facility drains to the Diagonal CSO. The following corrective actions were requested at the FBI Shop:

- Clean facility storm drains.
- Replace/repair missing or damaged components to facility storm drains.
- Properly dispose of waste.
- Properly store product/waste.
- Properly label containers.

The following corrective actions were requested at Federal Center South:

- Improve or purchase adequate spill response materials.
- Clean facility storm drains.
- Replace/repair missing or damaged components to facility storm drains.
- Properly store product/waste.

No records of follow-up inspections were found in the files reviewed by SAIC.

According to Ecology's ISIS database, which was last updated in April 2007, the facility status is "awaiting SHA [Site Hazard Assessment]."

4.1.3 Historical Operations

Federal Center South was constructed between 1930 and 1932 as a Ford Motor Company Assembly Plant. The U.S. Army added Building 1202 in 1941. USACE constructed warehouses, depots, offices, and clinics on the property from the early 1940s until 1956. Building 1203 was built between 1946 and 1956, according to Herrera's aerial photograph review (Herrera 2003). From 1957 to 1970, the Boeing Company's Missile Production Center occupied the former Ford Plant. The U.S. Government adopted the facilities for use as the Federal Center South in approximately 1973.¹²

Building 1203 was used as a motor pool building for fleet maintenance during the 1960s and 1970s (Herrera 2003).

According to Foster's 1945 report detailing sources of pollution to the LDW, the U.S. Army Quartermaster Depot was located on this property and the facility was connected to the city sewer. However, Foster notes that sewage from about 115 workers was directed to the LDW (Foster 1945). The Quartermaster Depot repaired 55-gallon petroleum product drums and

¹² Historic Federal Buildings website:

http://w3.gsa.gov/web/p/interaia_save.nsf/1fd3e688294c3a74852563d3004975f4/abc2d7abf7e2300b852565d90053a192?OpenDocument

procured coal for use in Alaska. A food analysis and bacteriology laboratory, a coffee roasting and grinding plant, and a medical supply unit were operated at the Depot. The Repairs and Utilities Division maintained carpentry, paint, electrical, and mechanical shops at the Depot (Headquarters Seattle Army Service Forces Depot 1945).

Following the 1974 PCB spill into Slip 1, a treatment facility for contaminated sediment and sludge was established on the southern portion of the property adjacent to Slip 1. Dredged material was held in tanks prior to being treated at a mobile treatment plant. The Air Force warehouse (Building 1202, Figure 6) was used to temporarily store 215 barrels of contaminated sludge (EPA 1975, as cited in Windward 2008).

4.1.4 Environmental Investigations and Cleanups

Several environmental investigations have been conducted at Federal Center South. Chemical data and figures from these investigations are included in Appendix C.

Data from LDW sediment sampling indicated the presence of mercury, zinc, and PCB concentrations exceeding the SQS and/or the CSL in sediment samples collected near the southern boundary of Federal Center South (Tables 2 and 3).

Underground Storage Tank Closure and Site Characterization (1997)

In September 1997, Glacier Environmental Services, Inc. (Glacier) decommissioned and removed one 2,000-gallon UST, which was used to store unleaded gasoline (Glacier 1997). The UST was formerly located adjacent to Building 1203, which is outside the RM 0.9-1.0 East source control area. Soil and groundwater contamination associated with the former tank, if any, would not impact RM 0.9 to 1.0 East, therefore, no additional information regarding these tanks and environmental investigations and cleanups is included in this Data Gaps report.

Underground Storage Tank Site Assessment (1998)

Three USTs were removed from the property and one was closed in place by Herrera in May 1998 (Herrera 1999). The USTs included a 300-gallon single-wall, steel UST (Tank T1), a 1,000-gallon single-wall, steel UST (Tank T6), a 1,000-gallon fiberglass UST (Tank T7), and a 12,000-gallon single-wall, steel UST (Tank T8). Tank locations are shown in Figure 6.

Tanks T7 and T8 were located outside the RM 0.9-1.0 East source control area. Soil and groundwater contamination associated with these former tanks, if any, would not impact RM 0.9 to 1.0 East; therefore, no additional information regarding these tanks and environmental investigations and cleanups is included in this Data Gaps report.

Tank T1 was used to store diesel fuel. According to GSA records, Tank T1 was used from 1986 until May 1998. Faint petroleum odors were noted in the soil samples collected from the Tank T1 excavation. The diesel-range hydrocarbon concentration in one soil sample collected from the initial excavation exceeded MTCA Method A cleanup levels. Additional soil was excavated to remove the contaminated soil. Diesel-range hydrocarbons were detected in only one of the six confirmation soil samples and this concentration did not exceed the MTCA Method A cleanup level (Table C-1).

Tank T6 was also used to store diesel fuel. The UST was installed in December 1964 and was removed from service prior to 1980. Tank T6 was closed in place due to the presence of a concrete pad above the UST. Heavy oil-range hydrocarbons were detected below the MTCA Method A cleanup level in soil samples collected around the UST.

UST Site Assessment (2001)

In 2001, Herrera located three 30,000-gallon USTs adjacent to the northern side of Building 1206 (Figure 6). The tanks were pumped dry with some sludge remaining. Herrera did not report the contents of the tanks, but it was assumed to be petroleum used in boilers located in a nearby building.

Herrera reported that a new UST had been installed in the location of former Tank T1.

Herrera's report contains several references to floor drains and drain lines, but they did not determine whether the drains connect to the sanitary sewer or the storm drain system (Herrera 2001a).

4.1.5 Potential for Sediment Recontamination

Historical operations at this facility resulted in releases of petroleum hydrocarbons to soil and groundwater beneath the property. Previous facility inspections performed by Ecology, King County, and SPU have identified sources of contaminants that have the potential to reach the LDW and Slip 1.

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

Stormwater

According to a 1976 GSA utility map, stormwater from this facility is discharged to Slip 1 and to the LDW. There are four private outfalls at the southern boundary of the parcel that appear to discharge to Slip 1. It is not known if these outfalls are currently in use. Based on the 1976 map, it appears that stormwater from approximately three-fourths of the property drains to Slip 1. The potential for sediment recontamination via this pathway is low to high, depending on the status of the outfalls. If these storm drain lines are in use and discharge to Slip 1, then they represent a potential pathway for contaminants to reach Slip 1.

Surface Runoff/Spills

Based on Ecology's 1993 facility inspection, an outdoor drum storage area is present on the property. Ecology indicated that the secondary containment for this area was inadequate. The area is apparently connected to storm drain lines that discharge to Slip 1. If so, then spills from this area may reach Slip 1 via the storm drain lines. It is not known if the storage area is still in use.

Due to the property's proximity to Slip 1, contaminants (if any) suspended in surface runoff have the potential to reach Slip 1.

Soil and Groundwater

Petroleum hydrocarbons have been released to soil and groundwater beneath the property. The majority of the affected area is west of the RM 0.9-1.0 East source control area, with the exceptions of the Tank T1 and T6 areas. Excavations were performed to remove contaminated soils. No groundwater samples were collected in the vicinity of Tanks T1 and T6; however, the area of contaminated soil associated with Tank T1 is approximately 100 feet northeast of Slip 1 and the area of contaminated soil associated with Tank T6 is approximately 800 feet north of Slip 1. Therefore, the potential for sediment recontamination in Slip 1 via soil and groundwater pathways associated with Tanks T1 and T6 is considered to be low.

Soil and groundwater have not been investigated near the three 30,000-gallon petroleum USTs identified by Herrera in 2001. These USTs are adjacent to the northern side of Building 1206 (Figure 6). Contaminated groundwater associated with these USTs (if any) would discharge to Slip 1. The potential for sediment recontamination in Slip 1 via soil and groundwater pathways associated with the three 30,000-gallon USTs is unknown.

Bank Erosion/Leaching

Little information was available on the construction of the banks in this area and the potential for sediment recontamination via this pathway. Contaminants in soils along the banks of Slip 1 could be released directly to sediments via erosion. The potential for sediment recontamination via this pathway is unknown.

4.1.6 Data Gaps

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

Stormwater Discharge

- A follow-up business inspection is needed at this property to verify completion of the corrective actions requested by King County and SPU in June 2004 and to ensure that operations at Federal Center South are in compliance with applicable regulations and best management practices (BMPs) to prevent the release of contaminants to the LDW.
- Information on the status of the private outfalls and yard drains on this property is needed to determine if discharges from these outfalls could transport COCs to Slip 1. If these outfalls and yard drains are currently in use, a source tracing study is needed to determine the area drained by these outfalls.
- The status of storm drain lines identified on the 1976 utility survey map and as observed by Ecology and Herrera needs to be determined. If the storm drain lines are currently in use and discharge to Slip 1, the areas drained by these lines need to be identified.
- Additional catch basins, yard drains, floor drains, and storm drain lines on the property (if any) need to be located and mapped.

Surface Runoff/Spills

- A current facility plan showing the locations of all catch basins and storm drains (if any) is needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- Information regarding the current use (if any) of the outdoor drum storage area is needed to determine if spills from the area have the potential to reach Slip 1. If the area is still in use, the adequacy of the secondary containment system needs to be assessed.
- A facility inspection is needed to determine if stormwater pollution and spill prevention plans are prepared and available to employees at Federal Center South.
- Information on facility grading and runoff water collection or containment systems is needed to determine the potential for COCs to reach the LDW and Slip 1 via this pathway.

Groundwater Discharge

- Soil and groundwater contamination may be present around the 30,000-gallon UST area. Additional information regarding the status and contents of these USTs is needed to determine if soil and groundwater contamination may be present in order to evaluate the potential for COCs to be transported to Slip 1 via groundwater discharge.

Bank Erosion/Leaching

- Additional information on the construction of the banks in this area is needed. Residual soil contamination may be present at this property; therefore, if bank erosion is likely, then data on contaminant concentrations in bank soils may be necessary to evaluate the potential for sediment recontamination via this pathway.

4.2 Snopac Products, Inc.

Facility Summary: Snopac Products, Inc.	
Address	5053-5055 East Marginal Way S
Property Owner	Gregory and Tammy Blakey
Tax Parcel No.	3573201061
Parcel Size	1.33 acres (58,000 sq ft)
Facility/Site ID	3967301 (Snopac) 1523145 (United Marine Shipbuilding)
NAICS Code(s)	424460 Fish and Seafood Merchant Wholesaler (Snopac) 9999: Nonclassifiable Establishments (United Marine Shipbuilding)
EPA ID No.	WAH000026134 (Snopac) WAD982658163 (inactive, United Marine Shipbuilding)
NPDES Permit No.	NA
UST/LUST ID No.	11228 (inactive)

Snopac Products, Inc. (Snopac) is located at 5053 East Marginal Way S. (Figure 4). It is bordered on the north by the Federal Center South, on the west by Slip 1, on the south by Manson Construction Company, and on the east by East Marginal Way S.

According to Ecology's TurboWaste.Net website, United Marine Shipbuilding has a facility on this parcel at 5055 East Marginal Way S (Ecology 2008b). However, additional records from Ecology and the Washington State Archives reviewed by SAIC indicate that United Marine Shipbuilding's operations are conducted at 1441 Northlake Way, Seattle, which is on Lake Union. An alternative name for United Marine Shipbuilding is Marine Power and Equipment Company, Inc.

The property is owned by Gregory and Tammy Blakey. The 1.33-acre parcel is zoned for industrial use. According to tax records, there is one building on the property, a 24,617 sq ft warehouse built in 1932.

From aerial photographs it appears that a portion of the property is built out over the head of Slip 1 (Figure B-11). It appears that a dock adjacent to this facility was abandoned or decommissioned in approximately 1990. From 2004 aerial photographs, it appears the dock is in disrepair and is likely unusable (Appendix B).

4.2.1 Current Operations

Snopac moved from the East Marginal Way S. location in mid-February 2008 to its current location at 6118-12th Avenue S., Seattle (Snopac 2008, personal communication). Based on field reconnaissance performed by SAIC in April 2008, the East Marginal Way facility building is currently for sale.

It is not known if United Marine Shipbuilding continues to operate at this property.

No records of materials used or wastes generated at the Snopac parcel were found in the files reviewed by SAIC.

Regulatory History

King County and SPU performed a full inspection at Snopac sometime between March 2003 and May 2004. No corrective actions were identified for this facility (SPU and King County 2005). The inspection report was not available for review.

No additional records of regulatory inspections or actions for Snopac were found in the files reviewed by SAIC.

4.2.2 Historical Operations

Snopac was established in 1983 and is one of relatively few independently owned and family operated fish processing companies.¹³ SAIC was unable to locate additional information regarding Snopac in the files reviewed during preparation of this Data Gaps report.

¹³ Snopac website: <http://www.snopac.net/>

4.2.3 Environmental Investigations and Cleanups

In 1989, three USTs were removed from the Snopac parcel. Tank No. 011228-1 was a 1,000-gallon diesel fuel storage tank, which was first installed in 1964 and removed on August 31, 1989. In addition, one 2,500-gallon UST and one 10,000-gallon unidentified UST were removed on September 12, 1989, and October 17, 1989, respectively. All three tanks last contained diesel fuel. Documentation of the UST removal process indicates that site assessments were completed for each of the three tank removals and no associated contamination was identified (Snopac 1989). Since collecting soil samples for laboratory analysis from UST excavations did not become an enforceable requirement until 1991 (Wietfeld 2008), it 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.

Data from LDW surface sediment sampling near the Snopac facility indicated the presence of arsenic, benzo(a)anthracene, benzo(g,h,i)perylene, chrysene, copper, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, PCBs, total HPAH, and zinc concentrations that exceeded the SQS and/or the CSL. Acenaphthene, arsenic, benzoic acid, cadmium, chromium dibenzofuran, fluoranthene, fluorene, lead, mercury, PCB, phenanthrene, and zinc concentrations exceeding the SQS and/or the CSL were present in subsurface sediment samples (Tables 2 and 3).

Seep 76, near the southeast corner of Slip 1, was sampled by the LDWG in 2004 (Windward 2004). Arsenic, copper, lead, mercury, and zinc concentrations in the seep water sample exceeded the marine chronic water quality standard (WQS) and the groundwater-to-sediment screening level (Table 4).

4.2.4 Potential for Sediment Recontamination

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

Stormwater

The potential for sediment recontamination via the stormwater pathway is unknown. However, based on SPU maps, it appears that all stormwater and wastewater from this facility is conveyed to the sanitary sewer.

Surface Runoff/Spills

Due to the property's proximity to Slip 1, contaminants (if any) suspended in surface runoff have the potential to reach Slip 1. The potential type and concentrations of contaminants suspended in surface runoff is unknown.

Soil and Groundwater

Previous environmental assessment related to UST removal did not indicate the presence of contamination beneath the site; however, a formal report (e.g., site assessment report or laboratory data) was not found in the files reviewed by SAIC.

Seep sampling near the Snopac facility indicated the presence of metals above the marine chronic WQS and groundwater-to-sediment screening levels. These metals concentrations may or may not be related to the Snopac property.

Bank Erosion/Leaching

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

The dock adjacent to this parcel appears to be abandoned and left to decompose in Slip 1 (Appendix B). Chemicals may be present in the treated pilings or other materials used to build the dock. These chemicals, if present, may have the potential to recontaminate sediments in Slip 1. The apparent loss of the dock may also increase the potential for bank erosion.

4.2.5 Data Gaps

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Snopac and United Marine Shipbuilding is listed below.

Stormwater Discharge

- Snopac no longer occupies this facility. A facility inspection is needed when or if a new business occupies the property to ensure compliance with applicable regulations and BMPs to prevent the release of contaminants to Slip 1 and the LDW.

Surface Runoff/Spills

- A facility plan showing the locations of all catch basins and storm drains (if any) is needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- When or if this facility is re-occupied, an evaluation of materials used and wastes generated will be needed to determine the potential for sediment recontamination via this pathway.
- Information on facility grading and runoff water collection or containment systems is needed to determine the potential for COCs to reach the LDW and Slip 1 via this pathway.

Groundwater Discharge

- An evaluation of materials used and wastes generated would contribute to a more thorough understanding of the potential for historical release(s) to soil and groundwater beneath this facility.

Bank Erosion/Leaching

- Additional information on the construction of the banks in this area is needed. Based on seep sampling results, residual metals contamination in soil may be present at this

property; therefore, if bank erosion is likely, then data on contaminant concentrations in bank soils is necessary to evaluate the potential for sediment recontamination via this pathway.

- Additional information regarding the construction of the dock adjacent to the property is needed. The dock appears to be rotting away. The materials used to construct the dock should be determined to evaluate the potential for sediment recontamination.

4.3 Manson Construction Company

Facility Summary: Manson Construction Company	
Address	9067: 5225 East Marginal Way S 9041: 5209 East Marginal Way S
Property Owner	King County
Tax Parcel No.	1924049067 (Slip 1) 1924049041
Parcel Size	9067: 1.02 acres (44,404 sq ft) 9041: 3.19 acres (139,004 sq ft)
Facility/Site ID	80333167
SIC Code(s)	1629: Heavy Construction, Not Elsewhere Classified
EPA ID No.	WAD007942824
NPDES Permit No.	NA
UST/LUST ID No.	10795

King County leases two parcels adjacent to Slip 1 to Manson Construction Company (Manson). Manson uses 5209 East Marginal Way S. as its operating address. The larger of the two parcels (9041) has two buildings erected on the property. The buildings are an 8,460 sq ft warehouse built in 1946 and a 9,196 sq ft office built in 1953. The smaller parcel (9067) encompasses most of Slip 1 with a small land area at the head of the slip (Figure 2). There are no buildings erected on the property.

Manson is bordered by Slip 1 and the former Snopac parcel to the north, East Marginal Way S. to the east, and Lehigh NW and Cadman Cement (both owned by Heidelberg Cement), and the LDW to the west.

Based on aerial photographs, it appears the parcel is mostly paved. A wharf that extends from the northern property line into Slip 1 was built in approximately 1946. A rectangular-shaped area at the southwestern edge of the property appears to be unpaved and may consist of native shoreline (Figure B-10). Between 1977 and 1990, it appears that Manson expanded their operations to a portion of Parcel 9070, the parcel adjacent to the south (Appendix B).

4.3.1 Current Operations

Site Facilities and Operations

Manson has been operating at this location for an unknown duration. Since 1905, Manson has been growing and expanding its operations as well as its fleet of floating machinery, including heavy lifting derricks and cranes, allowing them to execute a wide range of marine construction projects including wharf, pier, terminal, marina, and bridge development as well as maintenance dredging, channel cutting, and beach nourishment. Their headquarters office (5209 East Marginal Way S.) serves as a staging location to perform projects along the west coast and Alaska.¹⁴ Based on 2002 aerial photos, Manson stores heavy equipment and associated machinery at this location.

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

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

Manson also leases two King County-owned parcels (9070 and 9052) and sublets them to Lehigh NW and Cadman. Both Lehigh NW and Cadman use 5225 East Marginal Way S. as an operating address. These parcels are south of the RM 0.9-1.0 East source control area and will be reviewed in the Data Gaps report to be prepared for the RM 1.0-1.2 East (King County Lease Parcels) source control area. Seattle Boiler Works occupied this property until 1949¹⁵ (Foster 1945).

Waste Handling

According to documentation collected by Ecology during a site visit in June 2002, Manson uses Safety Kleen as their hazardous waste vendor for everything except fluorescent bulbs, which they self transport to Ecolights. Leftover solvents and paints are handled through a central storage location where they are evaluated for reuse. Ecology recommended secondary containment for this location. Used oil and antifreeze are stored in a metal building with a concrete foundation and raised metal grating (Ecology 2002d). No other information on waste handling was available for review.

Stormwater Discharges

No information regarding stormwater discharge for the Manson parcel was found in the files reviewed by SAIC. Based on SPU maps, it appears that all stormwater from this facility is conveyed to the sanitary sewer. However, due to the property's proximity to Slip 1, contaminants (if any) suspended in surface runoff have the potential to reach Slip 1.

¹⁴ Manson Construction website http://www.mansonconstruction.com/contact_manson_dredging.html

¹⁵ Seattle Boiler Works website: <http://seattleboiler.com/index.htm>

Regulatory History

According to a facility inspection performed by Ecology on June 6, 2002, Manson was not in compliance with the Dangerous Waste Regulations by not properly labeling containers of dangerous waste (Ecology 2002d). A letter of No Further Action (NFA) summarizing the site visit indicates that Manson is considered to be a high-risk pollution generating business due to activities including fueling operations, loading and unloading of liquid and solid materials, liquid storage in stationary above ground tanks, outside portable container storage of dangerous wastes, and outside manufacturing activities. However, the Ecology inspector noted that Manson was doing an excellent job in preventing pollution while engaging in activities that could potentially be harmful to the environment and the LDW (City of Seattle 2002).

4.3.2 Historical Operations

Although Manson Construction began operations in 1905, files reviewed by SAIC did not indicate when Manson began leasing these parcels from King County or identify previous facilities that operated at either of these locations.

Glacier Gravel Company was a previous occupant of this property (Foster 1945).

4.3.3 Environmental Investigations and Cleanups

Approximately 5 gallons of #2 diesel fuel spilled and leaked into Slip 1 on December 16, 1993, when a pump was inadvertently left on at the Manson facility. Cleanup operations were performed and residual fuel was cleaned up with absorbent pads and degreaser. The spill was reported to Ecology and no further action was deemed necessary (Ecology 1993d).

A 500-gallon gasoline UST was removed from the Manson property on November 15, 1988. The UST was inspected in 1986 and records indicate it was 1 to 2 years old at the time of inspection. According to a memo from Manson, as of January 26, 1989, there are no USTs remaining on site (Manson 1989). Since collecting soil samples for laboratory analysis from UST excavations did not become an enforceable requirement until 1991 (Wietfeld 2008), it assumed that the assessment for contamination within these UST excavations was limited to visual and field screening (e.g., screening for VOCs using a PID) inspections of the soil.

Field notes collected by the Ecology inspector during the aforementioned facility inspection also indicate that soil remediation had been conducted under a building, designed and constructed by Manson, which serves as secondary containment for dangerous waste (Ecology 2006). No records of soil laboratory results associated with this cleanup or any other remediation efforts were found in the files reviewed by SAIC.

Data from LDW surface sediment sampling near the Manson facility indicated the presence of 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzofluoranthenes, chrysene, dibenzofuran, fluoranthene, fluorene, mercury, naphthalene, phenanthrene, total HPAH and LPAH, PCBs, and zinc concentrations that exceeded the SQS and/or the CSL. Concentrations of 1,2,4-trichlorobenzene, acenaphthene, BEHP, fluoranthene, mercury, PCBs, total HPAH, and zinc exceeding the SQS and/or the CSL were present in subsurface sediment

samples (Tables 2 and 3). Many PAH exceedances were observed in sample LDW-SS35, which was collected near the boundary between Manson and the Lehigh NW/Cadman Cement facility. Surface runoff from the Lehigh NW/Cadman Cement facility may be a contributing source of sediment contamination; however, this facility is outside the current source control area. A review of the Lehigh NW/Cadman Cement facility will be included in the Data Gaps report for RM 1.0-1.4 East (King County Lease Parcels).

Seep 76, near the southeast corner of Slip 1, was sampled by the LDWG in 2004 (Windward 2004). Arsenic, copper, lead, mercury, and zinc concentrations in the seep water sample exceeded the marine chronic WQS and the groundwater-to-sediment SL (Table 4).

4.3.4 Potential for Sediment Recontamination

Previous and possibly current operations at this property may have resulted in residual contamination. The potential for sediment recontamination associated with this property is summarized below by transport pathway.

Stormwater

Based on SPU maps, it appears that all stormwater and wastewater from this facility is conveyed to the sanitary sewer. The potential for sediment recontamination via the stormwater pathway is low.

Surface Runoff/Spills

A previous spill at this property leaked into Slip 1 (see Section 4.3.3). Due to the property's proximity to Slip 1, contaminants (if any) suspended in surface runoff have the potential to reach Slip 1.

Soil and Groundwater

A 2002 facility inspection report indicates that soil remediation was performed at the property; however, no additional information (e.g., site assessment report or laboratory data) regarding the remediation activities was available for review by SAIC. The potential for sediment recontamination via this pathway is low to high depending on the levels of residual contamination in soil and groundwater beneath the facility.

Seep 76, near the southeast corner of Slip 1, was sampled by the LDWG in 2004 (Windward 2004). Arsenic, copper, lead, mercury, and zinc concentrations in the seep water sample exceeded the marine chronic WQS and the groundwater-to-sediment screening levels (Table 4). These metals concentrations may or may not be related to the Manson property.

Bank Erosion/Leaching

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

4.3.5 Data Gaps

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

Stormwater Discharge

- A facility inspection is needed to verify that stormwater is discharged to the sanitary sewer and to ensure that operations at Manson are in compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.

Surface Runoff/Spills

- A facility plan showing the locations of all catch basins and storm drains (if any) as well as an evaluation of the slope of impervious surfaces and any associated surface water collection and/or discharge points is needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- If truck or equipment washing activities occur on the property, COCs suspended in wash water (if any) may be transported to the LDW via surface runoff.
- Information on facility grading and runoff water collection or containment systems is needed to determine the potential for COCs to reach the LDW and Slip 1 via this pathway.

Groundwater Discharge

- An evaluation of materials used and wastes generated would contribute to a more thorough understanding of the potential for historical release(s) to soil and groundwater beneath this facility.
- No laboratory data from site assessment(s) and remediation at the Manson parcel were found in the files reviewed by SAIC. Additional information is needed to evaluate if contaminant concentrations in soil and groundwater beneath this facility have the potential to re-contaminate Slip 1 sediments.

Bank Erosion/Leaching

- Additional information on the construction of the banks in this area is needed. Residual soil contamination may be present at this property; therefore, if bank erosion is likely, then data on contaminant concentrations in bank soils is necessary to evaluate the potential for sediment recontamination via this pathway.

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5.0 Summary of Data Gaps

Data gaps have been identified for outfalls and adjacent properties in Sections 3 and 4, respectively. These data gaps are summarized below, listed by potential sediment recontamination pathway.

5.1 Stormwater Discharge

Private Outfalls

- It is not known if private outfalls and yard drains on the Federal Center South property are currently in use or the sources of discharge to the outfalls and yard drains, if any. Additional information from the GSA and Federal Center South is needed to determine the status of the outfalls and yard drains. If the outfalls and yard drains are in use, information is needed to determine source contributors. Catch basin solid samples may be needed to determine if COCs are present in the storm drain system.

Federal Center South

- A follow-up business inspection is needed at this property to verify completion of the corrective actions requested by King County and SPU in June 2004 and to ensure that operations at Federal Center South are in compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.
- Information on the status of the private outfalls on this property is needed to determine if discharges from these outfalls could transport COCs to Slip 1. If these outfalls are currently in use, a source tracing study is needed to determine the area drained by these outfalls.
- The status of storm drain lines identified on the 1976 utility survey map and as observed by Ecology and Herrera, needs to be determined. If the storm drain lines are currently in use and discharge to Slip 1, the areas drained by these lines need to be identified.
- Additional catch basins, floor drains, and storm drain lines on the property (if any) need to be located and mapped.

Snopac Products, Inc.

- Snopac no longer occupies this facility. A facility inspection is needed when or if a new business occupies the property to ensure compliance with applicable regulations and BMPs to prevent the release of contaminants to Slip 1 and the LDW.

Manson Construction Company

- A facility inspection is needed to verify that stormwater is discharged to the sanitary sewer and to ensure that operations at Manson are in compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.

5.2 Surface Runoff/Spills

Federal Center South

- A current facility plan showing the locations of all catch basins, yard drains, and storm drains (if any) is needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- Information regarding the current use (if any) of the outdoor drum storage area is needed to determine if spills from the area have the potential to reach Slip 1. If the area is still in use, it needs to be determined if the secondary containment system for the area is adequate to prevent spills from reaching the LDW and Slip 1.
- A facility inspection is needed to determine if stormwater pollution and spill prevention plans are prepared and available to employees at Federal Center South.
- Information on facility grading and runoff water collection or containment systems is needed to determine the potential for COCs to reach the LDW and Slip 1 via this pathway.

Snopac Products, Inc.

- A facility plan showing the locations of all catch basins and storm drains (if any) is needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- When or if this facility is re-occupied, an evaluation of materials used and wastes generated will be needed to determine the potential for sediment recontamination via this pathway.
- Information on facility grading and runoff water collection or containment systems is needed to determine the potential for COCs to reach the LDW and Slip 1 via this pathway.

Manson Construction Company

- A facility plan showing the locations of all catch basins and storm drains (if any) as well as an evaluation of the slope of impervious surfaces and any associated surface water collection and/or discharge points is needed to evaluate the potential for contaminant transport to the LDW via surface runoff.
- If truck or equipment washing activities occur on the property, COCs suspended in wash water (if any) may be transported to the LDW via surface runoff.
- Information on facility grading and runoff water collection or containment systems is needed to determine the potential for COCs to reach the LDW and Slip 1 via this pathway.

5.3 Groundwater Discharge

Federal Center South

- Soil and groundwater contamination may be present around the 30,000-gallon UST area. Additional information regarding the status and contents of these USTs is needed to determine if soil and groundwater contamination may be present in order to evaluate the potential for COCs to be transported to Slip 1 via groundwater discharge.

Snopac Products, Inc.

- An evaluation of materials used and wastes generated would contribute to a more thorough understanding of the potential for historical release(s) to soil and groundwater beneath this facility.

Manson Construction Company

- An evaluation of materials used and wastes generated would contribute to a more thorough understanding of the potential for historical release(s) to soil and groundwater beneath this facility.
- No laboratory data from site assessment(s) and remediation at the Manson parcel were found in the files reviewed by SAIC. Additional information is needed to evaluate if contaminant concentrations in soil and groundwater beneath this facility have the potential to re-contaminate Slip 1 sediments.

5.4 Bank Erosion/Leaching

Federal Center South

- Additional information on the construction of the banks in this area is needed. Residual soil contamination may be present at this property; therefore, if bank erosion is likely, then data on contaminant concentrations in bank soils may be necessary to evaluate the potential for sediment recontamination via this pathway.

Snopac Products, Inc.

- Additional information on the construction of the banks in this area is needed. Based on seep sampling results, residual metals contamination in soil may be present at this property; therefore, if bank erosion is likely, then data on contaminant concentrations in bank soils is necessary to evaluate the potential for sediment recontamination via this pathway.
- Additional information regarding the construction of the dock adjacent to the property is needed. The dock appears to be rotting away. The materials used to construct the dock should be determined to evaluate the potential for sediment recontamination.

Manson Construction Company

- Additional information on the construction of the banks in this area is needed. Residual soil contamination may be present at this property; therefore, if bank erosion is likely, then data on contaminant concentrations in bank soils is necessary to evaluate the potential for sediment recontamination via this pathway.

6.0 Documents Reviewed

- Booth and Herman. 1998. Duwamish Coalition: Duwamish basin groundwater pathways conceptual model report. City of Seattle Office of Economic Development and King County Office of Budget and Strategic Planning, Seattle, WA. As cited in Windward 2003.
- City of Seattle. 2002. Memo from Ryeann-Marie Woods (Ecology) to Kathleen Becker (Manson Construction), Results from the June 6, 2002 Stormwater Pollution Prevention Re-inspection: No Further Action required. June 12, 2002. (1456)
- Department of the Army. 1998. Decommissioning Report for one 2,000 gallon Unleaded Gasoline Underground Storage Tank. Prepared by Department of the Army for Ecology. October 5, 1998 (1381)
- Ecology (Washington State Department of Ecology). 1986. Department of Ecology Inspection Report. May 20, 1986. (1450)
- Ecology. 1988a. Memo from I.A. Ozols to Mr. Ashley (Ecology), No Subject. November 4, 1988. (1557)
- Ecology. 1988b. Memo from Laurence Ashley (Ecology) to I.A. Ozols, Open Storage Project at the Federal Center South, Seattle. November 18, 1988 (1556)
- Ecology. 1989. Memo from Anthony Fodden (Ecology) to Mr. Ashley, Open Storage Project, Federal Center South, Seattle. November 14, 1989. (1555)
- Ecology. 1992. Notification of Dangerous Waste Activities. January 10, 1992. (1558)
- Ecology 1993a. Hazardous Waste Compliance Inspection Report, United States General Services Administration, Seattle Federal Center South. February 9 and 11, 1993. (2718)
- Ecology 1993b. Letter from Jeannie Summerhays (Ecology) to George Hillman (BIA) regarding Hazardous Waste Compliance Inspection. March 31, 1993. (2720)
- Ecology 1993c. Letter from Jeannie Summerhays (Ecology) to Pearl Eggerud (GSA) regarding Hazardous Waste Compliance Inspection, Seattle Federal Center South – WA8470031891. June 7, 1993. (2719)
- Ecology. 1993d. Department of Ecology ERT System – Initial Report/Followup. December 12, 1993. (1449)
- Ecology. 1996. Progress Re-evaluating Puget Sound Apparent Effects Thresholds (AETs). Volume I: 1994 Amphipod and Echinoderm Larval AETs. Draft Report. April 1996.

- Ecology. 1999a. Department of Ecology Environmental Report Tracking System Referral. Prepared for Department of Ecology by Department of the Army. February 26, 1999. (1383)
- Ecology. 1999b. Underground Storage Tank Notice of Confirmed Release. Prepared by the Department of Army for Ecology. September 11, 1999. (1382)
- Ecology. 2001a. DMR Violation/Warning Summary Report. January 01, 2001. (1511)
- Ecology. 2001b. Memo from Tiffany Yelton (Ecology) to Kathleen Becker (Manson Construction), Technical Assistance visit at Manson Construction Co. (WAD 007 942 842). February 27, 2001. (1460)
- Ecology. 2002a. Water Compliance Inspection Report. May 2, 2002. (1523)
- Ecology. 2002b. Compliance Certificate. June 6, 2002. (1452).
- Ecology. 2002c. Site Photos by Tiffany Yelton. June 6, 2002. (1455)
- Ecology. 2002d. Memo from Tiffany Yelton (Ecology) to Kathleen Becker (Manson Construction), Dangerous Waste Compliance Inspection at Manson Marine Construction Co. RCRA ID# WAD007942824 on June 6, 2002. June 21, 2002. (1453)
- Ecology. 2004a. Lower Duwamish Waterway Source Control Strategy. Publication No. 04-09-043. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. January 2004.
- Ecology. 2004b. Lower Duwamish Waterway Source Control Action Plan for the Duwamish/Diagonal Way Early Action Cleanup. Publication No. 04-09-003. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. December 2004.
- Ecology. 2006. Notes, Unannounced Compliance Inspection at Manson Construction. June 6, 2006. (1457)
- Ecology. 2007. Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007. Publication No. 07-09-064. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. July 2007.
- Ecology. 2008a. Turbo Waste Net Site Report for Snopac Products Inc. March 25, 2008. (1467)
- Ecology. 2008b. Turbo Waste Net Site Report for United Marine Shipbuilding Marginal Way. March 25, 2008. (1466)
- Ecology. 2008c. Turbo Waste Net Site Report for US AF Waterport Logistics Office. March 25, 2008. (1468)

- Ecology. 2008d. Turbo Waste Net Site Report for USDOIBIA Federal Center. March 25, 2008. (1554)
- Ecology. 2008e. Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008. Publication No. 08-09-063. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. May 2008.
- Ecology. 2008f. Email between Sara Maser, Voluntary Cleanup Program Administrator, Washington Department of Ecology, and Sarah Good, Environmental Planner, Washington Department of Ecology, re: U.S. GSA Federal Center South VCP.
- Ecology and SAIC. 2007. Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007. July 15, 2007.
- EPA (U.S. Environmental Protection Agency). 1975. Region 10 On-Scene Coordinator's Report on the Duwamish Waterway PCB spill on September 13, 1974. U.S. Environmental Protection Agency, Region 10, Seattle, Washington. As cited in Windward 2008.
- EPA. 2002. Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites. OSWER Directive 9285.6-08. U.S. Environmental Protection Agency. February 12, 2002.
- EPA and Ecology. 2002. Lower Duwamish Waterway Site Memorandum of Understanding Between the United States Environmental Protection Agency and the Washington State Department of Ecology. April 2002.
- EPA and Ecology. 2004. Lower Duwamish Waterway Site Memorandum of Understanding Between the United States Environmental Protection Agency and the Washington State Department of Ecology. April 2004.
- Foster, R.F. 1945. Sources of Pollution in the Duwamish-Green River Drainage Area. Prepared by Richard F. Foster. December 6, 1945.
- General Services Administration (GSA). 1976. General Services Administration Utility Survey – Federal Center South. Figure Numbers 6 and 8. July 27, 1976. (2724)
- GSA. 1993. Letter from Mona Evans (GSA) to Jeannie Summerhays (Ecology) regarding Inspection Letter June 7, 1993, GSA Federal Center South – WA8470031891. August 13, 1993. (2721)
- Glacier (Glacier Environmental Services, Inc.). 1997. Underground Storage Tank Closure Report, Site Characterization Report, Federal Center South. Prepared for US Army Corps of Engineers by Glacier Environmental Services, Inc. October 1997. (1378)
- Harper-Owes. 1985. Duwamish Ground Water Studies, Waste Disposal Practices, and Dredge and Fill History. Prepared for Sweet Edwards and Associates. March 1985.

- Headquarters Seattle Army Service Forces Depot. 1945. Seattle Army Service Forces Depot, Information and Notes of Interest about the Pacific Northwest's Quartermaster and Medical Supply Installation, Scope of Mission and Activities, Receiving, Storage and Shipping Operations, Procurement and Inspection of Supplies, Organization and Management, and Historical Background of the Depot. June 1945. (2725)
- Herrera (Herrera Environmental Consultants, Inc.). 1999. Underground Storage Tank Site Assessment, Federal Center South Seattle Washington. Prepared for US General Services Administration by Herrera Environmental Consultants, Inc May 3, 1999. (1376)
- Herrera. 2000. Environmental Site Assessment and Ground Water Monitoring, Federal Center South. Prepared for US General Services Administration by Herrera Environmental Consultants, Inc. January 7, 2000. (1380)
- Herrera. 2001a. Phase 1 Environmental Site Assessment, Federal Center South, Seattle Washington. Prepared for U.S. General Services Administration, Auburn, Washington. July 2001. (2723)
- Herrera. 2001b. Baseline Ground Water Monitoring Report, Federal Center South. Prepared for US General Services Administration by Herrera Environmental Consultants, Inc. December 11, 2001. (1379)
- Herrera. 2003. Independent Remediation Action Report, Federal Center South. Prepared for US General Services Administration by Herrera Environmental Consultants, Inc. July 17, 2003. (1377)
- King County. 2007. Combined Sewer Overflow Program. 2006-2007 Annual Report. Wastewater Treatment Division, King County Department of Natural Resources and Parks. October 2007.
- King County Department of Natural Resources, Anchor Environmental, LLC and EcoChem, Inc. 2001. Draft Duwamish/Diagonal CSO/SD Cleanup Study Report, Elliot Bay/Duwamish Restoration Program. Prepared for the Elliot Bay/Duwamish Restoration Program Panel. December 2001.
- Manson (Manson Construction Company). 1989. Memo from Patrick McGarry (Manson Construction), No Subject. January 26, 1989. (1451)
- Manson (Manson Construction Company). 2001a. Notes by Kathleen Becker (Manson Construction), Misc. Notes. February 12, 2001. (1459)
- Manson. 2001b. Email from Kathleen Becker (Manson Construction) to Tiffany Yelton (Ecology), Progress Report. May 14, 2001. (1458)
- NOAA. 1998. Duwamish Waterway Sediment Characterization Study Report. National Oceanic and Atmospheric Administration, Seattle, WA. As cited in Windward 2003.

- SAIC (Science Applications International Corporation). 2006. Soil and Groundwater Screening Criteria, Source Control Action Plan, Slip 4, Lower Duwamish Waterway. Prepared for Washington State Department of Ecology by SAIC, Bothell, WA. August 2006.
- Snopac (Snopac Products, Inc.). 1989. Notice of Permanent Closure of Underground Storage Tank(s). Prepared for Ecology by Snopac Products Inc. January 8, 1990. (1464)
- Snopac. 1990. Memo by Stewart Terry (Snopac Products Inc) to Ecology, Closure of UST at 5055 East Marginal Way South. January 8, 1990. (1563)
- Snopac. 2008. Personal communication between Snopac customer service representative, and Megan Gay, Geologist, SAIC, re: current location of Snopac operations. May 21, 2008.
- SPU (Seattle Public Utilities) and King County. 2005. King County and Seattle Public Utilities Source control Program for the Lower Duwamish Waterway, June 2005 Progress Report. Prepared for U.S. Environmental Protection Agency, Region 10 and Washington State Department of Ecology by Seattle Public Utilities and King County Industrial Waste. June 2005.
- Unknown. 1986. WA UST Tank Closure Notification Form. May 14, 1986. (1562)
- USAF (U.S. Air Force). Unknown. Spill Prevention Control and Countermeasure Plan, Open Fuel Storage for Waterport Logistics Office, Federal Center South. Unknown. (2722)
- U.S. Construction. 1990. Memo by I.A. Ozol to Max Ansol, Preconstruction Conference for Project RWA68315. June 29, 1990. (1561)
- Weston (Roy F. Weston, Inc.). 1999. Site inspection report: Lower Duwamish River. RM 2.5-11.5. Volume 1 – Report and appendices. Prepared by Roy F. Weston, Inc. for U.S. Environmental Protection Agency Region 10, Seattle, WA. As cited in Windward 2003.
- Wietfeld, John. 2008. Personal communication between John Wietfeld (Ecology Toxics Cleanup Unit) and Megan Gay (SAIC) regarding soil sampling requirements for UST removals and excavations. August 21, 2008.
- Windward (Windward Environmental LLC). 2003. Phase 1 Remedial Investigation Report. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. July 3, 2003.
- Windward. 2004. Data Report: Survey and Sampling of Lower Duwamish Waterway Seeps. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. November 18, 2004.
- Windward. 2005a. Data Report: Round 1 Surface Sediment Sampling for Chemical Analyses and Toxicity Testing. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. October 21, 2005.

Windward. 2005b. Data Report: Round 2 Surface Sediment Sampling for Chemical Analyses and Toxicity Testing. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. December 9, 2005.

Windward. 2007a. Data Report: Subsurface Sediment Sampling for Chemical Analyses. Final. Prepared by Windward Environmental LLC and RETEC for the Lower Duwamish Waterway Group. January 29, 2007.

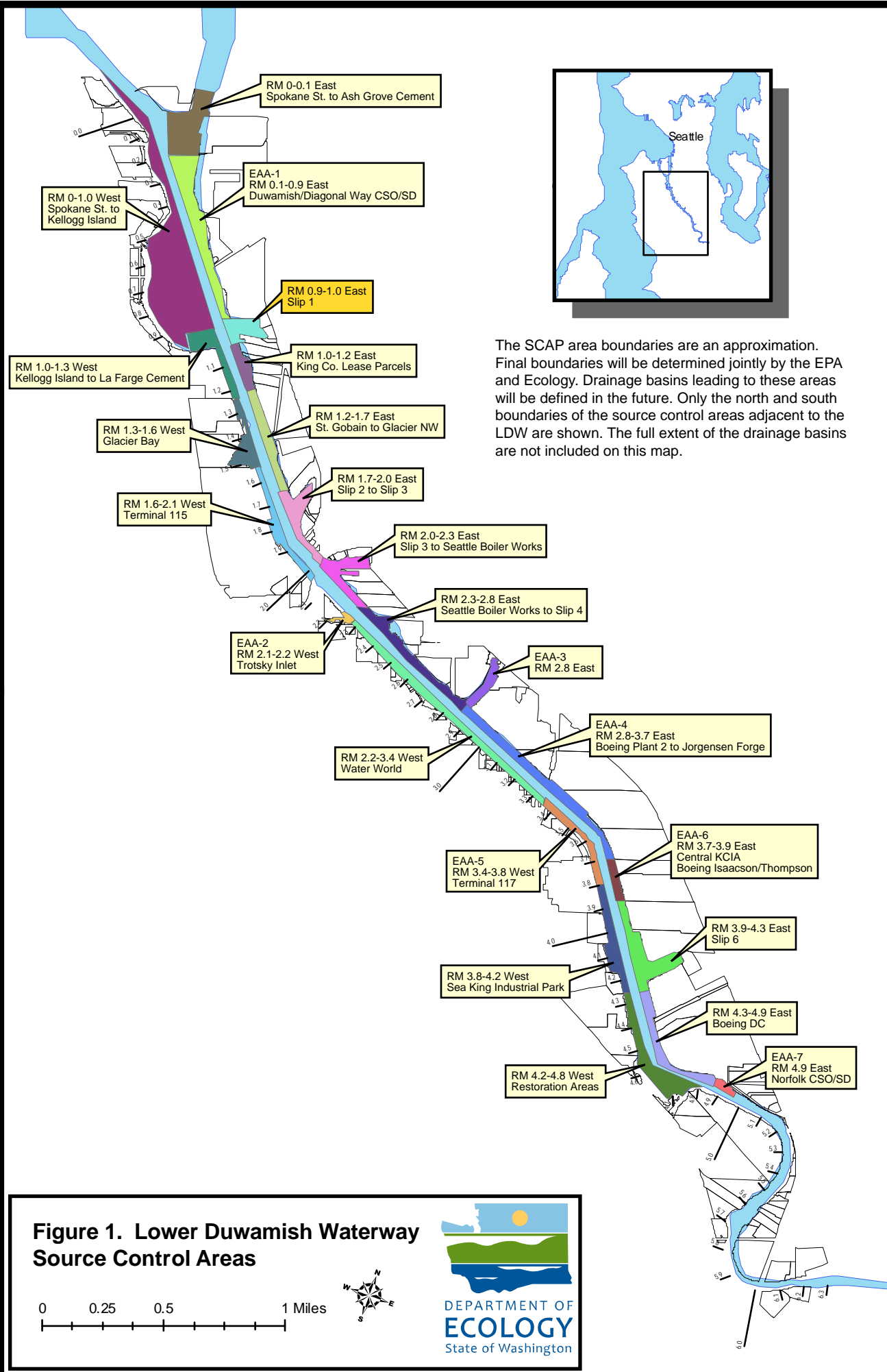
Windward. 2007b. Data Report: Round 3 Surface Sediment Sampling for Chemical Analyses. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. March 12, 2007.

Windward. 2007c. Phase 2 Remedial Investigation Report. Draft. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. November 5, 2007.

Windward. 2008. Terminal 108 – Environmental Conditions Report. Draft. Prepared by Windward Environmental LLC for the Port of Seattle. July 31, 2008.

Figures

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

Figure 1. Lower Duwamish Waterway Source Control Areas

0 0.25 0.5 1 Miles



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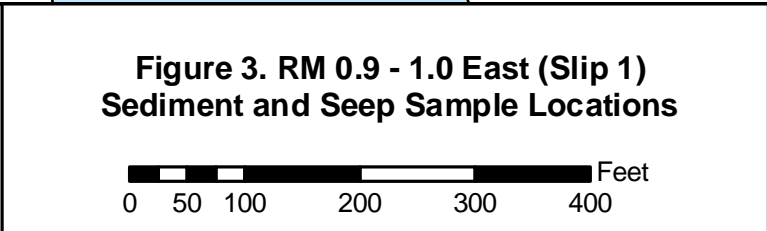
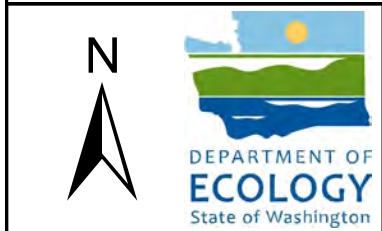
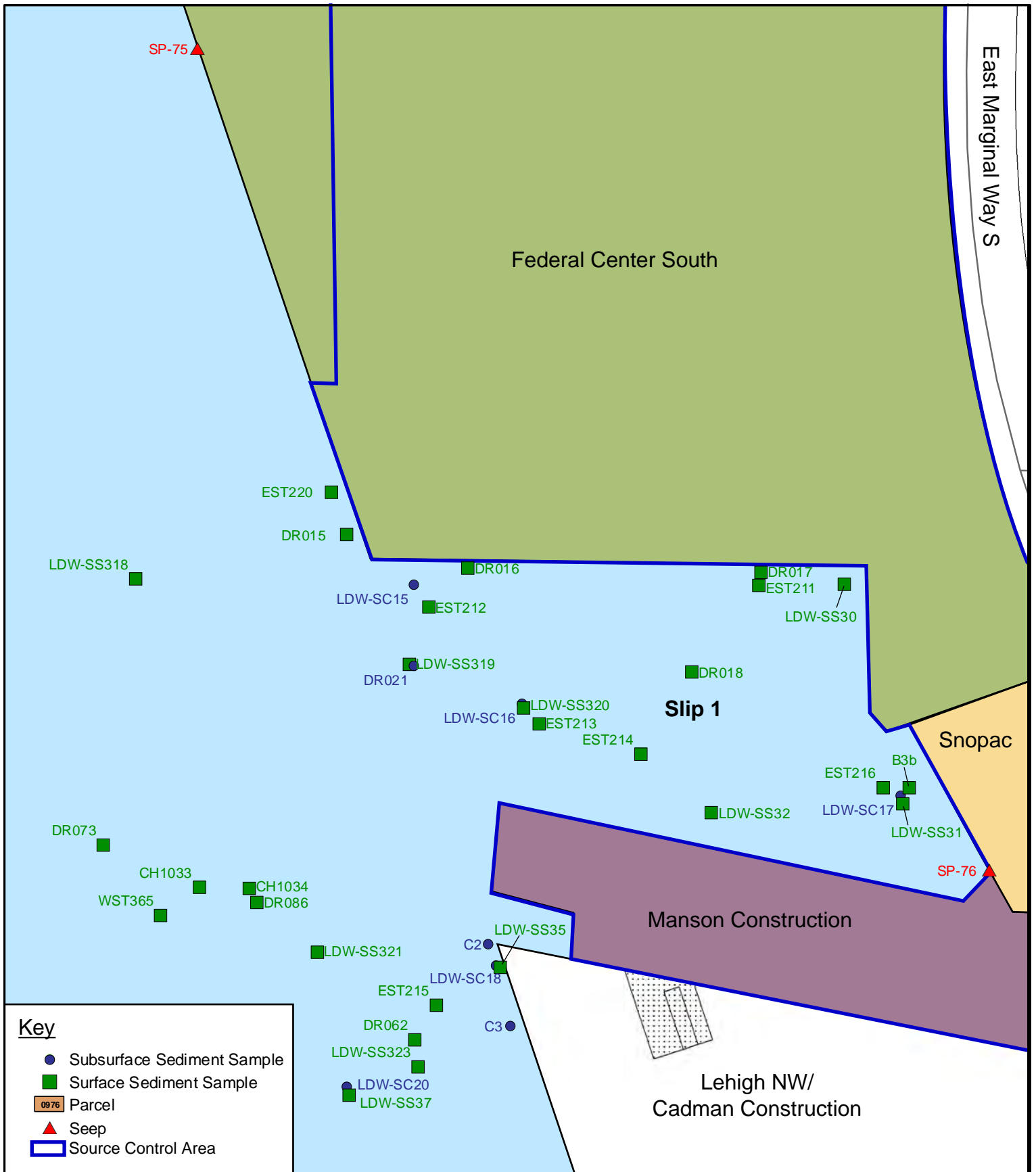
Aerial Image USGS 2004



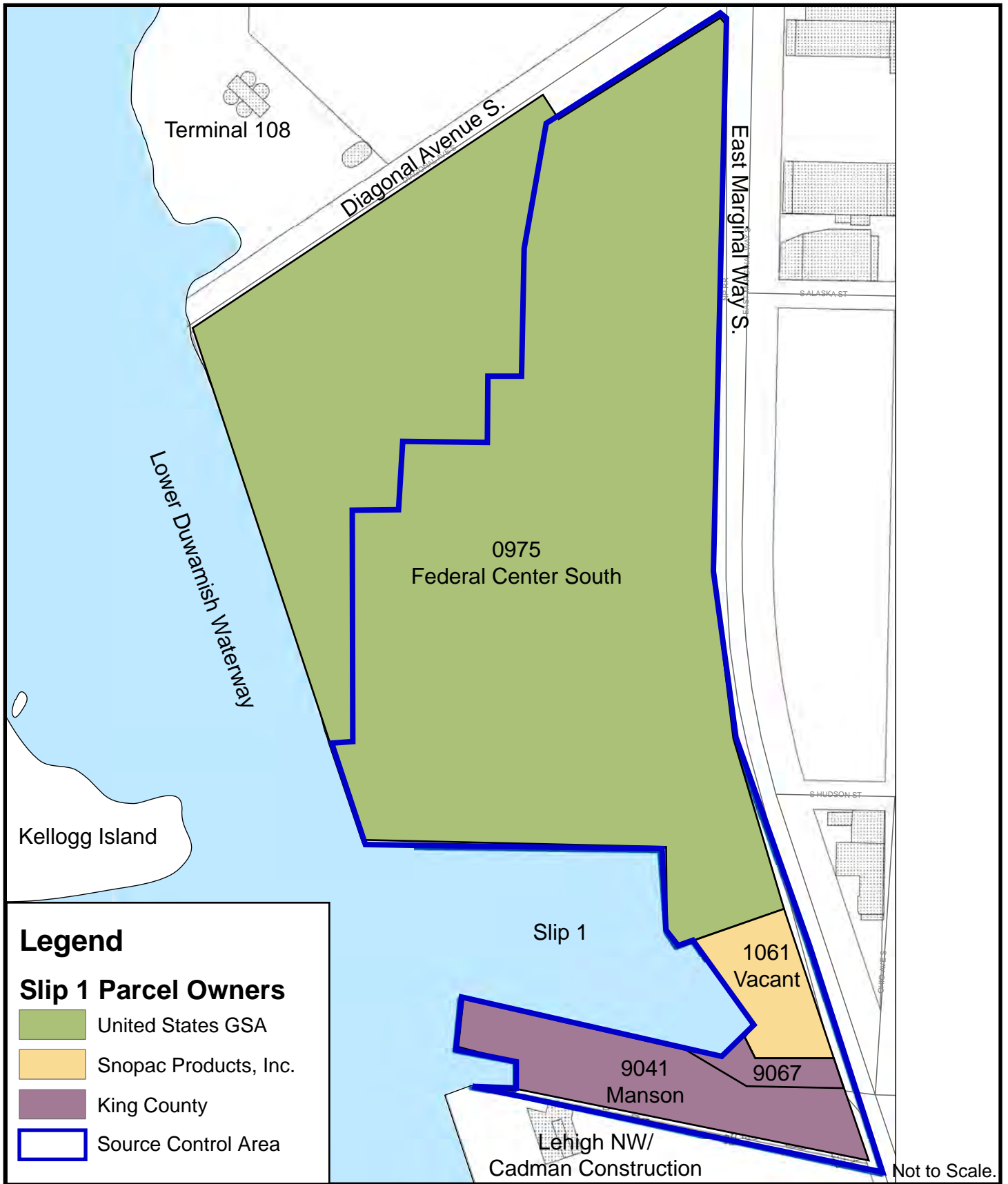
**Figure 2. RM 0.9-1.0 East (Slip 1)
Source Control Area and Drainage Basin**



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**Figure 4. RM 0.9–1.0 East (Slip 1)
Ownership and Parcel Uses**



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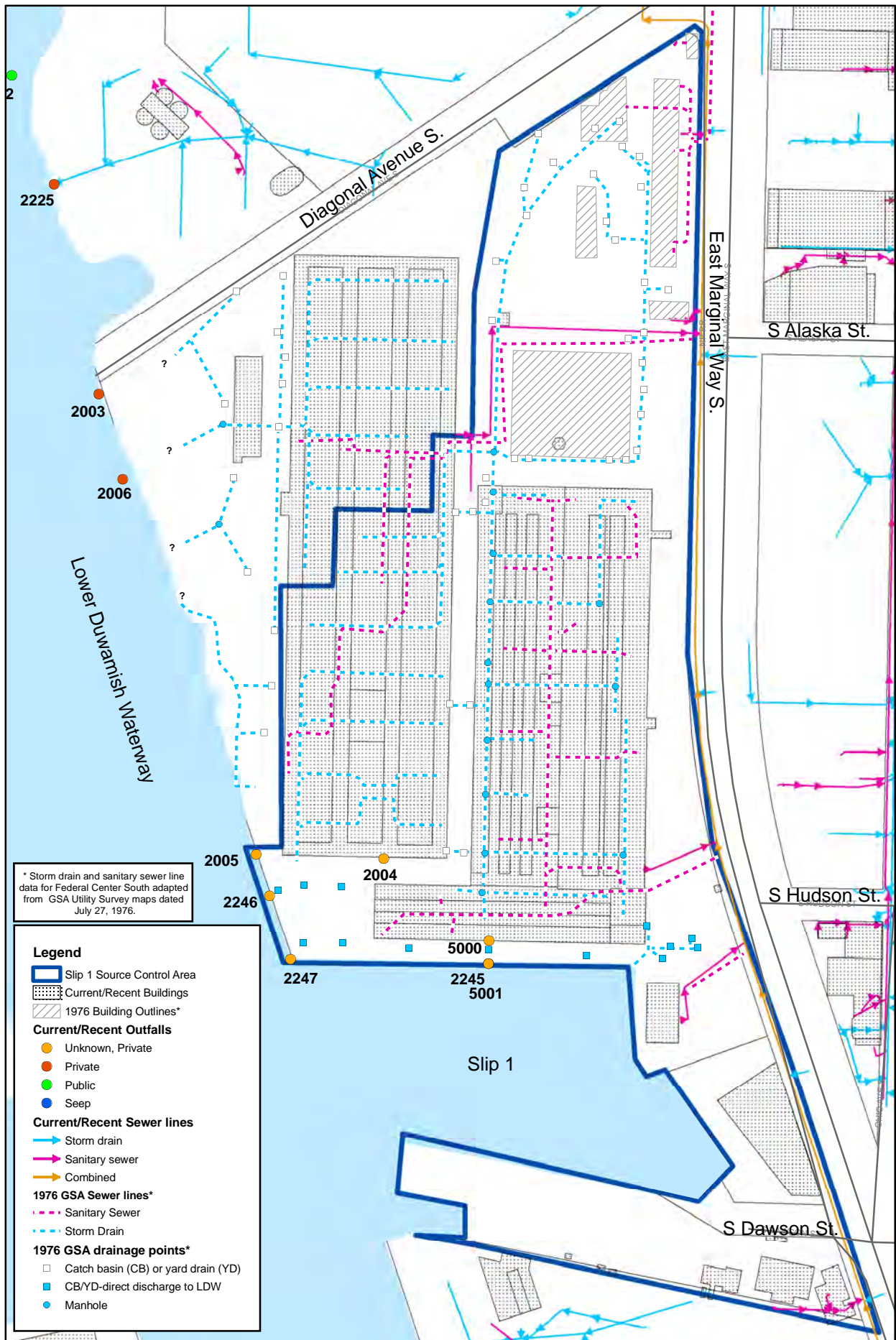
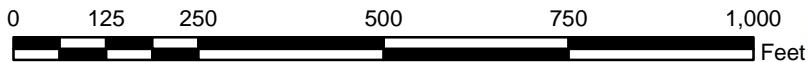


Figure 5. RM 0.9–1.0 East (Slip 1) Sewer Lines



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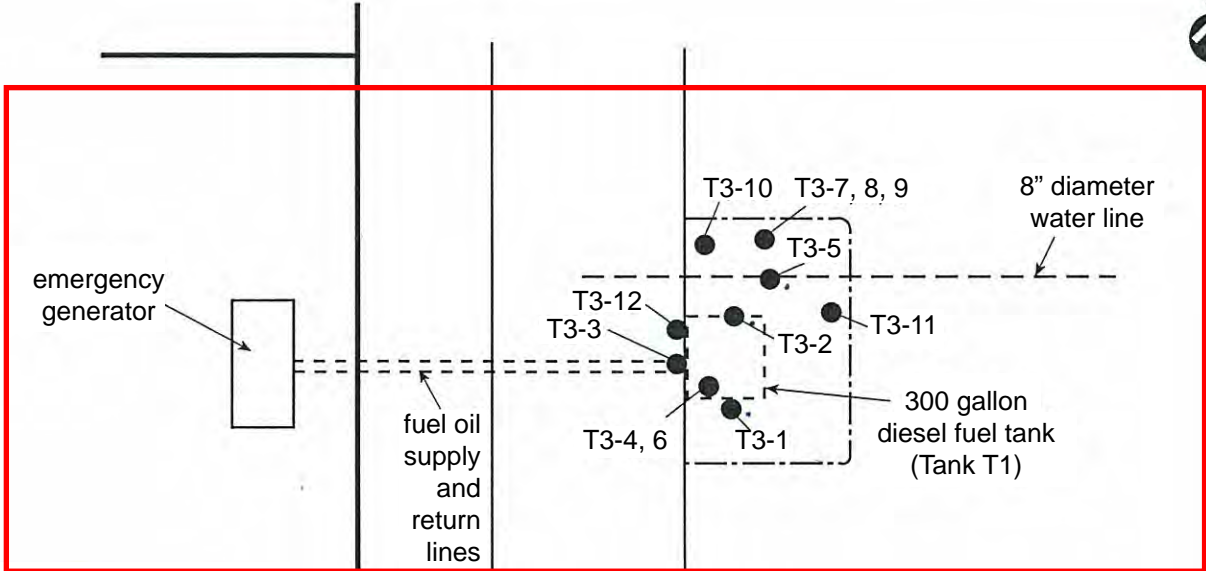
Not to Scale.



Figure 6. Federal Center South



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lower boiler room
(Office Building 1201)



landscaped strip

concrete sidewalk

curb

Legend

- T3-1 ● Soil sample location
- Limits of excavation

0 10 feet
Approximate scale

Sample #	Depth	Sample #	Depth
T3-1	6'	T3-8	12'
T3-2	6'	T3-9	10.5'
T3-3	3'	T3-10	9'
T3-4	8'	T3-11	6'
T3-5	8'	T3-12	6'
T3-6	12'		
T3-7	8.5'		

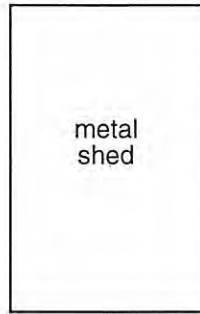
Source:
GSA Public Buildings Service -
UST Removal/Abandonment/
Replacement and AST Installation -
6/14/96 Drawing C-4.



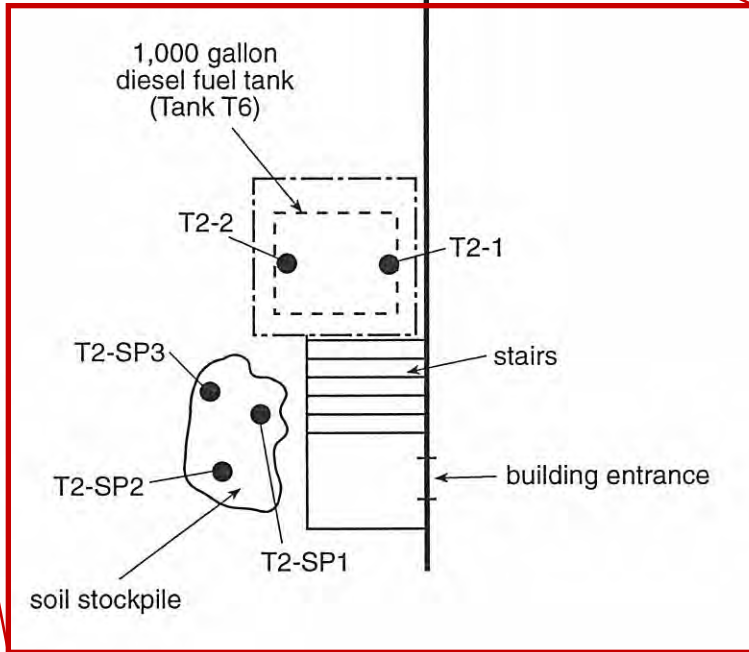
Figure 7. Tank T1 Location Map, Building 1201 at Federal Center South



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Office Building 1201



Legend		Sample # Depth	
T2-2	● Soil sample location	T2-1	8'
-----	Limits of excavation	T2-2	8'

Source:
GSA Public Buildings Service -
UST Removal/Abandonment/
Replacement and AST Installation -
6/14/96 Drawing C-4.



0 10 feet
Approximate scale



**Figure 8. Tank T6 Location Map,
Building 1201 at Federal Center South**



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Tables

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Table 1
Sediment Samples Collected Near RM 0.9-1.0 East (Slip 1)

Location Name	Location Number	Date Collected	Collection Depth	Event Name	Reference
Surface Sediment Samples					
EST211	179	9/17/1997	Surface	NOAA Site Characterization	NOAA 1998
EST212	198	9/17/1997	Surface	NOAA Site Characterization	NOAA 1998
EST213	199	9/17/1997	Surface	NOAA Site Characterization	NOAA 1998
EST216	202	9/17/1997	Surface	NOAA Site Characterization	NOAA 1998
EST220	206	9/17/1997	Surface	NOAA Site Characterization	NOAA 1998
WST365	337	9/18/1997	Surface	NOAA Site Characterization	NOAA 1998
EST215	201	10/14/1997	Surface	NOAA Site Characterization	NOAA 1998
CH1033	46	10/16/1997	Surface	NOAA Site Characterization	NOAA 1998
CH1034	47	10/17/1997	Surface	NOAA Site Characterization	NOAA 1998
EST214	200	10/22/1997	Surface	NOAA Site Characterization	NOAA 1998
DR073	639	8/12/1998	Surface	EPA SI	Weston 1999
DR015	582	8/17/1998	Surface	EPA SI	Weston 1999
DR016	583	8/17/1998	Surface	EPA SI	Weston 1999
DR017	584	8/17/1998	Surface	EPA SI	Weston 1999
DR062	628	8/17/1998	Surface	EPA SI	Weston 1999
DR086	652	8/31/1998	Surface	EPA SI	Weston 1999
DR018	585	9/2/1998	Surface	EPA SI	Weston 1999
B3b	10056	8/17/2004	Surface	LDW RI Phase 2 Round 1	Windward 2005b
LDW-SS32	12693	1/18/2005	Surface	LDW RI Phase 2 Round 1	Windward 2005a
LDW-SS37	12696	1/18/2005	Surface	LDW RI Phase 2 Round 1	Windward 2005a
LDW-SS31	12692	1/21/2005	Surface	LDW RI Phase 2 Round 1	Windward 2005a
LDW-SS30	12881	3/8/2005	Surface	LDW RI Phase 2 Round 2	Windward 2005b
LDW-SS35	12883	3/8/2005	Surface	LDW RI Phase 2 Round 2	Windward 2005b
LDW-SS323	14434	10/4/2006	Surface	LDW RI Phase 2 Round 3	Windward 2007b
LDW-SS320	14431	10/4/2006	Surface	LDW RI Phase 2 Round 3	Windward 2007b
LDW-SS319	14430	10/4/2006	Surface	LDW RI Phase 2 Round 3	Windward 2007b
LDW-SS321	14432	10/4/2006	Surface	LDW RI Phase 2 Round 3	Windward 2007b
LDW-SS318	14429	10/4/2006	Surface	LDW RI Phase 2 Round 3	Windward 2007b
Subsurface Sediment Samples					
DR021	588	9/22/1998	0 - 2 feet	EPA SI	Weston 1999
DR021	588	9/22/1998	2 - 4 feet	EPA SI	Weston 1999
C2	12954	8/29/2003	0 - 4 feet	Lehigh NW	Windward 2007c
C3	12955	8/29/2003	3.8 - 5 feet	Lehigh NW	Windward 2007c
LDW-SC16	14164	2/13/2006	0 - 2 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC16	14164	2/13/2006	2 - 4 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC16	14164	2/13/2006	4 - 6 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC16	14164	2/13/2006	8 - 10 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC20	14176	2/15/2006	0 - 2 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC20	14176	2/15/2006	2 - 4 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC20	14176	2/15/2006	4 - 6 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC20	14176	2/15/2006	8 - 10 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC15	14163	2/16/2006	0 - 1 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC15	14163	2/16/2006	1 - 2 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC15	14163	2/16/2006	2 - 4 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC15	14163	2/16/2006	4 - 6 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC18	14170	2/16/2006	0 - 1 feet	LDW RI Phase 2 Subsurface	Windward 2007a

Table 1
Sediment Samples Collected Near RM 0.9-1.0 East (Slip 1)

Location Name	Location Number	Date Collected	Collection Depth	Event Name	Reference
LDW-SC18	14170	2/16/2006	1 - 2 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC18	14170	2/16/2006	2 - 4 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC17	14169	2/23/2006	0 - 1 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC17	14169	2/23/2006	1 - 2 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC17	14169	2/23/2006	2 - 4 feet	LDW RI Phase 2 Subsurface	Windward 2007a
LDW-SC17	14169	2/23/2006	6 - 8.6 feet	LDW RI Phase 2 Subsurface	Windward 2007a

Notes:

Shaded location names were dredged in 2004.

Table 2
Chemicals Detected Above Screening Levels in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Metals and trace elements											
LDW RI Phase 2 Round 1	B3b	8/17/2004	Arsenic	7.25E+02	J 1.82		57	93	mg/kg DW	13	8
LDW RI Phase 2 Round 1	B3b	8/14/2004	Copper	4.95E+02	1.82		390	390	mg/kg DW	1.3	1.3
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Mercury	8.80E-01	2.74		0.41	0.59	mg/kg DW	2.1	1.5
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Mercury	6.90E-01	2.33		0.41	0.59	mg/kg DW	1.7	1.2
EPA SI	DR018	9/2/1998	Mercury	4.80E-01	2.21		0.41	0.59	mg/kg DW	1.2	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Mercury	4.60E-01	J 2.01		0.41	0.59	mg/kg DW	1.1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Zinc	2.08E+03	1.82		410	960	mg/kg DW	5.1	2.2
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Zinc	9.97E+02	2.17		410	960	mg/kg DW	2.4	1.0
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Zinc	4.14E+02	2.26		410	960	mg/kg DW	1.0	<1
PAHs											
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	2-Methylnaphthalene	3.30E+00	2.01	1.64E+02	38	64	mg/kg OC	4.3	2.6
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Acenaphthene	5.20E+00	2.01	2.59E+02	16	57	mg/kg OC	16	4.5
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(a)anthracene	3.20E+00	2.01	1.59E+02	110	270	mg/kg OC	1.4	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(a)anthracene	2.80E+00	1.82	1.54E+02	110	270	mg/kg OC	1.4	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(a)pyrene	2.00E+00	2.01	9.95E+01	99	210	mg/kg OC	1.0	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(g,h,i)perylene	6.00E-01	1.82	3.30E+01	31	78	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzofluoranthenes (total-calc'd)	5.10E+00	2.01	2.54E+02	230	450	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Chrysene	5.40E+00	1.82	2.97E+02	110	460	mg/kg OC	2.7	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Chrysene	3.70E+00	2.01	1.84E+02	110	460	mg/kg OC	1.7	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Dibenzo(a,h)anthracene	2.40E-01	1.82	1.32E+01	12	33	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Fluoranthene	1.70E+01	2.01	8.46E+02	160	1200	mg/kg OC	5.3	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Fluoranthene	3.60E+00	1.82	1.98E+02	160	1200	mg/kg OC	1.2	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Fluorene	4.90E+00	2.01	2.44E+02	23	79	mg/kg OC	11	3.1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Indeno(1,2,3-cd)pyrene	6.60E-01	1.82	3.63E+01	34	88	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Naphthalene	5.30E+00	2.01	2.64E+02	99	170	mg/kg OC	2.7	1.6
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Phenanthrene	1.50E+01	2.01	7.46E+02	100	480	mg/kg OC	7.5	1.6
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Total HPAH (calc'd)	4.20E+01	2.01	2.09E+03	960	5300	mg/kg OC	2.2	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Total HPAH (calc'd)	1.99E+01	1.82	1.09E+03	960	5300	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Total LPAH (calc'd)	3.40E+01	2.01	1.69E+03	370	780	mg/kg OC	4.6	2.2
Other SVOCs											
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Dibenzofuran	3.50E+00	2.01	1.74E+02	15	58	mg/kg OC	12	3.0
PCBs											
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	PCBs (total calc'd)	5.10E+00	2.33	2.19E+02	12	65	mg/kg OC	18	3.4
NOAA Site Characterization	EST214	10/22/1997	PCBs (total calc'd)	7.00E-01	J 1.92	3.65E+01	12	65	mg/kg OC	3.0	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	PCBs (total calc'd)	6.50E-01	2.01	3.23E+01	12	65	mg/kg OC	2.7	<1

Table 2
Chemicals Detected Above Screening Levels in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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-SS321	10/4/2006	PCBs (total calc'd)	4.50E-01	J	1.43	3.15E+01	12	65	mg/kg OC	2.6	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	PCBs (total calc'd)	3.90E-01	J	1.9	2.05E+01	12	65	mg/kg OC	1.7	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	PCBs (total calc'd)	3.50E-01		1.82	1.92E+01	12	65	mg/kg OC	1.6	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	PCBs (total calc'd)	3.50E-01		2.74	1.28E+01	12	65	mg/kg OC	1.1	<1
NOAA Site Characterization	EST216	9/17/1997	PCBs (total calc'd)	3.00E-01		2.21	1.36E+01	12	65	mg/kg OC	1.1	<1
EPA SI	DR018	9/2/1998	PCBs (total calc'd)	2.65E-01	J	2.21	1.20E+01	12	65	mg/kg OC	1.0	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	PCBs (total calc'd)	2.12E-01	J	1.64	1.29E+01	12	65	mg/kg OC	1.1	<1

DW - Dry weight

TOC - Total organic carbon

OC - Organic carbon normalized

SQS - Sediment Quality Standard

CSL - Cleanup Screening Level

NA - Not applicable

PAH - Polynuclear aromatic hydrocarbons

SVOC - Semivolatile organic compound

PCB - Polychlorinated biphenyl

Notes:

- (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.
- (2) Chemicals with exceedance factors greater than 10 are shown in **Bold**.

Table 3
Chemicals Detected Above Screening Levels in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Name	Collection Date	Collection Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Metals and trace elements												
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Arsenic	1.70E+02	3.25		57	93	mg/kg DW	3.0	1.8
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Arsenic	1.10E+02	3.06		57	93	mg/kg DW	1.9	1.2
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Arsenic	7.60E+01	3.24		57	93	mg/kg DW	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Arsenic	6.00E+01	6.35		57	93	mg/kg DW	1.1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Cadmium	2.04E+01	3.24		5.1	6.7	mg/kg DW	4.0	3.0
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Cadmium	1.50E+01	6.35		5.1	6.7	mg/kg DW	2.9	2.2
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Cadmium	7.60E+00	3.25		5.1	6.7	mg/kg DW	1.5	1.1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Chromium	3.86E+02	6.35		260	270	mg/kg DW	1.5	1.4
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Lead	1.74E+03	6.35		450	530	mg/kg DW	3.9	3.3
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Lead	4.70E+02	3.24		450	530	mg/kg DW	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Mercury	1.29E+00	6.35		0.41	0.59	mg/kg DW	3.1	2.2
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Mercury	9.80E-01	2.24		0.41	0.59	mg/kg DW	2.4	1.7
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Mercury	8.50E-01	2.96		0.41	0.59	mg/kg DW	2.1	1.4
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Mercury	7.50E-01	3.24		0.41	0.59	mg/kg DW	1.8	1.3
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Mercury	6.50E-01	1.49		0.41	0.59	mg/kg DW	1.6	1.1
EPA SI	DR021	9/22/1998	2 - 4	Mercury	6.40E-01	2.45		0.41	0.59	mg/kg DW	1.6	1.1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Mercury	6.00E-01	3.25		0.41	0.59	mg/kg DW	1.5	1.0
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Mercury	5.00E-01	3.06		0.41	0.59	mg/kg DW	1.2	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Zinc	4.55E+03	3.24		410	960	mg/kg DW	11	4.7
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Zinc	3.84E+03	6.35		410	960	mg/kg DW	9.4	4.0
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Zinc	2.05E+03	3.25		410	960	mg/kg DW	5.0	2.1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Zinc	1.26E+03	3.06		410	960	mg/kg DW	3.1	1.3
EPA SI	DR021	9/22/1998	2 - 4	Zinc	6.30E+02	2.45		410	960	mg/kg DW	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Zinc	4.28E+02	2.96		410	960	mg/kg DW	1.0	<1
PAHs												
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Acenaphthene	1.20E+00	3.24	3.70E+01	16	57	mg/kg OC	2.3	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Acenaphthene	3.60E-01	2.24	1.61E+01	16	57	mg/kg OC	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Fluoranthene	7.10E+00	3.24	2.19E+02	160	1200	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Fluoranthene	5.60E+00	3.25	1.72E+02	160	1200	mg/kg OC	1.1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Fluoranthene	4.90E+00	2.24	2.19E+02	160	1200	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Fluoranthene	4.70E+00	2.02	2.33E+02	160	1200	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Fluorene	1.40E+00	3.24	4.32E+01	23	79	mg/kg OC	1.9	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Phenanthrene	4.20E+00	3.24	1.30E+02	100	480	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Total HPAH (calc'd)	2.20E+01	2.24	9.82E+02	960	5300	mg/kg OC	1.0	<1

Table 3
Chemicals Detected Above Screening Levels in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Name	Collection Date	Collection Depth (feet)	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Phthalates												
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Bis(2-ethylhexyl)phthalate	3.10E+00	2.96	1.05E+02	47	78	mg/kg OC	2.2	1.3
EPA SI	DR021	9/22/1998	2 - 4	Bis(2-ethylhexyl)phthalate	2.00E+00	2.45	8.16E+01	47	78	mg/kg OC	1.7	1.0
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Bis(2-ethylhexyl)phthalate	1.60E+00	2.24	7.14E+01	47	78	mg/kg OC	1.5	<1
Other SVOCs												
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	1,2,4-Trichlorobenzene	1.80E-02	2.24	8.04E-01	0.81	1.8	mg/kg OC	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Benzoic acid	3.00E+00	J 6.35		650	650	ug/kg DW	4.6	4.6
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Dibenzofuran	7.10E-01	3.24	2.19E+01	15	58	mg/kg OC	1.5	<1
PCBs												
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	PCBs (total calc'd)	5.40E+00	2.96	1.82E+02	12	65	mg/kg OC	15	2.8
EPA SI	DR021	9/22/1998	2 - 4	PCBs (total calc'd)	4.00E+00	2.45	1.63E+02	12	65	mg/kg OC	14	2.5
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	PCBs (total calc'd)	3.40E+00	2.24	1.52E+02	12	65	mg/kg OC	13	2.3
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	PCBs (total calc'd)	3.20E+00	1.49	2.15E+02	12	65	mg/kg OC	18	3.3
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	4 - 6	PCBs (total calc'd)	1.95E+00	2.19	8.90E+01	12	65	mg/kg OC	7.4	1.4
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	PCBs (total calc'd)	1.90E+00	3.24	5.86E+01	12	65	mg/kg OC	4.9	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	PCBs (total calc'd)	1.22E+00	3.06	3.99E+01	12	65	mg/kg OC	3.3	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	PCBs (total calc'd)	1.04E+00	3.25	3.20E+01	12	65	mg/kg OC	2.7	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	PCBs (total calc'd)	6.00E-01	1.5	4.00E+01	12	65	mg/kg OC	3.3	<1
EPA SI	DR021	9/22/1998	0 - 2	PCBs (total calc'd)	5.20E-01	2.55	2.04E+01	12	65	mg/kg OC	1.7	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	PCBs (total calc'd)	5.10E-01	1.62	3.15E+01	12	65	mg/kg OC	2.6	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	PCBs (total calc'd)	4.00E-01	2.22	1.80E+01	12	65	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	PCBs (total calc'd)	3.60E-01	2.37	1.52E+01	12	65	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	PCBs (total calc'd)	3.40E-01	J 1.96	1.73E+01	12	65	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	PCBs (total calc'd)	3.30E-01	J 2.02	1.63E+01	12	65	mg/kg OC	1.4	<1

DW - Dry weight

TOC - Total organic carbon

OC - Organic carbon normalized

SQS - Sediment Quality Standard

CSL - Cleanup Screening Level

NA - Not applicable

PAH - Polynuclear aromatic hydrocarbons

SVOC - Semivolatile organic compound

PCB - Polychlorinated biphenyl

Notes:

(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.

(2) Chemicals with exceedance factors greater than 10 are shown in **Bold**.

^a Due to the high TOC in this sample the results were compared to the Lowest Apparent Effects Threshold (LAET) value rather than the SQS and/or CSL (Ecology 1996). In most cases the Benthic LAET value replaced the CSL value and the Microtox LAET value replaced the SQS value.

Table 4
Chemicals Detected Above Screening Levels in Seep Samples
RM 0.9-1.0 East (Slip 1)

Source	Date Sampled	Sample Location	Chemical	Conc'n (ug/L)		Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	GW-to-Sediment Screening Level (Based on CSL) ^a	Exceedance Factor
Filtered Samples			Metals							
Windward 2004	6/29/2004	Seep 76	Arsenic	253		36	69	7.0	370	<1
Windward 2004	6/29/2004	Seep 76	Mercury	0.0153		1.8	0.025	<1	0.0074	2.1
Windward 2004	6/29/2004	Seep 76	Zinc	138	J	81	90	1.7	76	1.8
Unfiltered Samples			Metals							
Windward 2004	6/29/2004	Seep 76	Arsenic	287		36	69	8.0	370	<1
Windward 2004	6/29/2004	Seep 76	Copper	50.9		3.1	4.8	16	120	<1
Windward 2004	7/3/2004	Seep 75	Copper	8.43	J b	3.1	4.8	2.7	120	<1
Windward 2004	6/29/2004	Seep 76	Lead	56.4		8.1	210	7.0	13	4.3
Windward 2004	6/29/2004	Seep 76	Mercury	0.0616		1.8	0.025	<1	0.0074	8.3
Windward 2004	6/29/2004	Seep 76	Zinc	309		81	90	3.8	76	4.1

WQS - Water Quality Standards, Nov 2006

CSL - Sediment Management Standards Cleanup Screening Level

NA - Not applicable

a - Groundwater to sediment screening level, based on sediment CSLs. From SAIC 2006

b - Results shown is average of one or more laboratory replicate analyses

J - Estimated concentration

Notes:

(1) 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.

(2) Chemicals with exceedance factors greater than 10 are shown in **Bold**.

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APPENDIX A

- A-1 Chemicals Detected in Surface Sediment Samples,
RM 0.9-1.0 East (Slip 1)
- A-2 Chemicals Detected in Subsurface Sediment Samples,
RM 0.9-1.0 East (Slip 1)
- A-3 Chemicals Detected in Seep Samples,
RM 0.9-1.0 East (Slip 1)

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Appendix A-1

**Chemicals Detected in Surface Sediment
Samples,
RM 0.9-1.0 East (Slip 1)**

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Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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	LDW-SS37	1/18/2005	1,2,3,4,6,7,8-HpCDD	1.80E-03	2.33	7.73E-02					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,4,6,7,8-HpCDD	6.68E-04	1.43	4.67E-02					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,4,6,7,8-HpCDD	3.13E-04	1.74	1.80E-02					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,4,6,7,8-HpCDD	2.96E-04	1.64	1.80E-02					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,4,6,7,8-HpCDF	4.11E-04	2.33	1.76E-02					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,4,6,7,8-HpCDF	6.54E-05	1.43	4.57E-03					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,4,6,7,8-HpCDF	5.83E-05	1.74	3.35E-03					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,4,6,7,8-HpCDF	5.63E-05	1.64	3.43E-03					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,4,7,8,9-HpCDF	4.28E-05	2.33	1.84E-03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,4,7,8,9-HpCDF	5.80E-06	J 1.43	4.06E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,4,7,8,9-HpCDF	4.51E-06	J 1.74	2.59E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,4,7,8,9-HpCDF	4.20E-06	J 1.64	2.56E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,4,7,8-HxCDD	1.27E-05	2.33	5.45E-04					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,4,7,8-HxCDD	2.27E-06	J 1.43	1.59E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,4,7,8-HxCDD	2.19E-06	J 1.74	1.26E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,4,7,8-HxCDD	1.98E-06	J 1.64	1.21E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,4,7,8-HxCDF	9.71E-05	2.33	4.17E-03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,4,7,8-HxCDF	9.13E-06	J 1.43	6.38E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,4,7,8-HxCDF	6.87E-06	J 1.74	3.95E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,4,7,8-HxCDF	6.81E-06	J 1.64	4.15E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,6,7,8-HxCDD	7.19E-05	2.33	3.09E-03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,6,7,8-HxCDD	1.79E-05	J 1.43	1.25E-03					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,6,7,8-HxCDD	1.14E-05	J 1.74	6.55E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,6,7,8-HxCDD	1.10E-05	J 1.64	6.71E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,6,7,8-HxCDF	2.26E-05	2.33	9.70E-04					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,6,7,8-HxCDF	2.67E-06	J 1.43	1.87E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,6,7,8-HxCDF	2.24E-06	J 1.74	1.29E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,6,7,8-HxCDF	2.00E-06	J 1.64	1.22E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,7,8,9-HxCDD	4.00E-05	2.33	1.72E-03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,7,8,9-HxCDD	9.44E-06	J 1.43	6.60E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,7,8,9-HxCDD	7.01E-06	J 1.74	4.03E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,7,8,9-HxCDD	6.48E-06	J 1.64	3.95E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,7,8,9-HxCDF	1.20E-06	J 2.33	5.15E-05					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,7,8,9-HxCDF	2.36E-07	J 1.74	1.36E-05					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,7,8,9-HxCDF	2.14E-07	J 1.64	1.30E-05					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,7,8-PeCDD	8.33E-06	2.33	3.58E-04					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,7,8-PeCDD	1.76E-06	J 1.43	1.23E-04					

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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-SS323	10/4/2006	1,2,3,7,8-PeCDD	1.35E-06	J	1.74	7.76E-05					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,7,8-PeCDD	1.31E-06	J	1.64	7.99E-05					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	1,2,3,7,8-PeCDF	1.38E-05		2.33	5.92E-04					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	1,2,3,7,8-PeCDF	1.17E-06	J	1.43	8.18E-05					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	1,2,3,7,8-PeCDF	1.04E-06	J	1.74	5.98E-05					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	1,2,3,7,8-PeCDF	9.05E-07	J	1.64	5.52E-05					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	1,4-Dichlorobenzene	8.00E-03		1.9	4.21E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	1,4-Dichlorobenzene	7.30E-03		2.74	2.66E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	1-Methylnaphthalene	1.40E-02		1.82	7.69E-01					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	2,3,4,6,7,8-HxCDF	1.19E-05		2.33	5.11E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	2,3,4,6,7,8-HxCDF	1.73E-06	J	1.74	9.94E-05					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	2,3,4,6,7,8-HxCDF	1.69E-06	J	1.43	1.18E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	2,3,4,6,7,8-HxCDF	1.59E-06	J	1.64	9.70E-05					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	2,3,4,7,8-PeCDF	6.25E-05		2.33	2.68E-03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	2,3,4,7,8-PeCDF	2.85E-06	J	1.43	1.99E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	2,3,4,7,8-PeCDF	2.37E-06	J	1.74	1.36E-04					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	2,3,4,7,8-PeCDF	2.05E-06	J	1.64	1.25E-04					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	2,3,7,8-TCDD	2.94E-06		2.33	1.26E-04					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	2,3,7,8-TCDD	8.23E-07	J	1.43	5.76E-05					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	2,3,7,8-TCDD	6.53E-07	J	1.64	3.98E-05					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	2,3,7,8-TCDD	4.95E-07	J	1.74	2.84E-05					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	2,3,7,8-TCDF	3.97E-04		2.33	1.70E-02					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	2,3,7,8-TCDF	1.48E-06	J	1.43	1.03E-04					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	2,3,7,8-TCDF	1.29E-06	J	1.74	7.41E-05					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	2,3,7,8-TCDF	9.92E-07	J	1.64	6.05E-05					
LDW RI Phase 2 Round 1	B3b	8/17/2004	2,4'-DDT	8.50E-03	JN	1.82	4.67E-01					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	2-Methylnaphthalene	3.30E+00		2.01	1.64E+02	38	64	mg/kg OC	4.3	2.6
EPA SI	DR017	8/17/1998	2-Methylnaphthalene	9.00E-02		2.74	3.28E+00	38	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	2-Methylnaphthalene	3.40E-02		1.82	1.87E+00	38	64	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	2-Methylnaphthalene	3.00E-02		2.62	1.15E+00	38	64	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	2-Methylnaphthalene	2.00E-02		2.79	7.17E-01	38	64	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	2-Methylnaphthalene	2.00E-02		2.18	9.17E-01	38	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	4,4'-DDD	1.90E-03	JN	1.82	1.04E-01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	4,4'-DDT	1.10E-02	JN	1.82	6.04E-01					
EPA SI	DR016	8/17/1998	4-Methylphenol	2.00E-02		2.79	7.17E-01	670	670	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	4-Methylphenol	2.00E-02		2.74	7.30E-01	670	670	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	4-Methylphenol	2.00E-02		2.18	9.17E-01	670	670	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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 2	LDW-SS35	3/8/2005	Acenaphthene	5.20E+00	2.01	2.59E+02	16	57	mg/kg OC	16	4.5	
EPA SI	DR086	8/31/1998	Acenaphthene	9.00E-02	1.97	4.57E+00	16	57	mg/kg OC	<1	<1	
EPA SI	DR015	8/17/1998	Acenaphthene	7.00E-02	2.62	2.67E+00	16	57	mg/kg OC	<1	<1	
EPA SI	DR016	8/17/1998	Acenaphthene	4.00E-02	2.79	1.43E+00	16	57	mg/kg OC	<1	<1	
EPA SI	DR017	8/17/1998	Acenaphthene	4.00E-02	2.74	1.46E+00	16	57	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 1	B3b	8/17/2004	Acenaphthene	3.50E-02	1.82	1.92E+00	16	57	mg/kg OC	<1	<1	
EPA SI	DR062	8/17/1998	Acenaphthene	3.00E-02	2.18	1.38E+00	16	57	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Acenaphthene	2.30E-02	2.26	1.02E+00	16	57	mg/kg OC	<1	<1	
EPA SI	DR073	8/12/1998	Acenaphthene	2.00E-02	2.49	8.03E-01	16	57	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Acenaphthene	2.00E-02	3.5	5.71E-01	16	57	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Acenaphthylene	1.30E-01	2.01	6.47E+00	66	66	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 1	B3b	8/17/2004	Acenaphthylene	8.00E-02	1.82	4.40E+00	66	66	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Acenaphthylene	6.40E-02	3.5	1.83E+00	66	66	mg/kg OC	<1	<1	
EPA SI	DR015	8/17/1998	Acenaphthylene	4.00E-02	2.62	1.53E+00	66	66	mg/kg OC	<1	<1	
EPA SI	DR017	8/17/1998	Acenaphthylene	4.00E-02	2.74	1.46E+00	66	66	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Acenaphthylene	3.20E-02	J	1.9	1.68E+00	66	66	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Acenaphthylene	3.00E-02	2.79	1.08E+00	66	66	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 1	B3b	8/17/2004	Aldrin	1.60E-03	JN	1.82	8.79E-02					
EPA SI	DR018	9/2/1998	Aluminum	3.00E+04	2.21	1.36E+06						
EPA SI	DR086	8/31/1998	Aluminum	2.72E+04	1.97	1.38E+06						
EPA SI	DR015	8/17/1998	Aluminum	2.40E+04	2.62	9.16E+05						
EPA SI	DR017	8/17/1998	Aluminum	2.31E+04	2.74	8.43E+05						
EPA SI	DR016	8/17/1998	Aluminum	2.30E+04	2.79	8.24E+05						
EPA SI	DR062	8/17/1998	Aluminum	1.90E+04	2.18	8.72E+05						
EPA SI	DR073	8/12/1998	Aluminum	1.88E+04	2.49	7.55E+05						
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Anthracene	3.50E+00	2.01	1.74E+02	220	1200	mg/kg OC	<1	<1	
EPA SI	DR017	8/17/1998	Anthracene	1.80E+00	2.74	6.57E+01	220	1200	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 1	B3b	8/17/2004	Anthracene	1.10E+00	1.82	6.04E+01	220	1200	mg/kg OC	<1	<1	
EPA SI	DR062	8/17/1998	Anthracene	3.60E-01	2.18	1.65E+01	220	1200	mg/kg OC	<1	<1	
EPA SI	DR016	8/17/1998	Anthracene	3.20E-01	2.79	1.15E+01	220	1200	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Anthracene	3.10E-01	3.5	8.86E+00	220	1200	mg/kg OC	<1	<1	
EPA SI	DR015	8/17/1998	Anthracene	2.20E-01	2.62	8.40E+00	220	1200	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Anthracene	1.70E-01	2.17	7.83E+00	220	1200	mg/kg OC	<1	<1	
EPA SI	DR086	8/31/1998	Anthracene	1.60E-01	1.97	8.12E+00	220	1200	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Anthracene	1.50E-01	1.9	7.89E+00	220	1200	mg/kg OC	<1	<1	
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Anthracene	1.30E-01	2.74	4.74E+00	220	1200	mg/kg OC	<1	<1	
EPA SI	DR018	9/2/1998	Anthracene	1.10E-01	2.21	4.98E+00	220	1200	mg/kg OC	<1	<1	

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)		TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR073	8/12/1998	Anthracene	1.10E-01		2.49	4.42E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Anthracene	6.70E-02		1.74	3.85E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Anthracene	5.90E-02		2.26	2.61E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Anthracene	5.80E-02	J	1.43	4.06E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Anthracene	5.30E-02	J	1.64	3.23E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Anthracene	2.70E-02		2.33	1.16E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Antimony	1.22E+02	J	1.82	6.70E+03					
EPA SI	DR016	8/17/1998	Antimony	7.00E+00	J	2.79	2.51E+02					
EPA SI	DR015	8/17/1998	Antimony	6.00E+00	J	2.62	2.29E+02					
EPA SI	DR017	8/17/1998	Antimony	5.00E+00	J	2.74	1.82E+02					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Antimony	2.20E+00	J	2.17	1.01E+02					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Aroclor-1242	1.40E-01		2.01	6.97E+00					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Aroclor-1242	7.60E-02	J	1.43	5.31E+00					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Aroclor-1242	4.90E-02		3.5	1.40E+00					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Aroclor-1242	3.30E-02		1.64	2.01E+00					
EPA SI	DR018	9/2/1998	Aroclor-1242	3.00E-02		2.21	1.36E+00					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Aroclor-1242	2.60E-02		1.74	1.49E+00					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Aroclor-1242	2.20E-02	J	2.26	9.73E-01					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Aroclor-1248	7.60E-02		1.9	4.00E+00					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Aroclor-1248	7.40E-02		2.74	2.70E+00					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Aroclor-1254	3.30E+00		2.33	1.42E+02					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Aroclor-1254	3.40E-01		2.01	1.69E+01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Aroclor-1254	1.80E-01		1.82	9.89E+00					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Aroclor-1254	1.40E-01		1.9	7.37E+00					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Aroclor-1254	1.40E-01	J	1.43	9.79E+00					
EPA SI	DR018	9/2/1998	Aroclor-1254	1.28E-01		2.21	5.79E+00					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Aroclor-1254	1.20E-01		3.5	3.43E+00					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Aroclor-1254	1.20E-01		2.74	4.38E+00					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Aroclor-1254	8.20E-02		1.64	5.00E+00					
EPA SI	DR073	8/12/1998	Aroclor-1254	7.30E-02		2.49	2.93E+00					
EPA SI	DR086	8/31/1998	Aroclor-1254	6.20E-02		1.97	3.15E+00					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Aroclor-1254	5.70E-02		1.74	3.28E+00					
EPA SI	DR062	8/17/1998	Aroclor-1254	5.60E-02		2.18	2.57E+00					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Aroclor-1254	5.60E-02		2.26	2.48E+00					
EPA SI	DR016	8/17/1998	Aroclor-1254	5.30E-02		2.79	1.90E+00					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Aroclor-1254	5.30E-02		2.17	2.44E+00					
EPA SI	DR017	8/17/1998	Aroclor-1254	5.00E-02		2.74	1.82E+00					

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR015	8/17/1998	Aroclor-1254	3.80E-02	J 2.62	1.45E+00					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Aroclor-1260	1.80E+00	2.33	7.73E+01					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Aroclor-1260	2.30E-01	J 1.43	1.61E+01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Aroclor-1260	1.70E-01	1.82	9.34E+00					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Aroclor-1260	1.70E-01	J 1.9	8.95E+00					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Aroclor-1260	1.70E-01	2.01	8.46E+00					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Aroclor-1260	1.60E-01	2.74	5.84E+00					
EPA SI	DR018	9/2/1998	Aroclor-1260	1.07E-01	J 2.21	4.84E+00					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Aroclor-1260	9.70E-02	J 1.64	5.91E+00					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Aroclor-1260	8.30E-02	1.74	4.77E+00					
EPA SI	DR073	8/12/1998	Aroclor-1260	8.10E-02	2.49	3.25E+00					
EPA SI	DR017	8/17/1998	Aroclor-1260	7.10E-02	J 2.74	2.59E+00					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Aroclor-1260	6.80E-02	3.5	1.94E+00					
EPA SI	DR016	8/17/1998	Aroclor-1260	6.50E-02	J 2.79	2.33E+00					
EPA SI	DR062	8/17/1998	Aroclor-1260	5.40E-02	J 2.18	2.48E+00					
EPA SI	DR086	8/31/1998	Aroclor-1260	5.40E-02	J 1.97	2.74E+00					
EPA SI	DR015	8/17/1998	Aroclor-1260	4.50E-02	J 2.62	1.72E+00					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Aroclor-1260	4.40E-02	2.26	1.95E+00					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Aroclor-1260	4.30E-02	2.17	1.98E+00					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Arsenic	7.25E+02	J 1.82		57	93	mg/kg DW	13	8
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Arsenic	1.22E+02	2.17		57	93	mg/kg DW	2.1	1.3
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Arsenic	3.18E+01	3.5		57	93	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Arsenic	2.00E+01	2.74		57	93	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Arsenic	1.74E+01	2.21		57	93	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Arsenic	1.72E+01	2.79		57	93	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Arsenic	1.60E+01	2.62		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Arsenic	1.57E+01	2.26		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Arsenic	1.48E+01	2.74		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Arsenic	1.48E+01	1.9		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Arsenic	1.36E+01	2.33		57	93	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Arsenic	1.34E+01	J 2.49		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Arsenic	1.29E+01	1.43		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Arsenic	1.26E+01	2.01		57	93	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Arsenic	1.09E+01	2.18		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Arsenic	9.50E+00	1.74		57	93	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Arsenic	9.10E+00	1.97		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Arsenic	8.80E+00	1.64		57	93	mg/kg DW	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR018	9/2/1998	Barium	1.07E+02	2.21	4.84E+03					
EPA SI	DR017	8/17/1998	Barium	9.30E+01	2.74	3.39E+03					
EPA SI	DR015	8/17/1998	Barium	9.10E+01	2.62	3.47E+03					
EPA SI	DR086	8/31/1998	Barium	9.10E+01	1.97	4.62E+03					
EPA SI	DR016	8/17/1998	Barium	8.60E+01	2.79	3.08E+03					
EPA SI	DR073	8/12/1998	Barium	7.80E+01	2.49	3.13E+03					
EPA SI	DR062	8/17/1998	Barium	7.40E+01	2.18	3.39E+03					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(a)anthracene	3.20E+00	2.01	1.59E+02	110	270	mg/kg OC	1.4	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(a)anthracene	2.80E+00	1.82	1.54E+02	110	270	mg/kg OC	1.4	<1
EPA SI	DR017	8/17/1998	Benzo(a)anthracene	1.40E+00	2.74	5.11E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Benzo(a)anthracene	8.10E-01	2.79	2.90E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Benzo(a)anthracene	6.90E-01	2.62	2.63E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Benzo(a)anthracene	6.20E-01	2.18	2.84E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Benzo(a)anthracene	5.50E-01	3.5	1.57E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Benzo(a)anthracene	3.80E-01	1.97	1.93E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Benzo(a)anthracene	3.70E-01	1.9	1.95E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Benzo(a)anthracene	3.40E-01	2.21	1.54E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Benzo(a)anthracene	3.30E-01	2.74	1.20E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Benzo(a)anthracene	3.10E-01	2.49	1.24E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Benzo(a)anthracene	2.80E-01	2.17	1.29E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Benzo(a)anthracene	1.90E-01	2.26	8.41E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Benzo(a)anthracene	1.80E-01	1.74	1.03E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Benzo(a)anthracene	1.60E-01	1.43	1.12E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Benzo(a)anthracene	1.60E-01	2.33	6.87E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Benzo(a)anthracene	1.50E-01	1.64	9.15E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(a)pyrene	2.00E+00	2.01	9.95E+01	99	210	mg/kg OC	1.0	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(a)pyrene	1.40E+00	1.82	7.69E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Benzo(a)pyrene	1.00E+00	2.74	3.65E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Benzo(a)pyrene	5.70E-01	2.62	2.18E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Benzo(a)pyrene	5.70E-01	2.79	2.04E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Benzo(a)pyrene	4.40E-01	2.18	2.02E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Benzo(a)pyrene	4.40E-01	3.5	1.26E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Benzo(a)pyrene	4.40E-01	1.9	2.32E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Benzo(a)pyrene	4.20E-01	2.17	1.94E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Benzo(a)pyrene	3.90E-01	2.74	1.42E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Benzo(a)pyrene	3.40E-01	2.21	1.54E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Benzo(a)pyrene	2.80E-01	2.49	1.12E+01	99	210	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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	LDW-SS32	1/18/2005	Benzo(a)pyrene	2.40E-01	2.26	1.06E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Benzo(a)pyrene	2.20E-01	1.74	1.26E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Benzo(a)pyrene	2.10E-01	1.97	1.07E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Benzo(a)pyrene	2.00E-01	1.64	1.22E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Benzo(a)pyrene	1.60E-01	1.43	1.12E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Benzo(a)pyrene	1.40E-01	2.33	6.01E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(b)fluoranthene	2.70E+00	2.01	1.34E+02	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(b)fluoranthene	1.70E+00	1.82	9.34E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Benzo(b)fluoranthene	1.50E+00	2.74	5.47E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Benzo(b)fluoranthene	7.90E-01	3.5	2.26E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Benzo(b)fluoranthene	7.50E-01	2.62	2.86E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Benzo(b)fluoranthene	7.20E-01	2.79	2.58E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Benzo(b)fluoranthene	5.90E-01	1.9	3.11E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Benzo(b)fluoranthene	5.80E-01	2.17	2.67E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Benzo(b)fluoranthene	5.70E-01	2.18	2.61E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Benzo(b)fluoranthene	5.60E-01	2.74	2.04E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Benzo(b)fluoranthene	4.40E-01	2.21	1.99E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Benzo(b)fluoranthene	3.60E-01	1.74	2.07E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Benzo(b)fluoranthene	3.50E-01	2.49	1.41E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Benzo(b)fluoranthene	3.20E-01	2.26	1.42E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Benzo(b)fluoranthene	2.70E-01	1.64	1.65E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Benzo(b)fluoranthene	2.50E-01	1.97	1.27E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Benzo(b)fluoranthene	2.30E-01	2.33	9.87E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Benzo(b)fluoranthene	1.90E-01	1.43	1.33E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(e)pyrene	1.30E+00	1.82	7.14E+01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(g,h,i)perylene	6.00E-01	1.82	3.30E+01	31	78	mg/kg OC	1.1	<1
EPA SI	DR017	8/17/1998	Benzo(g,h,i)perylene	5.20E-01	2.74	1.90E+01	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(g,h,i)perylene	4.70E-01	2.01	2.34E+01	31	78	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Benzo(g,h,i)perylene	3.10E-01	2.62	1.18E+01	31	78	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Benzo(g,h,i)perylene	3.00E-01	2.79	1.08E+01	31	78	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Benzo(g,h,i)perylene	2.30E-01	2.18	1.06E+01	31	78	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Benzo(g,h,i)perylene	2.20E-01	2.21	9.95E+00	31	78	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Benzo(g,h,i)perylene	1.70E-01	2.49	6.83E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Benzo(g,h,i)perylene	1.70E-01	1.9	8.95E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Benzo(g,h,i)perylene	1.50E-01	2.74	5.47E+00	31	78	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Benzo(g,h,i)perylene	1.10E-01	1.97	5.58E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Benzo(g,h,i)perylene	1.10E-01	2.17	5.07E+00	31	78	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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 2	LDW-SS30	3/8/2005	Benzo(g,h,i)perylene	1.00E-01	3.5	2.86E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Benzo(g,h,i)perylene	9.80E-02	1.74	5.63E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Benzo(g,h,i)perylene	9.20E-02	1.43	6.43E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Benzo(g,h,i)perylene	7.90E-02	1.64	4.82E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(k)fluoranthene	2.40E+00	2.01	1.19E+02	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(k)fluoranthene	1.20E+00	1.82	6.59E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Benzo(k)fluoranthene	8.40E-01	2.74	3.07E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Benzo(k)fluoranthene	5.90E-01	2.62	2.25E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Benzo(k)fluoranthene	5.80E-01	2.79	2.08E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Benzo(k)fluoranthene	5.70E-01	2.17	2.63E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Benzo(k)fluoranthene	4.90E-01	1.9	2.58E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Benzo(k)fluoranthene	4.00E-01	2.18	1.83E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Benzo(k)fluoranthene	3.90E-01	2.74	1.42E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Benzo(k)fluoranthene	3.70E-01	3.5	1.06E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Benzo(k)fluoranthene	3.20E-01	2.21	1.45E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Benzo(k)fluoranthene	3.00E-01	2.49	1.20E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Benzo(k)fluoranthene	2.10E-01	1.97	1.07E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Benzo(k)fluoranthene	2.00E-01	1.64	1.22E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Benzo(k)fluoranthene	2.00E-01	2.26	8.85E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Benzo(k)fluoranthene	1.90E-01	1.74	1.09E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Benzo(k)fluoranthene	1.80E-01	1.43	1.26E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzo(k)fluoranthene (total-calc'd)	5.10E+00	2.01	2.54E+02	230	450	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Benzo(k)fluoranthene (total-calc'd)	2.90E+00	1.82	1.59E+02	230	450	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Benzo(k)fluoranthene (total-calc'd)	2.30E+00	2.74	8.39E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Benzo(k)fluoranthene (total-calc'd)	1.34E+00	2.62	5.11E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Benzo(k)fluoranthene (total-calc'd)	1.30E+00	2.79	4.66E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Benzo(k)fluoranthene (total-calc'd)	1.16E+00	3.5	3.31E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Benzo(k)fluoranthene (total-calc'd)	1.15E+00	2.17	5.30E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Benzo(k)fluoranthene (total-calc'd)	1.08E+00	1.9	5.68E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Benzo(k)fluoranthene (total-calc'd)	9.70E-01	2.18	4.45E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Benzo(k)fluoranthene (total-calc'd)	9.50E-01	2.74	3.47E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Benzo(k)fluoranthene (total-calc'd)	7.60E-01	2.21	3.44E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Benzo(k)fluoranthene (total-calc'd)	6.50E-01	2.49	2.61E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Benzo(k)fluoranthene (total-calc'd)	5.50E-01	1.74	3.16E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Benzo(k)fluoranthene (total-calc'd)	5.20E-01	2.26	2.30E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Benzo(k)fluoranthene (total-calc'd)	4.70E-01	1.64	2.87E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Benzo(k)fluoranthene (total-calc'd)	4.60E-01	1.97	2.34E+01	230	450	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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-SS321	10/4/2006	Benzofluoranthenes (total-calc'd)	3.70E-01	1.43	2.59E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Benzofluoranthenes (total-calc'd)	2.30E-01	2.33	9.87E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Benzoic acid	8.20E-02	2.01	4.08E+00	650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Benzoic acid	6.40E-02	J 3.5	1.83E+00	650	650	ug/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Beryllium	5.00E-01	2.62	1.91E+01					
EPA SI	DR017	8/17/1998	Beryllium	5.00E-01	2.74	1.82E+01					
EPA SI	DR016	8/17/1998	Beryllium	4.80E-01	2.79	1.72E+01					
EPA SI	DR018	9/2/1998	Beryllium	4.80E-01	2.21	2.17E+01					
EPA SI	DR086	8/31/1998	Beryllium	4.70E-01	1.97	2.39E+01					
EPA SI	DR073	8/12/1998	Beryllium	4.40E-01	2.49	1.77E+01					
EPA SI	DR062	8/17/1998	Beryllium	4.30E-01	2.18	1.97E+01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Biphenyl	8.90E-03	1.82	4.89E-01					
EPA SI	DR017	8/17/1998	Bis(2-ethylhexyl)phthalate	8.20E-01	2.74	2.99E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Bis(2-ethylhexyl)phthalate	7.60E-01	2.33	3.26E+01	47	78	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Bis(2-ethylhexyl)phthalate	7.00E-01	2.79	2.51E+01	47	78	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Bis(2-ethylhexyl)phthalate	6.10E-01	2.62	2.33E+01	47	78	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Bis(2-ethylhexyl)phthalate	5.70E-01	2.18	2.61E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Bis(2-ethylhexyl)phthalate	5.50E-01	1.9	2.89E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Bis(2-ethylhexyl)phthalate	5.20E-01	2.74	1.90E+01	47	78	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Bis(2-ethylhexyl)phthalate	4.10E-01	2.21	1.86E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Bis(2-ethylhexyl)phthalate	3.70E-01	2.01	1.84E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Bis(2-ethylhexyl)phthalate	3.30E-01	1.74	1.90E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Bis(2-ethylhexyl)phthalate	2.60E-01	J 1.82	1.43E+01	47	78	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Bis(2-ethylhexyl)phthalate	2.40E-01	1.97	1.22E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Bis(2-ethylhexyl)phthalate	2.40E-01	1.64	1.46E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Bis(2-ethylhexyl)phthalate	2.00E-01	1.43	1.40E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Bis(2-ethylhexyl)phthalate	1.60E-01	2.17	7.37E+00	47	78	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Butyl benzyl phthalate	7.00E-02	2.74	2.55E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Butyl benzyl phthalate	5.00E-02	1.9	2.63E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Butyl benzyl phthalate	4.80E-02	2.74	1.75E+00	4.9	64	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Butyl benzyl phthalate	4.00E-02	2.21	1.81E+00	4.9	64	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Butyl benzyl phthalate	4.00E-02	2.49	1.61E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Butyl benzyl phthalate	2.70E-02	J 1.82	1.48E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Butyl benzyl phthalate	2.70E-02	1.74	1.55E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Butyl benzyl phthalate	2.40E-02	1.64	1.46E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Butyl benzyl phthalate	2.10E-02	1.43	1.47E+00	4.9	64	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Butyl benzyl phthalate	2.00E-02	1.97	1.02E+00	4.9	64	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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 2	LDW-SS30	3/8/2005	Butyl benzyl phthalate	1.60E-02	3.5	4.57E-01	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Cadmium	3.20E+00	2.17		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Cadmium	3.00E+00	2.33		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Cadmium	1.80E+00	2.26		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Cadmium	1.67E+00	1.82		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Cadmium	1.10E+00	3.5		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Cadmium	1.00E+00	2.21		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Cadmium	1.00E+00	2.01		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Cadmium	7.50E-01	2.74		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Cadmium	6.00E-01	2.74		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Cadmium	6.00E-01	1.9		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Cadmium	5.60E-01	2.79		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Cadmium	5.00E-01	1.43		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Cadmium	4.90E-01	2.62		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Cadmium	4.60E-01	2.49		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Cadmium	4.20E-01	2.18		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Cadmium	4.00E-01	1.74		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Carbazole	1.30E+00	2.01	6.47E+01					
EPA SI	DR017	8/17/1998	Carbazole	6.20E-01	2.74	2.26E+01					
EPA SI	DR015	8/17/1998	Carbazole	8.00E-02	2.62	3.05E+00					
EPA SI	DR016	8/17/1998	Carbazole	7.00E-02	2.79	2.51E+00					
EPA SI	DR062	8/17/1998	Carbazole	7.00E-02	2.18	3.21E+00					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Carbazole	6.10E-02	3.5	1.74E+00					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Carbazole	5.40E-02	1.82	2.97E+00					
EPA SI	DR018	9/2/1998	Carbazole	4.00E-02	2.21	1.81E+00					
EPA SI	DR073	8/12/1998	Carbazole	3.00E-02	2.49	1.20E+00					
EPA SI	DR086	8/31/1998	Carbazole	3.00E-02	1.97	1.52E+00					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Carbazole	2.80E-02	2.26	1.24E+00					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Chromium	8.92E+01	2.33		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Chromium	5.50E+01	2.17		260	270	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Chromium	4.40E+01	2.21		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Chromium	4.40E+01	3.5		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Chromium	4.25E+01	1.82		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Chromium	4.00E+01	2.26		260	270	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Chromium	3.60E+01	2.74		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Chromium	3.51E+01	2.01		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Chromium	3.50E+01	2.74		260	270	mg/kg DW	<1	<1

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	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-SS320	10/4/2006	Chromium	3.50E+01	1.9		260	270	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Chromium	3.40E+01	2.62		260	270	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Chromium	3.30E+01	2.79		260	270	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Chromium	3.10E+01	1.97		260	270	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Chromium	2.90E+01	2.49		260	270	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Chromium	2.80E+01	2.18		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Chromium	2.77E+01	1.74		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Chromium	2.39E+01	1.64		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Chromium	2.11E+01	1.43		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Chrysene	5.40E+00	1.82	2.97E+02	110	460	mg/kg OC	2.7	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Chrysene	3.70E+00	2.01	1.84E+02	110	460	mg/kg OC	1.7	<1
EPA SI	DR017	8/17/1998	Chrysene	1.80E+00	2.74	6.57E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Chrysene	1.20E+00	2.79	4.30E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Chrysene	1.00E+00	2.62	3.82E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Chrysene	9.90E-01	3.5	2.83E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Chrysene	7.30E-01	2.18	3.35E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Chrysene	6.30E-01	2.17	2.90E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Chrysene	6.30E-01	1.9	3.32E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Chrysene	5.40E-01	2.74	1.97E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Chrysene	5.00E-01	2.21	2.26E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Chrysene	4.80E-01	2.49	1.93E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Chrysene	4.10E-01	2.26	1.81E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Chrysene	4.00E-01	1.97	2.03E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Chrysene	3.00E-01	1.74	1.72E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Chrysene	2.50E-01	1.64	1.52E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Chrysene	2.20E-01	1.43	1.54E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Chrysene	1.10E-01	2.33	4.72E+00	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Cobalt	3.15E+01	1.82	1.73E+03					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Cobalt	1.73E+01	2.17	7.97E+02					
EPA SI	DR018	9/2/1998	Cobalt	1.40E+01	2.21	6.33E+02					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Cobalt	1.25E+01	2.26	5.53E+02					
EPA SI	DR015	8/17/1998	Cobalt	1.20E+01	2.62	4.58E+02					
EPA SI	DR086	8/31/1998	Cobalt	1.20E+01	1.97	6.09E+02					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Cobalt	1.14E+01	3.5	3.26E+02					
EPA SI	DR016	8/17/1998	Cobalt	1.10E+01	2.79	3.94E+02					
EPA SI	DR017	8/17/1998	Cobalt	1.10E+01	2.74	4.01E+02					
EPA SI	DR062	8/17/1998	Cobalt	1.00E+01	2.18	4.59E+02					

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR073	8/12/1998	Cobalt	1.00E+01	2.49	4.02E+02					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Cobalt	9.60E+00	2.33	4.12E+02					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Cobalt	9.50E+00	2.74	3.47E+02					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Cobalt	9.20E+00	1.9	4.84E+02					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Cobalt	8.50E+00	1.74	4.89E+02					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Cobalt	8.30E+00	2.01	4.13E+02					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Cobalt	7.30E+00	1.64	4.45E+02					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Cobalt	7.30E+00	1.43	5.10E+02					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Copper	4.95E+02	1.82		390	390	mg/kg DW	1.3	1.3
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Copper	2.45E+02	2.17		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Copper	1.80E+02	J 2.01		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Copper	1.36E+02	3.5		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Copper	1.24E+02	2.26		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Copper	1.08E+02	2.33		390	390	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Copper	1.04E+02	2.74		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Copper	1.03E+02	2.74		390	390	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Copper	1.02E+02	2.21		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Copper	1.01E+02	1.9		390	390	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Copper	9.00E+01	2.79		390	390	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Copper	8.60E+01	2.62		390	390	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Copper	8.10E+01	2.49		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Copper	7.59E+01	1.74		390	390	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Copper	7.10E+01	2.18		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Copper	6.33E+01	1.64		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Copper	5.36E+01	1.43		390	390	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Copper	5.10E+01	1.97		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	DDTs (total-calc'd)	2.10E-02	JN 1.82	1.15E+00					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Dibenzo(a,h)anthracene	2.40E-01	1.82	1.32E+01	12	33	mg/kg OC	1.1	<1
EPA SI	DR017	8/17/1998	Dibenzo(a,h)anthracene	1.90E-01	2.74	6.93E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Dibenzo(a,h)anthracene	9.00E-02	2.62	3.44E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Dibenzo(a,h)anthracene	8.00E-02	2.79	2.87E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Dibenzo(a,h)anthracene	7.00E-02	2.18	3.21E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Dibenzo(a,h)anthracene	5.60E-02	3.5	1.60E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Dibenzo(a,h)anthracene	5.60E-02	J 1.9	2.95E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Dibenzo(a,h)anthracene	5.00E-02	2.21	2.26E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Dibenzo(a,h)anthracene	5.00E-02	2.49	2.01E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Dibenzo(a,h)anthracene	4.90E-02	J 2.74	1.79E+00	12	33	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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-SS321	10/4/2006	Dibenzo(a,h)anthracene	3.90E-02	1.43	2.73E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Dibenzo(a,h)anthracene	3.00E-02	1.97	1.52E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Dibenzo(a,h)anthracene	3.00E-02	J 1.64	1.83E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Dibenzo(a,h)anthracene	1.60E-02	J 1.74	9.20E-01	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Dibenzofuran	3.50E+00	2.01	1.74E+02	15	58	mg/kg OC	12	3.0
EPA SI	DR017	8/17/1998	Dibenzofuran	1.40E-01	2.74	5.11E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Dibenzofuran	9.00E-02	1.97	4.57E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Dibenzofuran	6.00E-02	2.62	2.29E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Dibenzofuran	4.00E-02	2.79	1.43E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Dibenzofuran	4.00E-02	2.18	1.83E+00	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Dibenzofuran	3.60E-02	1.82	1.98E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Dibenzofuran	2.00E-02	2.21	9.05E-01	15	58	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Dibenzofuran	2.00E-02	2.49	8.03E-01	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Dibenzothiophene	3.50E-02	1.82	1.92E+00					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Dibutyltin as ion	3.60E-01	1.82	1.98E+01					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Dibutyltin as ion	3.00E-02	2.17	1.38E+00					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Dibutyltin as ion	1.10E-02	2.26	4.87E-01					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Diethyl phthalate	1.20E-02	3.5	3.43E-01	61	110	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Dimethyl phthalate	2.50E-02	1.43	1.75E+00	53	53	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Dimethyl phthalate	2.00E-02	2.74	7.30E-01	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Dimethyl phthalate	9.30E-03	1.9	4.89E-01	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Dimethyl phthalate	7.90E-03	2.74	2.88E-01	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Dimethyl phthalate	7.30E-03	1.74	4.20E-01	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Dimethyl phthalate	6.60E-03	J 3.5	1.89E-01	53	53	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Di-n-butyl phthalate	4.90E-01	2.74	1.79E+01	220	1700	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Di-n-butyl phthalate	2.80E-01	2.79	1.00E+01	220	1700	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Di-n-butyl phthalate	9.00E-02	2.21	4.07E+00	220	1700	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Di-n-butyl phthalate	8.00E-02	2.62	3.05E+00	220	1700	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Di-n-butyl phthalate	4.00E-02	2.18	1.83E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Fluoranthene	1.70E+01	2.01	8.46E+02	160	1200	mg/kg OC	5.3	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Fluoranthene	3.60E+00	1.82	1.98E+02	160	1200	mg/kg OC	1.2	<1
EPA SI	DR017	8/17/1998	Fluoranthene	3.30E+00	2.74	1.20E+02	160	1200	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Fluoranthene	2.50E+00	2.62	9.54E+01	160	1200	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Fluoranthene	2.20E+00	2.79	7.89E+01	160	1200	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Fluoranthene	1.70E+00	2.18	7.80E+01	160	1200	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Fluoranthene	1.30E+00	1.97	6.60E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Fluoranthene	9.40E-01	3.5	2.69E+01	160	1200	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR073	8/12/1998	Fluoranthene	8.80E-01	2.49	3.53E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Fluoranthene	8.60E-01	1.9	4.53E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Fluoranthene	7.60E-01	2.74	2.77E+01	160	1200	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Fluoranthene	7.30E-01	2.21	3.30E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Fluoranthene	6.70E-01	2.17	3.09E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Fluoranthene	5.90E-01	2.26	2.61E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Fluoranthene	3.70E-01	1.64	2.26E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Fluoranthene	3.70E-01	1.43	2.59E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Fluoranthene	3.60E-01	1.74	2.07E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Fluoranthene	2.30E-01	2.33	9.87E+00	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Fluorene	4.90E+00	2.01	2.44E+02	23	79	mg/kg OC	11	3.1
EPA SI	DR017	8/17/1998	Fluorene	3.10E-01	2.74	1.13E+01	23	79	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Fluorene	2.60E-01	1.97	1.32E+01	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Fluorene	1.50E-01	1.82	8.24E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Fluorene	9.00E-02	2.62	3.44E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Fluorene	7.00E-02	2.79	2.51E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Fluorene	7.00E-02	2.18	3.21E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Fluorene	4.70E-02	J 1.9	2.47E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Fluorene	4.60E-02	3.5	1.31E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Fluorene	4.30E-02	J 2.74	1.57E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Fluorene	4.00E-02	2.21	1.81E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Fluorene	4.00E-02	2.49	1.61E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Fluorene	2.10E-02	2.26	9.29E-01	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Indeno(1,2,3-cd)pyrene	6.60E-01	1.82	3.63E+01	34	88	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Indeno(1,2,3-cd)pyrene	6.60E-01	2.01	3.28E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Indeno(1,2,3-cd)pyrene	6.10E-01	2.74	2.23E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Indeno(1,2,3-cd)pyrene	3.60E-01	2.62	1.37E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Indeno(1,2,3-cd)pyrene	3.40E-01	2.79	1.22E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Indeno(1,2,3-cd)pyrene	2.60E-01	2.18	1.19E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Indeno(1,2,3-cd)pyrene	2.40E-01	2.21	1.09E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Indeno(1,2,3-cd)pyrene	2.00E-01	2.49	8.03E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Indeno(1,2,3-cd)pyrene	1.70E-01	1.9	8.95E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Indeno(1,2,3-cd)pyrene	1.50E-01	3.5	4.29E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Indeno(1,2,3-cd)pyrene	1.50E-01	2.74	5.47E+00	34	88	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Indeno(1,2,3-cd)pyrene	1.20E-01	1.97	6.09E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Indeno(1,2,3-cd)pyrene	1.10E-01	2.17	5.07E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Indeno(1,2,3-cd)pyrene	9.70E-02	1.74	5.57E+00	34	88	mg/kg OC	<1	<1

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	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-SS321	10/4/2006	Indeno(1,2,3-cd)pyrene	8.40E-02		1.43	5.87E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Indeno(1,2,3-cd)pyrene	8.10E-02		1.64	4.94E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Indeno(1,2,3-cd)pyrene	8.00E-02		2.33	3.43E+00	34	88	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Iron	4.09E+04	J	2.21	1.85E+06					
EPA SI	DR015	8/17/1998	Iron	3.57E+04	J	2.62	1.36E+06					
EPA SI	DR017	8/17/1998	Iron	3.53E+04	J	2.74	1.29E+06					
EPA SI	DR016	8/17/1998	Iron	3.48E+04	J	2.79	1.25E+06					
EPA SI	DR086	8/31/1998	Iron	3.32E+04	J	1.97	1.69E+06					
EPA SI	DR073	8/12/1998	Iron	2.96E+04	J	2.49	1.19E+06					
EPA SI	DR062	8/17/1998	Iron	2.76E+04	J	2.18	1.27E+06					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Lead	4.37E+02	J	1.82		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Lead	1.72E+02		2.17		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Lead	1.03E+02		2.33		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Lead	9.00E+01		3.5		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Lead	7.70E+01		2.26		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Lead	6.30E+01		1.9		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Lead	6.20E+01		2.74		450	530	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Lead	6.07E+01		2.74		450	530	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Lead	5.99E+01		2.21		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Lead	5.50E+01		2.01		450	530	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Lead	5.02E+01		2.79		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Lead	4.90E+01		1.43		450	530	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Lead	4.88E+01	J	2.49		450	530	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Lead	4.75E+01		2.62		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Lead	4.30E+01		1.64		450	530	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Lead	3.99E+01		2.18		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Lead	3.70E+01		1.74		450	530	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Lead	2.49E+01	J	1.97		450	530	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Manganese	4.74E+02		2.21	2.14E+04					
EPA SI	DR016	8/17/1998	Manganese	4.56E+02		2.79	1.63E+04					
EPA SI	DR017	8/17/1998	Manganese	4.52E+02		2.74	1.65E+04					
EPA SI	DR015	8/17/1998	Manganese	4.51E+02		2.62	1.72E+04					
EPA SI	DR086	8/31/1998	Manganese	3.80E+02		1.97	1.93E+04					
EPA SI	DR073	8/12/1998	Manganese	3.35E+02		2.49	1.35E+04					
EPA SI	DR062	8/17/1998	Manganese	3.17E+02		2.18	1.45E+04					

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	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-SS319	10/4/2006	Mercury	8.80E-01	2.74		0.41	0.59	mg/kg DW	2.1	1.5
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Mercury	6.90E-01	2.33		0.41	0.59	mg/kg DW	1.7	1.2
EPA SI	DR018	9/2/1998	Mercury	4.80E-01	2.21		0.41	0.59	mg/kg DW	1.2	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Mercury	4.60E-01	2.01	J	0.41	0.59	mg/kg DW	1.1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Mercury	4.00E-01	3.5		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Mercury	4.00E-01	1.9		0.41	0.59	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Mercury	3.70E-01	2.74		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Mercury	3.40E-01	2.26		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Mercury	3.30E-01	2.17		0.41	0.59	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Mercury	2.60E-01	2.62		0.41	0.59	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Mercury	2.40E-01	2.79		0.41	0.59	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Mercury	2.20E-01	2.18		0.41	0.59	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Mercury	1.90E-01	2.49		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Mercury	1.90E-01	1.74		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Mercury	1.70E-01	1.64		0.41	0.59	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Mercury	1.40E-01	1.97		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Mercury	1.30E-01	1.43		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Mercury	5.90E-02	1.82		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Molybdenum	6.20E+01	1.82	3.41E+03					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Molybdenum	1.30E+01	2.17	5.99E+02					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Molybdenum	3.10E+00	2.33	1.33E+02					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Molybdenum	3.00E+00	3.5	8.57E+01					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Molybdenum	2.20E+00	2.01	1.09E+02					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Molybdenum	2.00E+00	2.26	8.85E+01					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Molybdenum	1.30E+00	1.43	9.09E+01					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Molybdenum	8.00E-01	2.74	2.92E+01					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Molybdenum	7.00E-01	1.9	3.68E+01					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Molybdenum	7.00E-01	1.74	4.02E+01					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Molybdenum	6.00E-01	1.64	3.66E+01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Monobutyltin as ion	1.20E-01	1.82	6.59E+00					
EPA SI	DR018	9/2/1998	Monobutyltin as ion	6.70E-02	2.21	3.03E+00					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Monobutyltin as ion	4.80E-03	2.17	2.21E-01					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Naphthalene	5.30E+00	2.01	2.64E+02	99	170	mg/kg OC	2.7	1.6
EPA SI	DR017	8/17/1998	Naphthalene	9.00E-02	2.74	3.28E+00	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Naphthalene	3.60E-02	1.82	1.98E+00	99	170	mg/kg OC	<1	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR016	8/17/1998	Naphthalene	3.00E-02	2.79	1.08E+00	99	170	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Naphthalene	3.00E-02	2.18	1.38E+00	99	170	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Naphthalene	2.00E-02	2.62	7.63E-01	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Nickel	3.04E+02	2.26	1.35E+04					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Nickel	3.50E+01	2.17	1.61E+03					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Nickel	2.90E+01	3.5	8.29E+02					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Nickel	2.90E+01	2.74	1.06E+03					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Nickel	2.80E+01	1.9	1.47E+03					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Nickel	2.70E+01	2.33	1.16E+03					
EPA SI	DR018	9/2/1998	Nickel	2.58E+01	2.21	1.17E+03					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Nickel	2.49E+01	1.74	1.43E+03					
EPA SI	DR017	8/17/1998	Nickel	2.37E+01	2.74	8.65E+02					
EPA SI	DR016	8/17/1998	Nickel	2.35E+01	2.79	8.42E+02					
EPA SI	DR015	8/17/1998	Nickel	2.32E+01	2.62	8.85E+02					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Nickel	2.29E+01	1.82	1.26E+03					
EPA SI	DR086	8/31/1998	Nickel	2.23E+01	J 1.97	1.13E+03					
EPA SI	DR073	8/12/1998	Nickel	2.21E+01	2.49	8.88E+02					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Nickel	2.20E+01	2.01	1.09E+03					
EPA SI	DR062	8/17/1998	Nickel	2.14E+01	2.18	9.82E+02					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Nickel	2.09E+01	1.64	1.27E+03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Nickel	2.05E+01	1.43	1.43E+03					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	OCDD	1.82E-02	2.33	7.81E-01					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	OCDD	4.90E-03	1.43	3.43E-01					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	OCDD	2.97E-03	1.74	1.71E-01					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	OCDD	2.83E-03	1.64	1.73E-01					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	OCDF	1.36E-03	2.33	5.84E-02					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	OCDF	2.50E-04	1.43	1.75E-02					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	OCDF	2.25E-04	1.64	1.37E-02					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	OCDF	2.03E-04	1.74	1.17E-02					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	PCBs (total calc'd)	5.10E+00	2.33	2.19E+02	12	65	mg/kg OC	18	3.4
NOAA Site Characterization	EST214	10/22/1997	PCBs (total calc'd)	7.00E-01	J 1.92	3.65E+01	12	65	mg/kg OC	3.0	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	PCBs (total calc'd)	6.50E-01	2.01	3.23E+01	12	65	mg/kg OC	2.7	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	PCBs (total calc'd)	4.50E-01	J 1.43	3.15E+01	12	65	mg/kg OC	2.6	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	PCBs (total calc'd)	3.90E-01	J 1.9	2.05E+01	12	65	mg/kg OC	1.7	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	PCBs (total calc'd)	3.50E-01	1.82	1.92E+01	12	65	mg/kg OC	1.6	<1

Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)

Event Name	Location Number	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-SS319	10/4/2006	PCBs (total calc'd)	3.50E-01	2.74	1.28E+01	12	65	mg/kg OC	1.1	<1
NOAA Site Characterization	EST216	9/17/1997	PCBs (total calc'd)	3.00E-01	2.21	1.36E+01	12	65	mg/kg OC	1.1	<1
EPA SI	DR018	9/2/1998	PCBs (total calc'd)	2.65E-01	J 2.21	1.20E+01	12	65	mg/kg OC	1.0	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	PCBs (total calc'd)	2.40E-01	3.5	6.86E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	PCBs (total calc'd)	2.12E-01	J 1.64	1.29E+01	12	65	mg/kg OC	1.1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	PCBs (total calc'd)	1.66E-01	1.74	9.54E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	EST220	9/17/1997	PCBs (total calc'd)	1.60E-01	1.91	8.38E+00	12	65	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	PCBs (total calc'd)	1.54E-01	2.49	6.18E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	PCBs (total calc'd)	1.22E-01	J 2.26	5.40E+00	12	65	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	PCBs (total calc'd)	1.21E-01	J 2.74	4.42E+00	12	65	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	PCBs (total calc'd)	1.18E-01	J 2.79	4.23E+00	12	65	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	PCBs (total calc'd)	1.16E-01	J 1.97	5.89E+00	12	65	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	PCBs (total calc'd)	1.10E-01	J 2.18	5.05E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	EST211	9/17/1997	PCBs (total calc'd)	1.10E-01	1.78	6.18E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	EST213	9/17/1997	PCBs (total calc'd)	1.10E-01	1.94	5.67E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	EST215	10/14/1997	PCBs (total calc'd)	1.10E-01	1.71	6.43E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	CH1033	10/16/1997	PCBs (total calc'd)	1.00E-01	2.08	4.81E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	EST212	9/17/1997	PCBs (total calc'd)	1.00E-01	2.07	4.83E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	PCBs (total calc'd)	9.60E-02	2.17	4.42E+00	12	65	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	PCBs (total calc'd)	8.30E-02	J 2.62	3.17E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	WST365	9/18/1997	PCBs (total calc'd)	7.80E-02	J 1.96	3.98E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	CH1034	10/17/1997	PCBs (total calc'd)	5.10E-02	J 1.61	3.17E+00	12	65	mg/kg OC	<1	<1
NOAA Site Characterization	EST216	9/17/1997	PCTs (total)	4.20E-02	2.21	1.90E+00					
NOAA Site Characterization	EST214	10/22/1997	PCTs (total)	3.10E-02	1.92	1.61E+00					
NOAA Site Characterization	EST212	9/17/1997	PCTs (total)	2.00E-02	2.07	9.66E-01					
NOAA Site Characterization	EST211	9/17/1997	PCTs (total)	1.90E-02	1.78	1.07E+00					
NOAA Site Characterization	EST213	9/17/1997	PCTs (total)	1.50E-02	1.94	7.73E-01					
NOAA Site Characterization	CH1034	10/17/1997	PCTs (total)	8.00E-03	J 1.61	4.97E-01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Pentachlorophenol	9.20E-02	J 1.82	5.05E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Perylene	3.50E-01	1.82	1.92E+01					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Phenanthrene	1.50E+01	2.01	7.46E+02	100	480	mg/kg OC	7.5	1.6
EPA SI	DR086	8/31/1998	Phenanthrene	1.50E+00	1.97	7.61E+01	100	480	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Phenanthrene	1.20E+00	2.74	4.38E+01	100	480	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Phenanthrene	8.00E-01	2.62	3.05E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Phenanthrene	7.60E-01	1.82	4.18E+01	100	480	mg/kg OC	<1	<1

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR016	8/17/1998	Phenanthrene	4.40E-01	2.79	1.58E+01	100	480	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Phenanthrene	3.90E-01	2.18	1.79E+01	100	480	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Phenanthrene	2.50E-01	2.49	1.00E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Phenanthrene	2.50E-01	3.5	7.14E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Phenanthrene	2.50E-01	1.9	1.32E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Phenanthrene	2.40E-01	2.17	1.11E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Phenanthrene	2.30E-01	2.74	8.39E+00	100	480	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Phenanthrene	2.10E-01	2.21	9.50E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Phenanthrene	1.80E-01	2.26	7.96E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Phenanthrene	1.60E-01	1.64	9.76E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Phenanthrene	1.30E-01	1.43	9.09E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Phenanthrene	1.20E-01	1.74	6.90E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Phenanthrene	5.20E-02	2.33	2.23E+00	100	480	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Phenol	3.80E-01	2.79		420	1200	ug/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Phenol	1.90E-01	2.74		420	1200	ug/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Phenol	1.90E-01	2.18		420	1200	ug/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Phenol	1.70E-01	2.62		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Phenol	1.40E-01	1.43		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Phenol	6.40E-02	3.5		420	1200	ug/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Phenol	3.00E-02	2.21		420	1200	ug/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Potassium	3.10E+03	2.79	1.11E+05					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Pyrene	1.00E+01	2.01	4.98E+02	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Pyrene	2.30E+00	1.82	1.26E+02	1000	1400	mg/kg OC	<1	<1
EPA SI	DR017	8/17/1998	Pyrene	2.20E+00	2.74	8.03E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Pyrene	1.40E+00	2.62	5.34E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Pyrene	1.30E+00	2.79	4.66E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Pyrene	1.30E+00	2.18	5.96E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Pyrene	8.80E-01	1.97	4.47E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Pyrene	7.00E-01	2.17	3.23E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Pyrene	6.50E-01	1.9	3.42E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Pyrene	6.10E-01	2.21	2.76E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Pyrene	5.90E-01	2.49	2.37E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Pyrene	5.40E-01	2.74	1.97E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Pyrene	4.90E-01	3.5	1.40E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Pyrene	4.60E-01	2.26	2.04E+01	1000	1400	mg/kg OC	<1	<1

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	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-SS323	10/4/2006	Pyrene	4.00E-01	1.74	2.30E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Pyrene	3.70E-01	1.43	2.59E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Pyrene	3.50E-01	1.64	2.13E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Pyrene	2.70E-01	2.33	1.16E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Selenium	2.80E+01	2.21	1.27E+03					
EPA SI	DR086	8/31/1998	Selenium	2.30E+01	J 1.97	1.17E+03					
EPA SI	DR015	8/17/1998	Selenium	9.00E+00	2.62	3.44E+02					
EPA SI	DR016	8/17/1998	Selenium	9.00E+00	2.79	3.23E+02					
EPA SI	DR017	8/17/1998	Selenium	9.00E+00	2.74	3.28E+02					
EPA SI	DR062	8/17/1998	Selenium	8.00E+00	2.18	3.67E+02					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Selenium	1.40E+00	1.82	7.69E+01					
EPA SI	DR073	8/12/1998	Selenium	7.00E-01	J 2.49	2.81E+01					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Silver	3.90E+00	2.33		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Silver	1.20E+00	2.17		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Silver	9.00E-01	3.5		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Silver	8.91E-01	1.82		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Silver	8.00E-01	2.26		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Silver	8.00E-01	J 1.9		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Silver	8.00E-01	2.01		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Silver	7.00E-01	J 2.74		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Silver	5.40E-01	2.62		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Silver	5.30E-01	2.74		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Silver	5.10E-01	2.79		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Silver	5.00E-01	J 1.74		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR018	9/2/1998	Silver	4.60E-01	2.21		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Silver	4.10E-01	2.18		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Silver	4.00E-01	J 1.43		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Silver	3.30E-01	1.97		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Silver	3.20E-01	2.49		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Silver	3.00E-01	J 1.64		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Sulfides (total)	6.50E+02	J 2.33	2.79E+04					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Tetrabutyltin as ion	3.80E-03	J 1.82	2.09E-01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Thallium	2.36E-01	1.82	1.30E+01					
EPA SI	DR018	9/2/1998	Thallium	1.50E-01	2.21	6.79E+00					
EPA SI	DR086	8/31/1998	Thallium	1.30E-01	J 1.97	6.60E+00					

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)		TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR015	8/17/1998	Thallium	1.20E-01	J	2.62	4.58E+00					
EPA SI	DR017	8/17/1998	Thallium	1.20E-01	J	2.74	4.38E+00					
EPA SI	DR073	8/12/1998	Thallium	1.20E-01		2.49	4.82E+00					
EPA SI	DR016	8/17/1998	Thallium	1.10E-01	J	2.79	3.94E+00					
EPA SI	DR062	8/17/1998	Thallium	1.10E-01	J	2.18	5.05E+00					
EPA SI	DR018	9/2/1998	Tin	7.00E+00		2.21	3.17E+02					
EPA SI	DR073	8/12/1998	Tin	6.00E+00	J	2.49	2.41E+02					
EPA SI	DR015	8/17/1998	Tin	5.00E+00	J	2.62	1.91E+02					
EPA SI	DR016	8/17/1998	Tin	5.00E+00	J	2.79	1.79E+02					
EPA SI	DR017	8/17/1998	Tin	5.00E+00	J	2.74	1.82E+02					
EPA SI	DR062	8/17/1998	Tin	4.00E+00	J	2.18	1.83E+02					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Total aldrin/dieldrin (calc'd)	1.60E-03	JN	1.82	8.79E-02					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Total HPAH (calc'd)	4.20E+01		2.01	2.09E+03	960	5300	mg/kg OC	2.2	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Total HPAH (calc'd)	1.99E+01		1.82	1.09E+03	960	5300	mg/kg OC	1.1	<1
EPA SI	DR017	8/17/1998	Total HPAH (calc'd)	1.34E+01		2.74	4.89E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Total HPAH (calc'd)	8.30E+00		2.62	3.17E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR016	8/17/1998	Total HPAH (calc'd)	8.10E+00		2.79	2.90E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Total HPAH (calc'd)	6.30E+00		2.18	2.89E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Total HPAH (calc'd)	4.88E+00		3.5	1.39E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Total HPAH (calc'd)	4.43E+00	J	1.9	2.33E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Total HPAH (calc'd)	4.07E+00		2.17	1.88E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Total HPAH (calc'd)	3.90E+00		1.97	1.98E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Total HPAH (calc'd)	3.86E+00	J	2.74	1.41E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Total HPAH (calc'd)	3.79E+00		2.21	1.71E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Total HPAH (calc'd)	3.61E+00		2.49	1.45E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Total HPAH (calc'd)	2.41E+00		2.26	1.07E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Total HPAH (calc'd)	2.22E+00	J	1.74	1.28E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Total HPAH (calc'd)	1.98E+00	J	1.64	1.21E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Total HPAH (calc'd)	1.87E+00		1.43	1.31E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Total HPAH (calc'd)	1.22E+00		2.33	5.24E+01	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Total LPAH (calc'd)	3.40E+01		2.01	1.69E+03	370	780	mg/kg OC	4.6	2.2
EPA SI	DR017	8/17/1998	Total LPAH (calc'd)	3.50E+00		2.74	1.28E+02	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	B3b	8/17/2004	Total LPAH (calc'd)	2.20E+00		1.82	1.21E+02	370	780	mg/kg OC	<1	<1
EPA SI	DR086	8/31/1998	Total LPAH (calc'd)	2.00E+00		1.97	1.02E+02	370	780	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Total LPAH (calc'd)	1.24E+00		2.62	4.73E+01	370	780	mg/kg OC	<1	<1

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
EPA SI	DR016	8/17/1998	Total LPAH (calc'd)	9.30E-01	2.79	3.33E+01	370	780	mg/kg OC	<1	<1
EPA SI	DR062	8/17/1998	Total LPAH (calc'd)	8.80E-01	2.18	4.04E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Total LPAH (calc'd)	6.90E-01	3.5	1.97E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Total LPAH (calc'd)	4.80E-01	J 1.9	2.53E+01	370	780	mg/kg OC	<1	<1
EPA SI	DR073	8/12/1998	Total LPAH (calc'd)	4.20E-01	2.49	1.69E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Total LPAH (calc'd)	4.10E-01	2.17	1.89E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Total LPAH (calc'd)	4.00E-01	J 2.74	1.46E+01	370	780	mg/kg OC	<1	<1
EPA SI	DR018	9/2/1998	Total LPAH (calc'd)	3.60E-01	2.21	1.63E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Total LPAH (calc'd)	2.80E-01	2.26	1.24E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Total LPAH (calc'd)	2.10E-01	J 1.64	1.28E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Total LPAH (calc'd)	1.90E-01	J 1.43	1.33E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Total LPAH (calc'd)	1.90E-01	1.74	1.09E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Total LPAH (calc'd)	7.90E-02	2.33	3.39E+00	370	780	mg/kg OC	<1	<1
EPA SI	DR015	8/17/1998	Total PAH (calc'd)	9.50E+00	2.62	3.63E+02					
EPA SI	DR062	8/17/1998	Total PAH (calc'd)	7.20E+00	2.18	3.30E+02					
EPA SI	DR073	8/12/1998	Total PAH (calc'd)	4.03E+00	2.49	1.62E+02					
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Total PAH (calc'd)	2.41E+00	J 1.74	1.39E+02					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Total PAH (calc'd)	2.19E+00	J 1.64	1.34E+02					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Total PAH (calc'd)	1.30E+00	2.33	5.58E+01					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Tributyltin as ion	3.20E-01	1.82	1.76E+01					
EPA SI	DR018	9/2/1998	Tributyltin as ion	1.00E-01	2.21	4.52E+00					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Tributyltin as ion	8.10E-02	2.17	3.73E+00					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Tributyltin as ion	3.30E-02	2.26	1.46E+00					
EPA SI	DR018	9/2/1998	Vanadium	8.90E+01	2.21	4.03E+03					
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Vanadium	8.70E+01	3.5	2.49E+03					
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Vanadium	8.49E+01	2.17	3.91E+03					
EPA SI	DR086	8/31/1998	Vanadium	7.90E+01	1.97	4.01E+03					
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Vanadium	7.05E+01	2.26	3.12E+03					
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Vanadium	7.03E+01	2.33	3.02E+03					
EPA SI	DR015	8/17/1998	Vanadium	6.90E+01	2.62	2.63E+03					
EPA SI	DR017	8/17/1998	Vanadium	6.70E+01	2.74	2.45E+03					
EPA SI	DR016	8/17/1998	Vanadium	6.60E+01	2.79	2.37E+03					
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Vanadium	6.32E+01	2.74	2.31E+03					
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Vanadium	6.09E+01	1.9	3.21E+03					
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Vanadium	5.84E+01	2.01	2.91E+03					

**Table A-1
Chemicals Detected in Surface Sediment Samples
RM 0.9-1.0 East (Slip 1)**

Event Name	Location Number	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-SS323	10/4/2006	Vanadium	5.72E+01	1.74	3.29E+03					
EPA SI	DR073	8/12/1998	Vanadium	5.40E+01	2.49	2.17E+03					
EPA SI	DR062	8/17/1998	Vanadium	5.30E+01	2.18	2.43E+03					
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Vanadium	4.81E+01	1.64	2.93E+03					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Vanadium	4.78E+01	1.82	2.63E+03					
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Vanadium	4.45E+01	1.43	3.11E+03					
LDW RI Phase 2 Round 1	B3b	8/17/2004	Zinc	2.08E+03	1.82		410	960	mg/kg DW	5.1	2.2
LDW RI Phase 2 Round 1	LDW-SS31	1/21/2005	Zinc	9.97E+02	2.17		410	960	mg/kg DW	2.4	1.0
LDW RI Phase 2 Round 1	LDW-SS32	1/18/2005	Zinc	4.14E+02	2.26		410	960	mg/kg DW	1.0	<1
EPA SI	DR018	9/2/1998	Zinc	2.54E+02	2.21		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS30	3/8/2005	Zinc	2.48E+02	3.5		410	960	mg/kg DW	<1	<1
EPA SI	DR017	8/17/1998	Zinc	2.44E+02	2.74		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 1	LDW-SS37	1/18/2005	Zinc	2.20E+02	2.33		410	960	mg/kg DW	<1	<1
EPA SI	DR016	8/17/1998	Zinc	1.96E+02	2.79		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS319	10/4/2006	Zinc	1.70E+02	2.74		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS320	10/4/2006	Zinc	1.68E+02	1.9		410	960	mg/kg DW	<1	<1
EPA SI	DR015	8/17/1998	Zinc	1.59E+02	2.62		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 2	LDW-SS35	3/8/2005	Zinc	1.59E+02	2.01		410	960	mg/kg DW	<1	<1
EPA SI	DR073	8/12/1998	Zinc	1.36E+02	2.49		410	960	mg/kg DW	<1	<1
EPA SI	DR062	8/17/1998	Zinc	1.23E+02	2.18		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS323	10/4/2006	Zinc	1.18E+02	1.74		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS318	10/4/2006	Zinc	1.12E+02	1.64		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Round 3	LDW-SS321	10/4/2006	Zinc	1.07E+02	1.43		410	960	mg/kg DW	<1	<1
EPA SI	DR086	8/31/1998	Zinc	9.40E+01	1.97		410	960	mg/kg DW	<1	<1

DW - Dry weight

TOC - Total organic carbon

OC - Organic carbon normalized

SQS - Sediment Quality Standard

CSL - Cleanup Screening Level

NA - Not applicable

PAH - Polynuclear aromatic hydrocarbons

SVOC - Semivolatile organic compound

PCB - Polychlorinated biphenyl

Notes:

(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.

(2) Chemicals with exceedance factors greater than 1 are highlighted gray.

(3) Chemicals with exceedance factors greater than 10 are shown in **Bold**.

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Appendix A-2

**Chemicals Detected in Subsurface Sediment
Samples,
RM 0.9-1.0 East (Slip 1)**

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Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC20	2/15/2006	4 - 6	1,2,3,4,6,7,8-HpCDD	4.93E-03	2.22	2.22E-01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,4,6,7,8-HpCDD	9.24E-04	1.49	6.20E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,4,6,7,8-HpCDD	7.29E-04	1.5	4.86E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,4,6,7,8-HpCDD	7.24E-05	1.85	3.91E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,4,6,7,8-HpCDF	2.49E-03	2.22	1.12E-01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,4,6,7,8-HpCDF	3.14E-04	1.5	2.09E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,4,6,7,8-HpCDF	2.73E-04	1.49	1.83E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,4,6,7,8-HpCDF	6.50E-05	1.85	3.51E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,4,7,8,9-HpCDF	2.99E-04	2.22	1.35E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,4,7,8,9-HpCDF	3.30E-05	1.5	2.20E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,4,7,8,9-HpCDF	2.48E-05	1.49	1.66E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,4,7,8,9-HpCDF	1.88E-06	1.85	1.02E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,4,7,8-HxCDD	7.19E-06	J 2.22	3.24E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,4,7,8-HxCDD	6.08E-06	1.49	4.08E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,4,7,8-HxCDD	1.53E-06	1.5	1.02E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,4,7,8-HxCDD	7.00E-07	J 1.85	3.78E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,4,7,8-HxCDF	4.67E-04	2.22	2.10E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,4,7,8-HxCDF	5.21E-05	1.5	3.47E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,4,7,8-HxCDF	3.93E-05	1.49	2.64E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,4,7,8-HxCDF	2.88E-06	1.85	1.56E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,6,7,8-HxCDD	1.69E-04	2.22	7.61E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,6,7,8-HxCDD	3.77E-05	1.49	2.53E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,6,7,8-HxCDD	2.34E-05	1.5	1.56E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,6,7,8-HxCDD	4.62E-06	1.85	2.50E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,6,7,8-HxCDF	7.60E-05	2.22	3.42E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,6,7,8-HxCDF	1.21E-05	1.49	8.12E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,6,7,8-HxCDF	9.78E-06	1.5	6.52E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,6,7,8-HxCDF	2.71E-06	1.85	1.46E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,7,8,9-HxCDD	2.37E-05	2.22	1.07E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,7,8,9-HxCDD	1.86E-05	1.49	1.25E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,7,8,9-HxCDD	6.53E-06	1.5	4.35E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,7,8,9-HxCDD	2.24E-06	1.85	1.21E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,7,8,9-HxCDF	8.02E-06	2.22	3.61E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,7,8,9-HxCDF	5.45E-07	J 1.49	3.66E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,7,8,9-HxCDF	1.28E-07	J 1.85	6.92E-06					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,7,8-PeCDD	3.78E-06	1.49	2.54E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,7,8-PeCDD	3.61E-06	2.22	1.63E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,7,8-PeCDD	1.15E-06	1.5	7.67E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,7,8-PeCDD	1.07E-06	1.85	5.78E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	1,2,3,7,8-PeCDF	1.81E-05	2.22	8.15E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	1,2,3,7,8-PeCDF	4.40E-06	1.49	2.95E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,2,3,7,8-PeCDF	2.47E-06	1.5	1.65E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	1,2,3,7,8-PeCDF	1.19E-06	1.85	6.43E-05					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC17 ^a	2/23/2006	2 - 4	1,2,4-Trichlorobenzene	1.10E-01	J 6.35		31	NA	mg/kg DW	<1	NA
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	1,2,4-Trichlorobenzene	1.80E-02	2.24	8.04E-01	0.81	1.8	mg/kg OC	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	1,2,4-Trichlorobenzene	1.70E-02	J 3.25	5.23E-01	0.81	1.8	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	1,2,4-Trichlorobenzene	9.30E-03	J 3.06	3.04E-01	0.81	1.8	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	1,2-Dichlorobenzene	1.20E-02	2.24	5.36E-01	2.3	2.3	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	1,2-Dichlorobenzene	7.00E-03	J 2.96	2.36E-01	2.3	2.3	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	1,4-Dichlorobenzene	2.00E-02	1.5	1.33E+00	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	1,4-Dichlorobenzene	1.60E-01	3.06	5.23E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	1,4-Dichlorobenzene	9.20E-03	2.24	4.11E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	1,4-Dichlorobenzene	5.40E-03	J 2.96	1.82E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	1,4-Dichlorobenzene	4.20E-03	J 3.25	1.29E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	1,4-Dichlorobenzene	4.00E-03	J 3.24	1.23E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	1,4-Dichlorobenzene	3.60E-03	J 2.37	1.52E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	1,4-Dichlorobenzene	3.00E-03	J 1.62	1.85E-01	3.1	9	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	1-Methylnaphthalene	2.60E+00	6.35	4.09E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	1-Methylnaphthalene	4.00E-01	3.24	1.23E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	1-Methylnaphthalene	7.00E-02	2.24	3.13E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	2,3,4,6,7,8-HxCDF	2.82E-05	2.22	1.27E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	2,3,4,6,7,8-HxCDF	6.29E-06	1.49	4.22E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	2,3,4,6,7,8-HxCDF	4.87E-06	1.5	3.25E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	2,3,4,6,7,8-HxCDF	2.99E-06	1.85	1.62E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	2,3,4,7,8-PeCDF	6.18E-05	2.22	2.78E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	2,3,4,7,8-PeCDF	1.76E-05	1.49	1.18E-03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	2,3,4,7,8-PeCDF	7.65E-06	1.5	5.10E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	2,3,4,7,8-PeCDF	2.74E-06	1.85	1.48E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	2,3,7,8-TCDD	1.88E-06	1.49	1.26E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	2,3,7,8-TCDD	8.90E-07	J 2.22	4.01E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	2,3,7,8-TCDD	4.96E-07	1.5	3.31E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	2,3,7,8-TCDD	3.24E-07	1.85	1.75E-05					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	2,3,7,8-TCDF	6.09E-06	1.49	4.09E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	2,3,7,8-TCDF	4.02E-06	2.22	1.81E-04					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	2,3,7,8-TCDF	1.44E-06	1.85	7.78E-05					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	2,4-Dimethylphenol	2.40E-02	J 3.24	7.41E-01	29	29	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	2,4-Dimethylphenol	1.40E-02	J 3.25	4.31E-01	29	29	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	2-Methylnaphthalene	4.50E+00	6.35		670	1,400	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	2-Methylnaphthalene	6.10E-01	3.24	1.88E+01	38	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	2-Methylnaphthalene	6.90E-02	3.06	2.25E+00	38	64	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	2-Methylnaphthalene	4.00E-02	2.45	1.63E+00	38	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	2-Methylphenol	1.60E-02	3.25	4.92E-01	63	63	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	2-Methylphenol	6.60E-03	3.24	2.04E-01	63	63	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	2-Methylphenol	5.00E-03	J 3.06	1.63E-01	63	63	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	2-Methylphenol	3.00E-03	J 2.02	1.49E-01	63	63	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	4,4'-DDD	4.00E-03	2.55	1.57E-01					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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 SI	DR021	9/22/1998	2- 4	4,4'-DDD	2.00E-03	J 2.45	8.16E-02					
EPA SI	DR021	9/22/1998	2- 4	4,4'-DDE	1.80E-02	J 2.45	7.35E-01					
EPA SI	DR021	9/22/1998	0- 2	4,4'-DDE	4.00E-03		1.57E-01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	4-Methylphenol	4.20E-02	J 2.37	1.77E+00	670	670	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Acenaphthene	4.60E+00			500	730	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Acenaphthene	1.20E+00	3.24	3.70E+01	16	57	mg/kg OC	2.3	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Acenaphthene	3.80E-01	3.25	1.17E+01	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Acenaphthene	3.60E-01	2.24	1.61E+01	16	57	mg/kg OC	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Acenaphthene	1.20E-01	2.96	4.05E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Acenaphthene	9.90E-02	1.76	5.63E+00	16	57	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Acenaphthene	8.00E-02	2.45	3.27E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Acenaphthene	6.50E-02	3.06	2.12E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Acenaphthene	4.80E-02	J 1.77	2.71E+00	16	57	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Acenaphthene	3.00E-02	2.55	1.18E+00	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Acenaphthene	1.50E-02	J 2.02	7.43E-01	16	57	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Acenaphthylene	9.80E-02	3.24	3.02E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Acenaphthylene	9.30E-02	J 6.35		NA	1300	mg/kg OC	NA	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Acenaphthylene	9.00E-02	J 3.25	2.77E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Acenaphthylene	6.70E-02	3.06	2.19E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Acenaphthylene	5.60E-02	J 2.24	2.50E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Acenaphthylene	3.80E-02	2.02	1.88E+00	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Acenaphthylene	3.10E-02	J 2.37	1.31E+00	66	66	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Acenaphthylene	3.00E-02	2.45	1.22E+00	66	66	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Acenaphthylene	2.00E-02	2.55	7.84E-01	66	66	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Acenaphthylene	1.10E-02	J 1.49	7.38E-01	66	66	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Aluminum	3.30E+04	2.45	1.35E+06					
EPA SI	DR021	9/22/1998	0- 2	Aluminum	3.00E+04	2.55	1.18E+06					
Lehigh NW	C2	8/29/2003	0- 4	Ammonia	1.70E+01	J 2.00	8.50E+02					
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Anthracene	1.90E+00	6.35		960	440	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Anthracene	1.70E+00	3.24	5.25E+01	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Anthracene	1.60E+00	3.25	4.92E+01	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Anthracene	5.80E-01	2.24	2.59E+01	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Anthracene	5.20E-01	3.06	1.70E+01	220	1200	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Anthracene	2.00E-01	2.45	8.16E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Anthracene	1.80E-01	2.96	6.08E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Anthracene	1.50E-01	2.02	7.43E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Anthracene	1.50E-01	1.77	8.47E+00	220	1200	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Anthracene	1.40E-01	2.55	5.49E+00	220	1200	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Anthracene	1.20E-01	2.00	6.00E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Anthracene	1.00E-01	2.37	4.22E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Anthracene	7.50E-02	1.62	4.63E+00	220	1200	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Anthracene	7.20E-02	2.0	3.60E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Anthracene	6.50E-02	1.96	3.32E+00	220	1200	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC16	2/13/2006	8- 10	Anthracene	4.60E-02	J 1.76	2.61E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Anthracene	4.30E-02	1.49	2.89E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Anthracene	2.10E-02	J 1.5	1.40E+00	220	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2- 4	Antimony	6.00E+01	J 6.35	9.45E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Antimony	4.00E+01	J 3.25	1.23E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Antimony	2.00E+01	J 3.06	6.54E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Antimony	1.30E+01	J 3.24	4.01E+02					
EPA SI	DR021	9/22/1998	2- 4	Antimony	6.00E+00	J 2.45	2.45E+02					
EPA SI	DR021	9/22/1998	2- 4	Aroclor-1242	2.50E+00	2.45	1.02E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	4- 6	Aroclor-1242	9.00E-01	2.19	4.11E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Aroclor-1242	6.10E-01	2.24	2.72E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Aroclor-1242	4.80E-01	3.24	1.48E+01					
EPA SI	DR021	9/22/1998	0- 2	Aroclor-1242	8.20E-02	2.55	3.22E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4- 6	Aroclor-1242	4.40E-02	2.22	1.98E+00					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Aroclor-1248	2.10E+00	2.96	7.09E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2- 4	Aroclor-1248	1.70E+00	6.35	2.68E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Aroclor-1248	1.20E+00	1.49	8.05E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Aroclor-1248	3.90E-01	3.06	1.27E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Aroclor-1248	3.20E-01	3.25	9.85E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Aroclor-1248	1.60E-01	1.62	9.88E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Aroclor-1248	1.00E-01	2.37	4.22E+00					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Aroclor-1248	7.70E-02	J 2.02	3.81E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Aroclor-1248	7.60E-02	1.5	5.07E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Aroclor-1248	6.30E-02	1.96	3.21E+00					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Aroclor-1248	3.80E-02	1.77	2.15E+00					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Aroclor-1248	5.00E-03	0.963	5.19E-01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2- 4	Aroclor-1254	2.70E+00	6.35	4.25E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Aroclor-1254	2.50E+00	2.96	8.45E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Aroclor-1254	1.60E+00	2.24	7.14E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Aroclor-1254	1.30E+00	1.49	8.72E+01					
EPA SI	DR021	9/22/1998	2- 4	Aroclor-1254	1.10E+00	2.45	4.49E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Aroclor-1254	1.00E+00	3.24	3.09E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Aroclor-1254	5.10E-01	3.06	1.67E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Aroclor-1254	5.00E-01	3.25	1.54E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	4- 6	Aroclor-1254	4.80E-01	2.19	2.19E+01					
EPA SI	DR021	9/22/1998	0- 2	Aroclor-1254	2.50E-01	2.55	9.80E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Aroclor-1254	2.50E-01	1.5	1.67E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Aroclor-1254	1.70E-01	1.62	1.05E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4- 6	Aroclor-1254	1.70E-01	2.22	7.66E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Aroclor-1254	1.40E-01	1.96	7.14E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Aroclor-1254	1.40E-01	2.37	5.91E+00					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Aroclor-1254	1.40E-01	J 2.02	6.93E+00					
Lehigh NW	C2	8/29/2003	0- 4	Aroclor-1254	8.70E-02	2.00	4.35E+00					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC18	2/16/2006	0 - 1	Aroclor-1254	8.00E-02	1.77	4.52E+00					
Lehigh NW	C3	8/29/2003	3.8 - 5	Aroclor-1254	4.90E-02	2.0	2.45E+00					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Aroclor-1254	9.00E-03	0.963	9.35E-01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Aroclor-1260	5.40E+00	6.35	8.50E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Aroclor-1260	1.20E+00	2.24	5.36E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Aroclor-1260	8.40E-01	2.96	2.84E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Aroclor-1260	7.30E-01	1.49	4.90E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	4 - 6	Aroclor-1260	5.70E-01	2.19	2.60E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Aroclor-1260	4.50E-01	3.24	1.39E+01					
EPA SI	DR021	9/22/1998	2 - 4	Aroclor-1260	4.40E-01	2.45	1.80E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Aroclor-1260	3.20E-01	3.06	1.05E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Aroclor-1260	2.70E-01	1.5	1.80E+01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Aroclor-1260	2.20E-01	3.25	6.77E+00					
EPA SI	DR021	9/22/1998	0 - 2	Aroclor-1260	1.90E-01	2.55	7.45E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4 - 6	Aroclor-1260	1.90E-01	2.22	8.56E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Aroclor-1260	1.80E-01	1.62	1.11E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Aroclor-1260	1.40E-01	J 1.96	7.14E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Aroclor-1260	1.20E-01	2.37	5.06E+00					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Aroclor-1260	1.10E-01	J 2.02	5.45E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8 - 10	Aroclor-1260	9.50E-02	1.85	5.14E+00					
Lehigh NW	C2	8/29/2003	0 - 4	Aroclor-1260	7.20E-02	2.00	3.60E+00					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Aroclor-1260	6.40E-02	1.77	3.62E+00					
Lehigh NW	C3	8/29/2003	3.8 - 5	Aroclor-1260	3.00E-02	2.0	1.50E+00					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Aroclor-1260	1.80E-02	J 1.76	1.02E+00					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Aroclor-1260	5.60E-03	0.963	5.82E-01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Arsenic	1.70E+02	3.25		57	93	mg/kg DW	3.0	1.8
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Arsenic	1.10E+02	3.06		57	93	mg/kg DW	1.9	1.2
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Arsenic	7.60E+01	3.24		57	93	mg/kg DW	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Arsenic	6.00E+01	6.35		57	93	mg/kg DW	1.1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Arsenic	3.00E+01	2.37		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Arsenic	2.50E+01	1.62		57	93	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Arsenic	2.40E+01	2.45		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Arsenic	2.10E+01	2.02		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Arsenic	2.00E+01	1.96		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Arsenic	2.00E+01	2.24		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Arsenic	2.00E+01	2.96		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Arsenic	2.00E+01	1.49		57	93	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Arsenic	1.80E+01	2.55		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Arsenic	1.70E+01	1.5		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Arsenic	1.40E+01	1.76		57	93	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Arsenic	1.20E+01	2.00		57	93	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Arsenic	1.10E+01	1.77		57	93	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Barium	2.20E+02	2.45	8.98E+03					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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 SI	DR021	9/22/1998	0 - 2	Barium	1.60E+02	2.55	6.27E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Benzo(a)anthracene	2.10E+00	3.24	6.48E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Benzo(a)anthracene	1.60E+00	2.24	7.14E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Benzo(a)anthracene	1.50E+00	J 3.25	4.62E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Benzo(a)anthracene	1.50E+00	6.35		1300	5100	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Benzo(a)anthracene	1.10E+00	3.06	3.59E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Benzo(a)anthracene	6.60E-01	2.02	3.27E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Benzo(a)anthracene	5.70E-01	2.45	2.33E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Benzo(a)anthracene	4.90E-01	1.77	2.77E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Benzo(a)anthracene	3.60E-01	2.96	1.22E+01	110	270	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Benzo(a)anthracene	3.10E-01	2.55	1.22E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Benzo(a)anthracene	3.00E-01	2.37	1.27E+01	110	270	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Benzo(a)anthracene	2.60E-01	2.00	1.30E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Benzo(a)anthracene	2.50E-01	1.62	1.54E+01	110	270	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Benzo(a)anthracene	2.10E-01	2.0	1.05E+01	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Benzo(a)anthracene	1.90E-01	1.96	9.69E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Benzo(a)anthracene	1.00E-01	1.76	5.68E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Benzo(a)anthracene	8.60E-02	1.49	5.77E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Benzo(a)anthracene	3.80E-02	J 1.5	2.53E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Benzo(a)anthracene	1.60E-02	J 0.963	1.66E+00	110	270	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Benzo(a)pyrene	1.60E+00	3.24	4.94E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Benzo(a)pyrene	1.40E+00	3.25	4.31E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Benzo(a)pyrene	1.30E+00	3.06	4.25E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Benzo(a)pyrene	9.40E-01	6.35		1600	3600	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Benzo(a)pyrene	8.20E-01	2.24	3.66E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Benzo(a)pyrene	5.30E-01	2.45	2.16E+01	99	210	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Benzo(a)pyrene	4.90E-01	2.55	1.92E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Benzo(a)pyrene	4.30E-01	2.02	2.13E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Benzo(a)pyrene	3.90E-01	1.62	2.41E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Benzo(a)pyrene	3.60E-01	2.37	1.52E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Benzo(a)pyrene	3.40E-01	1.77	1.92E+01	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Benzo(a)pyrene	3.00E-01	1.96	1.53E+01	99	210	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Benzo(a)pyrene	2.90E-01	2.0	1.45E+01	99	210	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Benzo(a)pyrene	2.60E-01	2.00	1.30E+01	99	220	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Benzo(a)pyrene	2.50E-01	2.96	8.45E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Benzo(a)pyrene	9.40E-02	1.49	6.31E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Benzo(a)pyrene	8.80E-02	1.76	5.00E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Benzo(a)pyrene	3.90E-02	J 1.5	2.60E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Benzo(a)pyrene	2.70E-02	0.963	2.80E+00	99	210	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Benzo(b)fluoranthene	2.50E+00	3.24	7.72E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Benzo(b)fluoranthene	2.20E+00	3.06	7.19E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Benzo(b)fluoranthene	1.80E+00	3.25	5.54E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Benzo(b)fluoranthene	1.70E+00	6.35		3200	9900	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC16	2/13/2006	4- 6	Benzo(b)fluoranthene	1.40E+00	2.24	6.25E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Benzo(b)fluoranthene	8.10E-01	2.02	4.01E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Benzo(b)fluoranthene	6.60E-01	2.45	2.69E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Benzo(b)fluoranthene	5.90E-01	2.55	2.31E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Benzo(b)fluoranthene	5.20E-01	1.62	3.21E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Benzo(b)fluoranthene	5.10E-01	2.37	2.15E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Benzo(b)fluoranthene	5.00E-01	1.77	2.82E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Benzo(b)fluoranthene	4.60E-01	1.96	2.35E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Benzo(b)fluoranthene	3.70E-01	2.96	1.25E+01	230	450	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Benzo(b)fluoranthene	3.50E-01	2.00	1.75E+01	230	450	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Benzo(b)fluoranthene	3.10E-01	2.0	1.55E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Benzo(b)fluoranthene	1.50E-01	1.49	1.01E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Benzo(b)fluoranthene	1.30E-01	1.76	7.39E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Benzo(b)fluoranthene	7.70E-02	J 1.5	5.13E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Benzo(b)fluoranthene	4.00E-02	0.963	4.15E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Benzo(g,h,i)perylene	4.90E-01	3.25	1.51E+01	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Benzo(g,h,i)perylene	3.50E-01	3.24	1.08E+01	31	78	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Benzo(g,h,i)perylene	2.70E-01	2.55	1.06E+01	31	78	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Benzo(g,h,i)perylene	2.50E-01	2.45	1.02E+01	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Benzo(g,h,i)perylene	2.50E-01	3.06	8.17E+00	31	78	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Benzo(g,h,i)perylene	1.40E-01	2.0	7.00E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Benzo(g,h,i)perylene	1.40E-01	J 6.35		670	2600	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Benzo(g,h,i)perylene	1.30E-01	2.24	5.80E+00	31	78	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Benzo(g,h,i)perylene	1.20E-01	2.00	6.00E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Benzo(g,h,i)perylene	1.10E-01	1.62	6.79E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Benzo(g,h,i)perylene	1.00E-01	2.37	4.22E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Benzo(g,h,i)perylene	1.00E-01	2.02	4.95E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Benzo(g,h,i)perylene	9.00E-02	1.96	4.59E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Benzo(g,h,i)perylene	8.20E-02	1.77	4.63E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Benzo(g,h,i)perylene	6.70E-02	J 2.96	2.26E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Benzo(g,h,i)perylene	5.10E-02	J 1.76	2.90E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Benzo(g,h,i)perylene	2.00E-02	J 1.49	1.34E+00	31	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Benzo(k)fluoranthene	1.40E+00	3.25	4.31E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Benzo(k)fluoranthene	1.30E+00	3.24	4.01E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Benzo(k)fluoranthene	1.30E+00	3.06	4.25E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Benzo(k)fluoranthene	9.90E-01	6.35		3200	9900	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Benzo(k)fluoranthene	7.40E-01	2.24	3.30E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Benzo(k)fluoranthene	5.30E-01	2.02	2.62E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Benzo(k)fluoranthene	5.00E-01	1.62	3.09E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Benzo(k)fluoranthene	4.70E-01	1.77	2.66E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Benzo(k)fluoranthene	4.60E-01	2.45	1.88E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Benzo(k)fluoranthene	4.50E-01	2.55	1.76E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Benzo(k)fluoranthene	4.30E-01	2.37	1.81E+01	230	450	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC15	2/16/2006	1 - 2	Benzo(k)fluoranthene	3.80E-01	1.96	1.94E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Benzo(k)fluoranthene	2.70E-01	2.96	9.12E+00	230	450	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Benzo(k)fluoranthene	2.30E-01	2.00	1.15E+01	230	450	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Benzo(k)fluoranthene	2.30E-01	2.0	1.15E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Benzo(k)fluoranthene	1.20E-01	1.49	8.05E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Benzo(k)fluoranthene	6.30E-02	J 1.76	3.58E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Benzo(k)fluoranthene	4.90E-02	J 1.5	3.27E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Benzo(k)fluoranthene	3.00E-02	0.963	3.12E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Benzo(a)fluoranthene (total-calc'd)	3.80E+00	3.24	1.17E+02	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Benzo(a)fluoranthene (total-calc'd)	3.50E+00	3.06	1.14E+02	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Benzo(a)fluoranthene (total-calc'd)	3.20E+00	3.25	9.85E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Benzo(a)fluoranthene (total-calc'd)	2.70E+00	6.35		3200	9900	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Benzo(a)fluoranthene (total-calc'd)	2.10E+00	2.24	9.38E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Benzo(a)fluoranthene (total-calc'd)	1.34E+00	2.02	6.63E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Benzo(a)fluoranthene (total-calc'd)	1.12E+00	2.45	4.57E+01	230	450	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Benzo(a)fluoranthene (total-calc'd)	1.04E+00	2.55	4.08E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Benzo(a)fluoranthene (total-calc'd)	1.02E+00	1.62	6.30E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Benzo(a)fluoranthene (total-calc'd)	9.70E-01	1.77	5.48E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Benzo(a)fluoranthene (total-calc'd)	9.40E-01	2.37	3.97E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Benzo(a)fluoranthene (total-calc'd)	8.40E-01	1.96	4.29E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Benzo(a)fluoranthene (total-calc'd)	6.40E-01	2.96	2.16E+01	230	450	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Benzo(a)fluoranthene (total-calc'd)	5.80E-01	2.00	2.90E+01	230	450	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Benzo(a)fluoranthene (total-calc'd)	5.40E-01	2.0	2.70E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Benzo(a)fluoranthene (total-calc'd)	2.70E-01	1.49	1.81E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Benzo(a)fluoranthene (total-calc'd)	1.90E-01	J 1.76	1.08E+01	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Benzo(a)fluoranthene (total-calc'd)	1.26E-01	J 1.5	8.40E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Benzo(a)fluoranthene (total-calc'd)	7.00E-02	0.963	7.27E+00	230	450	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Benzoic acid	3.00E+00	J 6.35		650	650	ug/kg DW	4.6	4.6
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Benzoic acid	3.20E-01	3.06		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Benzoic acid	3.20E-01	3.25		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Benzoic acid	1.30E-01	J 1.62		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Benzoic acid	1.30E-01	J 2.37		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Benzoic acid	1.20E-01	J 1.96		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Benzoic acid	9.30E-02	1.49		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Benzoic acid	7.80E-02	J 1.77		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Benzoic acid	6.70E-02	1.5		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Benzoic acid	5.40E-02	J 0.963		650	650	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Benzyl alcohol	1.40E-01	3.06	4.58E+00	57	73	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Benzyl alcohol	5.20E-02	2.24	2.32E+00	57	73	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Benzyl alcohol	3.80E-02	3.25	1.17E+00	57	73	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Benzyl alcohol	2.80E-02	J 2.96	9.46E-01	57	73	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Beryllium	4.60E-01	2.55	1.80E+01					
EPA SI	DR021	9/22/1998	2 - 4	Beryllium	4.40E-01	2.45	1.80E+01					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC16	2/13/2006	2 - 4	Bis(2-ethylhexyl)phthalate	3.10E+00	2.96	1.05E+02	47	78	mg/kg OC	2.2	1.3
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Bis(2-ethylhexyl)phthalate	2.30E+00	6.35		1900	1300	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Bis(2-ethylhexyl)phthalate	2.00E+00	2.45	8.16E+01	47	78	mg/kg OC	1.7	1.0
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Bis(2-ethylhexyl)phthalate	1.60E+00	2.24	7.14E+01	47	78	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Bis(2-ethylhexyl)phthalate	1.00E+00	3.24	3.09E+01	47	78	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Bis(2-ethylhexyl)phthalate	9.90E-01	2.55	3.88E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Bis(2-ethylhexyl)phthalate	6.20E-01	1.49	4.16E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Bis(2-ethylhexyl)phthalate	5.70E-01	3.06	1.86E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Bis(2-ethylhexyl)phthalate	4.80E-01	1.62	2.96E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Bis(2-ethylhexyl)phthalate	4.40E-01	J 3.25	1.35E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Bis(2-ethylhexyl)phthalate	4.00E-01	2.02	1.98E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Bis(2-ethylhexyl)phthalate	3.50E-01	2.37	1.48E+01	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Bis(2-ethylhexyl)phthalate	2.90E-01	1.96	1.48E+01	47	78	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Bis(2-ethylhexyl)phthalate	1.40E-01	2.00	7.00E+00	47	78	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Bis(2-ethylhexyl)phthalate	1.20E-01	2.0	6.00E+00	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Bis(2-ethylhexyl)phthalate	8.70E-02	1.77	4.92E+00	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Bis(2-ethylhexyl)phthalate	7.10E-02	J 1.5	4.73E+00	47	78	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Bis(2-ethylhexyl)phthalate	1.80E-02	J 0.963	1.87E+00	47	78	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Butyl benzyl phthalate	8.00E-02	2.55	3.14E+00	4.9	64	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Butyl benzyl phthalate	8.00E-02	2.45	3.27E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Butyl benzyl phthalate	4.40E-02	3.25	1.35E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Butyl benzyl phthalate	4.10E-02	1.49	2.75E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Butyl benzyl phthalate	4.00E-02	3.06	1.31E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Butyl benzyl phthalate	3.90E-02	1.62	2.41E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Butyl benzyl phthalate	3.40E-02	2.37	1.43E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Butyl benzyl phthalate	3.30E-02	J 2.96	1.11E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Butyl benzyl phthalate	3.10E-02	1.96	1.58E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Butyl benzyl phthalate	2.90E-02	J 2.02	1.44E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Butyl benzyl phthalate	1.70E-02	1.5	1.13E+00	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Butyl benzyl phthalate	1.50E-02	J 3.24	4.63E-01	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Butyl benzyl phthalate	1.20E-02	J 2.24	5.36E-01	4.9	64	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Cadmium	2.04E+01	3.24		5.1	6.7	mg/kg DW	4.0	3.0
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Cadmium	1.50E+01	6.35		5.1	6.7	mg/kg DW	2.9	2.2
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Cadmium	7.60E+00	3.25		5.1	6.7	mg/kg DW	1.5	1.1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Cadmium	4.50E+00	3.06		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Cadmium	4.10E+00	2.96		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Cadmium	3.70E+00	2.45		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Cadmium	3.20E+00	2.24		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Cadmium	1.90E+00	1.49		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Cadmium	1.60E+00	1.62		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Cadmium	1.20E+00	1.76		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Cadmium	1.10E+00	2.55		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Cadmium	1.10E+00	2.02		5.1	6.7	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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
Lehigh NW	C2	8/29/2003	0 - 4	Cadmium	7.00E-01	2.00		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Cadmium	7.00E-01	1.5		5.1	6.7	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Cadmium	5.00E-01	2.0		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Cadmium	5.00E-01	1.96		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Cadmium	5.00E-01	2.37		5.1	6.7	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Cadmium	3.00E-01	1.77		5.1	6.7	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Carbazole	9.00E-02	2.45	3.67E+00					
EPA SI	DR021	9/22/1998	0 - 2	Carbazole	7.00E-02	2.55	2.75E+00					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Chromium	3.86E+02	6.35		260	270	mg/kg DW	1.5	1.4
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Chromium	9.20E+01	2.24		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Chromium	7.50E+01	2.96		260	270	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Chromium	6.90E+01	2.45		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Chromium	6.70E+01	1.49		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Chromium	5.03E+01	3.24		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Chromium	4.70E+01	3.06		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Chromium	4.70E+01	3.25		260	270	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Chromium	4.10E+01	2.55		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Chromium	3.99E+01	2.02		260	270	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Chromium	3.79E+01	2.00		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Chromium	3.76E+01	1.62		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Chromium	3.60E+01	1.96		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Chromium	3.60E+01	2.37		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Chromium	3.49E+01	1.76		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Chromium	3.47E+01	1.5		260	270	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Chromium	2.62E+01	2.0		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Chromium	2.20E+01	1.77		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Chromium	1.43E+01	0.963		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2 - 4	Chromium	1.05E+01	1.63		260	270	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Chrysene	2.60E+00	3.24	8.02E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Chrysene	2.40E+00	3.25	7.38E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Chrysene	1.80E+00	3.06	5.88E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Chrysene	1.80E+00	6.35		1400	9200	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Chrysene	1.70E+00	2.24	7.59E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Chrysene	1.00E+00	2.02	4.95E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Chrysene	7.40E-01	2.45	3.02E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Chrysene	7.40E-01	1.77	4.18E+01	110	460	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Chrysene	5.00E-01	2.55	1.96E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Chrysene	5.00E-01	2.37	2.11E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Chrysene	4.10E-01	2.96	1.39E+01	110	460	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Chrysene	4.00E-01	2.00	2.00E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Chrysene	3.70E-01	1.62	2.28E+01	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Chrysene	3.40E-01	1.96	1.73E+01	110	460	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Chrysene	2.80E-01	2.0	1.40E+01	110	460	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC16	2/13/2006	8- 10	Chrysene	1.30E-01	1.76	7.39E+00	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Chrysene	1.20E-01	1.49	8.05E+00	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Chrysene	5.00E-02	J 1.5	3.33E+00	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Chrysene	1.70E-02	J 0.963	1.77E+00	110	460	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2- 4	Cobalt	2.00E+01	6.35	3.15E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Cobalt	1.56E+01	3.25	4.80E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Cobalt	1.26E+01	3.06	4.12E+02					
EPA SI	DR021	9/22/1998	2- 4	Cobalt	1.20E+01	2.45	4.90E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Cobalt	1.19E+01	3.24	3.67E+02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Cobalt	1.17E+01	1.49	7.85E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Cobalt	1.15E+01	1.62	7.10E+02					
EPA SI	DR021	9/22/1998	0- 2	Cobalt	1.10E+01	2.55	4.31E+02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Cobalt	1.10E+01	1.5	7.33E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Cobalt	1.08E+01	1.96	5.51E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Cobalt	1.08E+01	2.24	4.82E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Cobalt	1.03E+01	2.96	3.48E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Cobalt	1.01E+01	2.02	5.00E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Cobalt	9.50E+00	2.37	4.01E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Cobalt	7.30E+00	1.76	4.15E+02					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Cobalt	6.00E+00	1.77	3.39E+02					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Cobalt	5.10E+00	0.963	5.30E+02					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2- 4	Cobalt	3.90E+00	1.63	2.39E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Copper	2.35E+02	3.24		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Copper	2.24E+02	3.25		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Copper	2.19E+02	6.35		390	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Copper	1.87E+02	3.06		390	390	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Copper	1.30E+02	2.45		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Copper	1.16E+02	2.24		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Copper	1.14E+02	J 2.96		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Copper	1.13E+02	J 2.02		390	390	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Copper	1.10E+02	2.55		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Copper	1.03E+02	1.62		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Copper	9.82E+01	2.37		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Copper	9.04E+01	1.49		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Copper	9.01E+01	1.96		390	390	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Copper	6.93E+01	2.00		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Copper	5.70E+01	1.5		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Copper	5.39E+01	1.76		390	390	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Copper	4.40E+01	2.0		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Copper	3.79E+01	1.77		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Copper	1.85E+01	0.963		390	390	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2- 4	Copper	1.27E+01	1.63		390	390	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2- 4	DDTs (total-calc'd)	2.00E-02	J 2.45	8.16E-01					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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 SI	DR021	9/22/1998	0- 2	DDTs (total-calc'd)	8.00E-03	2.55	3.14E-01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Dibenzo(a,h)anthracene	2.60E-01	3.24	8.02E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Dibenzo(a,h)anthracene	1.40E-01	3.25	4.31E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Dibenzo(a,h)anthracene	1.10E-01	2.24	4.91E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Dibenzo(a,h)anthracene	8.00E-02	3.06	2.61E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Dibenzo(a,h)anthracene	7.00E-02	2.55	2.75E+00	12	33	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Dibenzo(a,h)anthracene	7.00E-02	2.45	2.86E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Dibenzo(a,h)anthracene	3.00E-02	2.02	1.49E+00	12	33	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Dibenzo(a,h)anthracene	2.90E-02	2.0	1.45E+00	12	33	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Dibenzo(a,h)anthracene	2.70E-02	2.00	1.35E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Dibenzo(a,h)anthracene	2.50E-02	1.76	1.42E+00	12	33	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Dibenzofuran	1.70E+00	6.35		540	700	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Dibenzofuran	7.10E-01	3.24	2.19E+01	15	58	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Dibenzofuran	2.10E-01	3.25	6.46E+00	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Dibenzofuran	1.50E-01	2.24	6.70E+00	15	58	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Dibenzofuran	7.70E-02	3.06	2.52E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Dibenzofuran	4.00E-02	2.45	1.63E+00	15	58	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Dibenzofuran	2.00E-02	2.55	7.84E-01	15	58	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Dibutyltin as ion	5.20E-02	2.55	2.04E+00					
EPA SI	DR021	9/22/1998	2- 4	Dibutyltin as ion	3.90E-02	2.45	1.59E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Dibutyltin as ion	2.90E-02	1.62	1.79E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Dibutyltin as ion	2.20E-02	1.96	1.12E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Dibutyltin as ion	1.40E-02	2.37	5.91E-01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Dimethyl phthalate	6.90E-02	J 3.24	2.13E+00	53	53	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Di-n-butyl phthalate	6.70E-02	2.24	2.99E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Di-n-butyl phthalate	6.20E-02	0.963	6.44E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Di-n-butyl phthalate	4.40E-02	J 1.62	2.72E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Di-n-butyl phthalate	3.10E-02	J 2.37	1.31E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Di-n-butyl phthalate	3.10E-02	J 1.96	1.58E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Di-n-butyl phthalate	2.40E-02	1.49	1.61E+00	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Di-n-butyl phthalate	2.30E-02	J 1.5	1.53E+00	220	1700	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Di-n-butyl phthalate	2.00E-02	2.55	7.84E-01	220	1700	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2- 4	Di-n-butyl phthalate	1.40E-02	J 1.63	8.59E-01	220	1700	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Di-n-octyl phthalate	5.00E-02	2.55	1.96E+00	58	4500	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Endrin aldehyde	1.00E-02	2.55	3.92E-01					
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Fluoranthene	7.40E+00	6.35		1700	2400	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Fluoranthene	7.10E+00	3.24	2.19E+02	160	1200	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Fluoranthene	5.60E+00	3.25	1.72E+02	160	1200	mg/kg OC	1.1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Fluoranthene	4.90E+00	2.24	2.19E+02	160	1200	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Fluoranthene	4.70E+00	2.02	2.33E+02	160	1200	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Fluoranthene	2.60E+00	1.77	1.47E+02	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Fluoranthene	2.00E+00	3.06	6.54E+01	160	1200	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Fluoranthene	1.40E+00	2.45	5.71E+01	160	1200	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC16	2/13/2006	2 - 4	Fluoranthene	1.30E+00	2.96	4.39E+01	160	1200	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Fluoranthene	7.80E-01	2.55	3.06E+01	160	1200	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Fluoranthene	7.40E-01	J 2.00	3.70E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Fluoranthene	5.70E-01	1.62	3.52E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Fluoranthene	4.80E-01	2.37	2.03E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Fluoranthene	4.00E-01	1.96	2.04E+01	160	1200	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Fluoranthene	3.30E-01	2.0	1.65E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Fluoranthene	2.90E-01	1.49	1.95E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Fluoranthene	2.10E-01	1.76	1.19E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Fluoranthene	1.60E-01	J 1.5	1.07E+01	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Fluoranthene	3.60E-02	0.963	3.74E+00	160	1200	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Fluorene	4.30E+00	6.35		540	1000	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Fluorene	1.40E+00	3.24	4.32E+01	23	79	mg/kg OC	1.9	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Fluorene	3.40E-01	3.25	1.05E+01	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Fluorene	2.00E-01	2.24	8.93E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Fluorene	1.90E-01	2.96	4.73E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Fluorene	1.10E-01	2.45	4.49E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Fluorene	1.10E-01	3.06	3.59E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Fluorene	4.20E-02	J 1.76	2.39E+00	23	79	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Fluorene	4.00E-02	2.55	1.57E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Fluorene	3.60E-02	J 1.77	2.03E+00	23	79	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Fluorene	2.00E-02	2.00	1.00E+00	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Fluorene	1.80E-02	J 2.02	8.91E-01	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Fluorene	1.20E-02	J 1.49	8.05E-01	23	79	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Indeno(1,2,3-cd)pyrene	5.70E-01	J 3.25	1.75E+01	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Indeno(1,2,3-cd)pyrene	3.20E-01	3.24	9.88E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Indeno(1,2,3-cd)pyrene	3.20E-01	3.06	1.05E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Indeno(1,2,3-cd)pyrene	2.80E-01	2.55	1.10E+01	34	88	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Indeno(1,2,3-cd)pyrene	2.70E-01	2.45	1.10E+01	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Indeno(1,2,3-cd)pyrene	1.80E-01	6.35		600	2600	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Indeno(1,2,3-cd)pyrene	1.50E-01	2.0	7.50E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Indeno(1,2,3-cd)pyrene	1.40E-01	2.24	6.25E+00	34	88	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Indeno(1,2,3-cd)pyrene	1.30E-01	2.00	6.50E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Indeno(1,2,3-cd)pyrene	1.30E-01	1.62	8.02E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Indeno(1,2,3-cd)pyrene	1.20E-01	2.37	5.06E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Indeno(1,2,3-cd)pyrene	1.20E-01	2.02	5.94E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Indeno(1,2,3-cd)pyrene	1.00E-01	1.96	5.10E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Indeno(1,2,3-cd)pyrene	9.40E-02	1.77	5.31E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Indeno(1,2,3-cd)pyrene	6.90E-02	J 2.96	2.33E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Indeno(1,2,3-cd)pyrene	4.20E-02	J 1.76	2.39E+00	34	88	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Indeno(1,2,3-cd)pyrene	1.80E-02	J 1.49	1.21E+00	34	88	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Iron	3.90E+04	J 2.45	1.59E+06					
EPA SI	DR021	9/22/1998	0 - 2	Iron	3.80E+04	J 2.55	1.49E+06					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC17	2/23/2006	2- 4	Lead	1.74E+03	6.35		450	530	mg/kg DW	3.9	3.3
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Lead	4.70E+02	3.24		450	530	mg/kg DW	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Lead	2.86E+02	3.25		450	530	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Lead	2.20E+02	2.45		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Lead	1.73E+02	3.06		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Lead	1.58E+02	2.96		450	530	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Lead	1.30E+02	2.55		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Lead	1.16E+02	1.62		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Lead	1.13E+02	2.24		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Lead	1.05E+02	2.02		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Lead	8.20E+01	1.49		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Lead	7.90E+01	1.76		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Lead	5.60E+01	2.37		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Lead	5.50E+01	1.96		450	530	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Lead	3.40E+01	2.00		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Lead	3.30E+01	1.5		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Lead	2.20E+01	1.77		450	530	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Lead	1.70E+01	2.0		450	530	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Lead	7.00E+00	0.963		450	530	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Magnesium	9.90E+03	2.45	4.04E+05					
EPA SI	DR021	9/22/1998	0- 2	Magnesium	9.50E+03	2.55	3.73E+05					
EPA SI	DR021	9/22/1998	2- 4	Manganese	4.50E+02	2.45	1.84E+04					
EPA SI	DR021	9/22/1998	0- 2	Manganese	4.00E+02	2.55	1.57E+04					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2- 4	Mercury	1.29E+00	6.35		0.41	0.59	mg/kg DW	3.1	2.2
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Mercury	9.80E-01	2.24		0.41	0.59	mg/kg DW	2.4	1.7
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Mercury	8.50E-01	2.96		0.41	0.59	mg/kg DW	2.1	1.4
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Mercury	7.50E-01	3.24		0.41	0.59	mg/kg DW	1.8	1.3
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Mercury	6.50E-01	1.49		0.41	0.59	mg/kg DW	1.6	1.1
EPA SI	DR021	9/22/1998	2- 4	Mercury	6.40E-01	2.45		0.41	0.59	mg/kg DW	1.6	1.1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Mercury	6.00E-01	3.25		0.41	0.59	mg/kg DW	1.5	1.0
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Mercury	5.00E-01	3.06		0.41	0.59	mg/kg DW	1.2	<1
EPA SI	DR021	9/22/1998	0- 2	Mercury	3.80E-01	2.55		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Mercury	3.80E-01	2.02		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Mercury	3.50E-01	1.76		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Mercury	3.50E-01	1.5		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Mercury	3.10E-01	1.62		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Mercury	2.90E-01	1.96		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Mercury	2.90E-01	2.37		0.41	0.59	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Mercury	2.50E-01	2.00		0.41	0.59	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Mercury	2.30E-01	2.0		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Mercury	1.10E-01	1.77		0.41	0.59	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Molybdenum	1.60E+01	3.25	4.92E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Molybdenum	1.10E+01	3.06	3.59E+02					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC17	2/23/2006	2- 4	Molybdenum	9.00E+00	6.35	1.42E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Molybdenum	7.70E+00	3.24	2.38E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Molybdenum	2.60E+00	2.96	8.78E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Molybdenum	2.00E+00	2.24	8.93E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Molybdenum	2.00E+00	1.49	1.34E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Molybdenum	1.60E+00	2.02	7.92E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Molybdenum	1.30E+00	1.62	8.02E+01					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Molybdenum	1.30E+00	1.76	7.39E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Molybdenum	1.00E+00	1.96	5.10E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Molybdenum	1.00E+00	2.37	4.22E+01					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Molybdenum	9.00E-01	1.77	5.08E+01					
EPA SI	DR021	9/22/1998	0- 2	Monobutyltin as ion	8.80E-02	J 2.55	3.45E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Monobutyltin as ion	1.10E-02	2.37	4.64E-01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Monobutyltin as ion	5.90E-03	1.96	3.01E-01					
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Naphthalene	3.40E+00	6.35		2100	2700	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Naphthalene	1.20E+00	3.24	3.70E+01	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Naphthalene	1.50E-01	3.25	4.62E+00	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Naphthalene	1.20E-01	3.06	3.92E+00	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Naphthalene	7.30E-02	2.24	3.26E+00	99	170	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Naphthalene	5.00E-02	2.45	2.04E+00	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Naphthalene	3.50E-02	J 1.77	1.98E+00	99	170	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Naphthalene	3.00E-02	2.55	1.18E+00	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Naphthalene	1.20E-02	J 1.49	8.05E-01	99	170	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2- 4	Nickel	2.26E+02	6.35	3.56E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Nickel	6.90E+01	3.24	2.13E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Nickel	3.80E+01	3.25	1.17E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Nickel	3.60E+01	3.06	1.18E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Nickel	3.40E+01	2.24	1.52E+03					
EPA SI	DR021	9/22/1998	2- 4	Nickel	3.30E+01	2.45	1.35E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Nickel	2.80E+01	J 2.96	9.46E+02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Nickel	2.80E+01	1.49	1.88E+03					
EPA SI	DR021	9/22/1998	0- 2	Nickel	2.70E+01	2.55	1.06E+03					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Nickel	2.60E+01	1.96	1.33E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Nickel	2.60E+01	J 2.02	1.29E+03					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Nickel	2.50E+01	1.62	1.54E+03					
Lehigh NW	C2	8/29/2003	0- 4	Nickel	2.30E+01	2.00	1.15E+03					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Nickel	2.30E+01	2.37	9.70E+02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Nickel	2.20E+01	1.5	1.47E+03					
Lehigh NW	C3	8/29/2003	3.8- 5	Nickel	2.10E+01	2.0	1.05E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Nickel	2.00E+01	1.76	1.14E+03					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Nickel	1.40E+01	1.77	7.91E+02					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Nickel	1.00E+01	0.963	1.04E+03					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2- 4	Nickel	7.00E+00	1.63	4.29E+02					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC20	2/15/2006	4- 6	OCDD	3.63E-02	2.22	1.64E+00					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	OCDD	8.22E-03	1.49	5.52E-01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	OCDD	6.09E-03	1.5	4.06E-01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8- 10	OCDD	4.53E-04	1.85	2.45E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4- 6	OCDF	1.35E-02	2.22	6.08E-01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	OCDF	1.41E-03	1.5	9.40E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	OCDF	1.05E-03	1.49	7.05E-02					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8- 10	OCDF	1.48E-04	1.85	8.00E-03					
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	PCBs (total calc'd)	9.80E+00	6.35	1.54E+02	NA	1,000	mg/kg DW	NA	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	PCBs (total calc'd)	5.40E+00	2.96	1.82E+02	12	65	mg/kg OC	15	2.8
EPA SI	DR021	9/22/1998	2- 4	PCBs (total calc'd)	4.00E+00	2.45	1.63E+02	12	65	mg/kg OC	14	2.5
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	PCBs (total calc'd)	3.40E+00	2.24	1.52E+02	12	65	mg/kg OC	13	2.3
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	PCBs (total calc'd)	3.20E+00	1.49	2.15E+02	12	65	mg/kg OC	18	3.3
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	4- 6	PCBs (total calc'd)	1.95E+00	2.19	8.90E+01	12	65	mg/kg OC	7.4	1.4
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	PCBs (total calc'd)	1.90E+00	3.24	5.86E+01	12	65	mg/kg OC	4.9	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	PCBs (total calc'd)	1.22E+00	3.06	3.99E+01	12	65	mg/kg OC	3.3	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	PCBs (total calc'd)	1.04E+00	3.25	3.20E+01	12	65	mg/kg OC	2.7	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	PCBs (total calc'd)	6.00E-01	1.5	4.00E+01	12	65	mg/kg OC	3.3	<1
EPA SI	DR021	9/22/1998	0- 2	PCBs (total calc'd)	5.20E-01	2.55	2.04E+01	12	65	mg/kg OC	1.7	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	PCBs (total calc'd)	5.10E-01	1.62	3.15E+01	12	65	mg/kg OC	2.6	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	4- 6	PCBs (total calc'd)	4.00E-01	2.22	1.80E+01	12	65	mg/kg OC	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	PCBs (total calc'd)	3.60E-01	2.37	1.52E+01	12	65	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	PCBs (total calc'd)	3.40E-01	J 1.96	1.73E+01	12	65	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	PCBs (total calc'd)	3.30E-01	J 2.02	1.63E+01	12	65	mg/kg OC	1.4	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	PCBs (total calc'd)	1.82E-01	1.77	1.03E+01	12	65	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	PCBs (total calc'd)	1.59E-01	2.00	7.95E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	8- 10	PCBs (total calc'd)	9.50E-02	1.85	5.14E+00	12	65	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	PCBs (total calc'd)	7.90E-02	2.0	3.95E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	PCBs (total calc'd)	1.96E-02	0.963	2.04E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	PCBs (total calc'd)	1.80E-02	J 1.76	1.02E+00	12	65	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Pentachlorophenol	1.50E-01	J 6.35		NA	690	mg/kg DW	NA	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Pentachlorophenol	1.20E-01	J 3.25	3.69E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Pentachlorophenol	1.20E-01	3.24	3.70E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Pentachlorophenol	6.40E-02	3.06	2.09E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Pentachlorophenol	5.00E-02	2.24	2.23E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Pentachlorophenol	4.30E-02	1.62	2.65E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Pentachlorophenol	2.80E-02	J 2.37	1.18E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Pentachlorophenol	2.40E-02	J 1.96	1.22E+00	360	690	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Phenanthrene	1.30E+01	6.35		1500	5400	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Phenanthrene	4.20E+00	3.24	1.30E+02	100	480	mg/kg OC	1.3	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Phenanthrene	1.20E+00	3.25	3.69E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Phenanthrene	5.90E-01	2.24	2.63E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Phenanthrene	5.60E-01	3.06	1.83E+01	100	480	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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 SI	DR021	9/22/1998	2- 4	Phenanthrene	4.80E-01	2.45	1.96E+01	100	480	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Phenanthrene	3.00E-01	2.55	1.18E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Phenanthrene	2.90E-01	1.77	1.64E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Phenanthrene	2.50E-01	2.96	8.45E+00	100	480	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Phenanthrene	2.30E-01	J 2.00	1.15E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Phenanthrene	2.00E-01	1.62	1.23E+01	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Phenanthrene	1.80E-01	2.37	7.59E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Phenanthrene	1.80E-01	2.02	8.91E+00	100	480	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Phenanthrene	1.50E-01	2.0	7.50E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Phenanthrene	1.30E-01	1.96	6.63E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Phenanthrene	8.80E-02	1.76	5.00E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Phenanthrene	6.60E-02	1.49	4.43E+00	100	480	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Phenanthrene	4.60E-02	J 1.5	3.07E+00	100	480	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Phenol	8.60E-02	2.00		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Phenol	6.90E-02	J 3.25		420	1200	ug/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Phenol	6.00E-02	2.0		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Phenol	5.70E-02	J 2.96		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Phenol	5.10E-02	J 1.62		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Phenol	3.80E-02	J 2.37		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Phenol	2.10E-02	2.02		420	1200	ug/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Pyrene	1.00E+01	2.24	4.46E+02	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6- 8.6	Pyrene	7.60E+00	3.24	2.35E+02	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2- 4	Pyrene	5.70E+00	6.35		2600	16000	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1- 2	Pyrene	3.70E+00	J 3.25	1.14E+02	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0- 2	Pyrene	3.40E+00	2.02	1.68E+02	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0- 1	Pyrene	2.40E+00	3.06	7.84E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0- 1	Pyrene	1.70E+00	1.77	9.60E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Pyrene	1.50E+00	2.45	6.12E+01	1000	1400	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0- 2	Pyrene	1.30E+00	2.55	5.10E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Pyrene	1.10E+00	2.96	3.72E+01	1000	1400	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0- 4	Pyrene	9.80E-01	2.00	4.90E+01	1000	1400	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8- 5	Pyrene	6.90E-01	2.0	3.45E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2- 4	Pyrene	6.90E-01	1.62	4.26E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0- 1	Pyrene	4.90E-01	2.37	2.07E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1- 2	Pyrene	4.70E-01	1.96	2.40E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8- 10	Pyrene	3.90E-01	1.76	2.22E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Pyrene	3.20E-01	1.49	2.15E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2- 4	Pyrene	1.60E-01	J 1.5	1.07E+01	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1- 2	Pyrene	7.60E-02	0.963	7.89E+00	1000	1400	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2- 4	Silver	4.50E+00	2.96		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4- 6	Silver	4.30E+00	2.24		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2- 4	Silver	2.60E+00	2.45		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0- 2	Silver	2.30E+00	1.49		6.1	6.1	mg/kg DW	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC17	2/23/2006	6 - 8.6	Silver	2.20E+00	3.24		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Silver	2.00E+00	6.35		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Silver	1.40E+00	3.25		6.1	6.1	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Silver	1.20E+00	2.00		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Silver	1.00E+00	3.06		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Silver	9.10E-01	2.55		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Silver	8.00E-01	1.62		6.1	6.1	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Silver	7.00E-01	2.0		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Silver	7.00E-01	2.02		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Silver	6.00E-01	1.5		6.1	6.1	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Silver	5.00E-01	1.76		6.1	6.1	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Thallium	1.10E-01	2.45	4.49E+00					
EPA SI	DR021	9/22/1998	2 - 4	Tin	2.20E+01	2.45	8.98E+02					
EPA SI	DR021	9/22/1998	0 - 2	Tin	1.10E+01	2.55	4.31E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Total HPAH (calc'd)	2.57E+01	3.24	7.93E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Total HPAH (calc'd)	2.20E+01	2.24	9.82E+02	960	5300	mg/kg OC	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Total HPAH (calc'd)	2.04E+01	J 6.35		12000	69000	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Total HPAH (calc'd)	1.90E+01	J 3.25	5.85E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Total HPAH (calc'd)	1.28E+01	3.06	4.18E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Total HPAH (calc'd)	1.18E+01	2.02	5.84E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Total HPAH (calc'd)	7.00E+00	1.77	3.95E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Total HPAH (calc'd)	6.50E+00	2.45	2.65E+02	960	5300	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Total HPAH (calc'd)	5.00E+00	2.55	1.96E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Total HPAH (calc'd)	4.20E+00	J 2.96	1.42E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Total HPAH (calc'd)	3.53E+00	1.62	2.18E+02	960	5300	mg/kg OC	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Total HPAH (calc'd)	3.50E+00	J 2.00	1.75E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Total HPAH (calc'd)	3.29E+00	2.37	1.39E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Total HPAH (calc'd)	2.73E+00	1.96	1.39E+02	960	5300	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Total HPAH (calc'd)	2.66E+00	2.0	1.33E+02	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Total HPAH (calc'd)	1.23E+00	J 1.76	6.99E+01	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Total HPAH (calc'd)	1.22E+00	J 1.49	8.19E+01	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Total HPAH (calc'd)	5.70E-01	J 1.5	3.80E+01	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Total HPAH (calc'd)	2.42E-01	J 0.963	2.51E+01	960	5300	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17 ^a	2/23/2006	2 - 4	Total LPAH (calc'd)	2.70E+01	J 6.35		5200	13000	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Total LPAH (calc'd)	9.80E+00	3.24	3.02E+02	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Total LPAH (calc'd)	3.80E+00	J 3.25	1.17E+02	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Total LPAH (calc'd)	1.86E+00	J 2.24	8.30E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Total LPAH (calc'd)	1.44E+00	3.06	4.71E+01	370	780	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	2 - 4	Total LPAH (calc'd)	9.50E-01	2.45	3.88E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Total LPAH (calc'd)	6.90E-01	2.96	2.33E+01	370	780	mg/kg OC	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Total LPAH (calc'd)	5.60E-01	2.55	2.20E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Total LPAH (calc'd)	5.60E-01	J 1.77	3.16E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Total LPAH (calc'd)	4.00E-01	J 2.02	1.98E+01	370	780	mg/kg OC	<1	<1

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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
Lehigh NW	C2	8/29/2003	0 - 4	Total LPAH (calc'd)	3.70E-01	J	2.00	1.85E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Total LPAH (calc'd)	3.10E-01	J	2.37	1.31E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Total LPAH (calc'd)	2.80E-01		1.62	1.73E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Total LPAH (calc'd)	2.75E-01	J	1.76	1.56E+01	370	780	mg/kg OC	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Total LPAH (calc'd)	2.20E-01		2.0	1.10E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Total LPAH (calc'd)	2.00E-01		1.96	1.02E+01	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Total LPAH (calc'd)	1.44E-01	J	1.49	9.66E+00	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Total LPAH (calc'd)	6.70E-02	J	1.5	4.47E+00	370	780	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Total PAH (calc'd)	4.80E+01	J	6.35	7.56E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Total PAH (calc'd)	3.55E+01		3.24	1.10E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Total PAH (calc'd)	2.30E+01	J	2.24	1.03E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Total PAH (calc'd)	2.28E+01	J	3.25	7.02E+02					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Total PAH (calc'd)	1.42E+01		3.06	4.64E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Total PAH (calc'd)	1.22E+01	J	2.02	6.04E+02					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Total PAH (calc'd)	7.60E+00	J	1.77	4.29E+02					
EPA SI	DR021	9/22/1998	2 - 4	Total PAH (calc'd)	7.40E+00		2.45	3.02E+02					
EPA SI	DR021	9/22/1998	0 - 2	Total PAH (calc'd)	5.60E+00		2.55	2.20E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Total PAH (calc'd)	4.90E+00	J	2.96	1.66E+02					
Lehigh NW	C2	8/29/2003	0 - 4	Total PAH (calc'd)	3.87E+00	J	2.00	1.94E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Total PAH (calc'd)	3.81E+00		1.62	2.35E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Total PAH (calc'd)	3.60E+00	J	2.37	1.52E+02					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Total PAH (calc'd)	2.93E+00		1.96	1.49E+02					
Lehigh NW	C3	8/29/2003	3.8 - 5	Total PAH (calc'd)	2.88E+00		2.0	1.44E+02					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Total PAH (calc'd)	1.50E+00	J	1.76	8.52E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Total PAH (calc'd)	1.36E+00	J	1.49	9.13E+01					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Total PAH (calc'd)	6.40E-01	J	1.5	4.27E+01					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Total PAH (calc'd)	2.42E-01	J	0.963	2.51E+01					
EPA SI	DR021	9/22/1998	0 - 2	Tributyltin as ion	2.80E-01		2.55	1.10E+01					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Tributyltin as ion	1.50E-01		1.62	9.26E+00					
EPA SI	DR021	9/22/1998	2 - 4	Tributyltin as ion	1.20E-01		2.45	4.90E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Tributyltin as ion	7.10E-02		1.96	3.62E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Tributyltin as ion	6.50E-02		2.37	2.74E+00					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	4 - 6	Tributyltin as ion	1.40E-02		2.19	6.39E-01					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Vanadium	2.23E+02		6.35	3.51E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Vanadium	1.12E+02		3.24	3.46E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Vanadium	9.51E+01		2.24	4.25E+03					
EPA SI	DR021	9/22/1998	2 - 4	Vanadium	9.20E+01		2.45	3.76E+03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Vanadium	8.69E+01		1.49	5.83E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Vanadium	8.43E+01		3.25	2.59E+03					
EPA SI	DR021	9/22/1998	0 - 2	Vanadium	8.40E+01		2.55	3.29E+03					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Vanadium	8.34E+01		1.62	5.15E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Vanadium	8.30E+01		3.06	2.71E+03					
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Vanadium	7.99E+01		1.5	5.33E+03					

Table A-2
Chemicals Detected in Subsurface Sediment Samples
RM 0.9-1.0 East (Slip 1)

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-SC16	2/13/2006	2 - 4	Vanadium	7.94E+01	2.96	2.68E+03					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Vanadium	7.64E+01	1.96	3.90E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Vanadium	7.57E+01	2.02	3.75E+03					
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Vanadium	7.30E+01	2.37	3.08E+03					
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Vanadium	6.39E+01	1.76	3.63E+03					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Vanadium	4.99E+01	1.77	2.82E+03					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Vanadium	4.47E+01	0.963	4.64E+03					
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2 - 4	Vanadium	3.87E+01	1.63	2.37E+03					
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	6 - 8.6	Zinc	4.55E+03	3.24		410	960	mg/kg DW	11	4.7
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	2 - 4	Zinc	3.84E+03	6.35		410	960	mg/kg DW	9.4	4.0
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	1 - 2	Zinc	2.05E+03	3.25		410	960	mg/kg DW	5.0	2.1
LDW RI Phase 2 Subsurface	LDW-SC17	2/23/2006	0 - 1	Zinc	1.26E+03	3.06		410	960	mg/kg DW	3.1	1.3
EPA SI	DR021	9/22/1998	2 - 4	Zinc	6.30E+02	2.45		410	960	mg/kg DW	1.5	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	2 - 4	Zinc	4.28E+02	2.96		410	960	mg/kg DW	1.0	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	2 - 4	Zinc	3.73E+02	1.62		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	0 - 2	Zinc	3.03E+02	2.02		410	960	mg/kg DW	<1	<1
EPA SI	DR021	9/22/1998	0 - 2	Zinc	3.00E+02	2.55		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	4 - 6	Zinc	2.40E+02	2.24		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	0 - 2	Zinc	1.73E+02	1.49		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	0 - 1	Zinc	1.65E+02	2.37		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC15	2/16/2006	1 - 2	Zinc	1.62E+02	1.96		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC16	2/13/2006	8 - 10	Zinc	1.37E+02	1.76		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC20	2/15/2006	2 - 4	Zinc	1.04E+02	1.5		410	960	mg/kg DW	<1	<1
Lehigh NW	C2	8/29/2003	0 - 4	Zinc	9.83E+01	2.00		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	0 - 1	Zinc	7.90E+01	1.77		410	960	mg/kg DW	<1	<1
Lehigh NW	C3	8/29/2003	3.8 - 5	Zinc	6.43E+01	2.0		410	960	mg/kg OC	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	1 - 2	Zinc	3.43E+01	0.963		410	960	mg/kg DW	<1	<1
LDW RI Phase 2 Subsurface	LDW-SC18	2/16/2006	2 - 4	Zinc	2.03E+01	1.63		410	960	mg/kg DW	<1	<1

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

NA - Not applicable
PAH - Polynuclear aromatic hydrocarbons
SVOC - Semivolatile organic compound
PCB - polychlorinated biphenyl

- Notes:**
- (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.
 - (2) Chemicals with exceedance factors greater than 1 are highlighted gray.
 - (3) Chemicals with exceedance factors greater than 10 are shown in **Bold**.
 - (4) Samples C2 and C3 from the Lehigh NW sampling event were dredged in 2004.

^a Due to the high TOC in this sample the results were compared to the Lowest Apparent Effects Threshold (LAET) value rather than the SQS and/or CSL (Ecology 1996). 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.

Appendix A-3
Chemicals Detected in Seep Samples,
RM 0.9-1.0 East (Slip 1)

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**Table A-3
Chemicals Detected in Seep Samples
RM 0.9-1.0 East (Slip 1)**

Source	Date Sampled	Sample Location	Chemical	Conc'n (ug/L)		Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	GW-to-Sediment Screening Level (Based on CSL) ^a	Exceedance Factor
Filtered Samples			Metals							
Windward 2004	6/29/2004	Seep 76	Arsenic	253		36	69	7.0	370	<1
Windward 2004	7/3/2004	Seep 75	Arsenic	2.20		36	69	<1	370	<1
Windward 2004	6/29/2004	Seep 76	Cadmium	0.091		9.3	42	<1	3.4	<1
Windward 2004	7/3/2004	Seep 75	Cadmium	0.021		9.3	42	<1	3.4	<1
Windward 2004	6/29/2004	Seep 76	Lead	3		8.1	210	<1	13	<1
Windward 2004	7/3/2004	Seep 75	Lead	0.056		8.1	210	<1	13	<1
Windward 2004	6/29/2004	Seep 76	Mercury	0.0153		1.8	0.025	<1	0.0074	2.1
Windward 2004	7/3/2004	Seep 75	Mercury	0.00077		1.8	0.025	<1	0.0074	<1
Windward 2004	6/29/2004	Seep 76	Nickel	2.37	J	8.2	74	<1	NA	
Windward 2004	7/3/2004	Seep 75	Nickel	1.42		8.2	74	<1	NA	
Windward 2004	7/3/2004	Seep 75	Silver	0.081		1.90	1.9	<1	1.5	<1
Windward 2004	6/29/2004	Seep 76	Silver	0.012		1.9	1.9	<1	1.5	<1
Windward 2004	6/29/2004	Seep 76	Zinc	138	J	81	90	1.7	76	1.8
Windward 2004	7/3/2004	Seep 75	Zinc	5.35		81	90	<1	76	<1
Unfiltered Samples			Metals							
Windward 2004	6/29/2004	Seep 76	Arsenic	287		36	69	8.0	370	<1
Windward 2004	7/3/2004	Seep 75	Arsenic	2.49		36	69	<1	370	<1
Windward 2004	6/29/2004	Seep 76	Cadmium	0.204		9.3	42	<1	3.4	<1
Windward 2004	7/3/2004	Seep 75	Cadmium	0.031	b	9.3	42	<1	3.4	<1
Windward 2004	6/29/2004	Seep 76	Copper	50.9		3.1	4.8	16	120	<1
Windward 2004	7/3/2004	Seep 75	Copper	8.43	J b	3.1	4.8	2.7	120	<1
Windward 2004	6/29/2004	Seep 76	Lead	56.4		8.1	210	7.0	13	4.3
Windward 2004	7/3/2004	Seep 75	Lead	0.650	b	8.1	210	<1	13	<1
Windward 2004	6/29/2004	Seep 76	Mercury	0.0616		1.8	0.025	<1	0.0074	8.3
Windward 2004	7/3/2004	Seep 75	Mercury	0.00171		1.8	0.025	<1	0.0074	<1
Windward 2004	6/29/2004	Seep 76	Nickel	3.79		8.2	74	<1	NA	
Windward 2004	7/3/2004	Seep 75	Nickel	3.48	b	8.2	74	<1	NA	
Windward 2004	6/29/2004	Seep 76	Silver	0.077		1.9	1.9	<1	1.5	<1
Windward 2004	7/3/2004	Seep 75	Silver	0.068	b	1.90	1.9	<1	1.5	<1
Windward 2004	6/29/2004	Seep 76	Zinc	309		81	90	3.8	76	4.1
Windward 2004	7/3/2004	Seep 75	Zinc	8.36	b	81	90	<1	76	<1

**Table A-3
Chemicals Detected in Seep Samples
RM 0.9-1.0 East (Slip 1)**

Source	Date Sampled	Sample Location	Chemical	Conc'n (ug/L)		Marine Chronic WQS	Marine Acute WQS	Chronic WQS Exceedance Factor	GW-to-Sediment Screening Level (Based on CSL) ^a	Exceedance Factor
Concentrations of DOC, TOC, and TSS				mg/L						
Windward 2004	6/29/2004	Seep 76	DOC	6.57	J					
Windward 2004	6/29/2004	Seep 76	TOC	7.78						
Windward 2004	7/3/2004	Seep 75	TOC	3.15	b					
Windward 2004	7/3/2004	Seep 75	TSS	24.3	b					
Windward 2004	6/29/2004	Seep 76	TSS	5.2						

WQS - Water Quality Standards, Nov 2006

CSL - Sediment Management Standards Cleanup Screening Level

NA - Not applicable

a - Groundwater to sediment screening level, based on sediment CSLs. From SAIC 2006

b - Results shown is average of one or more laboratory replicate analyses

J - Estimated concentration

Notes:

- (1) 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.
- (2) Chemicals with exceedance factors greater than 1 are highlighted gray.
- (3) Chemicals with exceedance factors greater than 10 are shown in **Bold**.

APPENDIX B

- B-1 Lower Duwamish Waterway, RM 0.9-1.0 East (Slip 1), Historical Aerial Photograph Review
- B-2 Aerial Photographs 1936-2004
- B-3 Shoreline Photographs 2004

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APPENDIX B-1
Lower Duwamish Waterway
RM 0.9-1.0 East (Slip 1)
Historical Aerial Photograph Review

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Appendix B

Lower Duwamish Waterway

RM 0.9-1.0 East (Slip 1)

Historical Aerial Photograph Review

In an effort to more thoroughly understand and evaluate historical facility operations and development in the RM 0.9-1.0 East (Slip 1) source control area, SAIC reviewed historical aerial photographs from 1936 to 2004. 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, 1977, 1990, 1999, and 2004 are described below.

1936

Slip 1 is already well defined and appears similar to the current size and shape. There is a floating pier or barge located along the eastern edge of the slip. A narrow dock extends at a northwestern angle from the southeast corner of the slip. Although it cannot be verified from the photo alone, it is possible that there is already a wharf constructed around the wetted edge of the slip as indicated by the straight, seemingly sharp edges of the slip and associated shadowing. A large building is present on the wharf along the north shore of Slip 1 (Building 1201).

The area north of Slip 1 (Federal Center South) was relatively undeveloped with the western side of the property remaining as floodplains and/or grassland. The eastern portion of the property has a large warehouse type building, assumed to be the Ford Motor Company Assembly Plant (Building 1201), and a smaller building to the south (Building 1206, the former Ford Oil House, currently housing the U.S. Department of the Interior [DOI] Bureau of Indian Affairs[BIA]).

Along the east side of the slip a building (currently referred to as Snopac) had already been constructed in its current day profile.

The property south of Slip 1 (currently referred to as the Manson property) appears to have been historically used as a lumber yard and associated storage for building materials as observed in the photo. The east shore of the LDW just south of Slip 1 was used as a temporary storage area for felled timber and might have been associated with the activity on the Manson property.

There appears to be relatively little use of the LDW for moorage or waterway use as the entire area is comparatively undeveloped and maintained in its natural state.

1946

This photograph documents the increased development taking place along the LDW. The initial stages of a large wharf construction (or reconstruction) project taking place along

the south side of Slip 1, adjacent to the northern edge of the Manson property, is visible. A small land mass, possibly fill, is located to the north of the construction wharf. The narrow dock extending out into the slip in a northwestern angle has been removed and it appears that a wider dock has been constructed over the east side of Slip 1, as indicated from increased distance between the Snopac building and associated shadowing. Several small boats or barges are stored in the southeastern corner of the slip, adjacent to the wider dock. The northern edge of the slip served as moorage for a large freighter-type boat.

The Federal Center South Property, underwent significant development. The area located to the west which was previously floodplains and/or grassland was developed into a large warehouse (currently identified as Building 1202). A long, narrow building (currently identified as building 1203) had been constructed to the west of the warehouse. A building located to the north of the Ford Assembly plant had been constructed and the northeast corner was developed into several smaller buildings with adjacent parking.

The Snopac property to the east of slip 1 underwent relatively little change with the exception of the aforementioned overwater dock development between the building and the slip.

The property located to the south (Manson) appears to be vacant and entirely related to the wharf construction process.

Both sides of the LDW shoreline, to the north of Slip 1, were observed having an increased amount of stored felled timber.

1956

The southern wharf construction project had been completed. There appears to be a ramp extending off the wharf out into the LDW which may have served to load/unload barges and/or ships. It seems that there was a shift in the function of the slip towards increased industrial-type use. Unidentifiable barges or boats are moored along the eastern and southern edge of the slip and the south east tip of the slip appears to be filled in or covered by a pier.

A second, long narrow building has been constructed south of building 1203, otherwise the Federal Center South parcel appears to be unchanged.

The Snopac facility remained unchanged apart from what could possibly be the development of a long narrow building along the west side.

The Manson property to the south of the slip appears to serve as a more industrial type storage lot for cargo and/or equipment. A building was constructed on the east side of the property.

Both sides of the LDW shoreline, to the north of Slip 1, continue to serve as storage for felled timber.

1969

What appears to be a narrow pier extending over half the length of the slip from roughly the middle of the east side in a westerly direction had been constructed. In addition, the north east corner of the slip appears to have undergone additional small boat slip and dock construction. A large barge is moored on the southern wharf as well as other miscellaneous barges and boats, including what appears to be a crane.

The Federal Center South facility underwent an expansion in the northwest corner which served as a parking area. A water tower was built in the southeast corner of the property.

The Snopac property underwent the construction of a building in the northwest corner of the property.

The Manson property remains unchanged; however, there is increased storage of industrial type equipment and material on the wharf, which extends out over the south side of Slip 1.

Both sides of the LDW shoreline, to the north of Slip 1, continue to serve as storage for felled timber.

1977

Slip 1 served as moorage for more large freighters and barges and the small boat dock had been removed from the northeast corner.

A square building located on the Federal Center South property, to the north of the former Ford Assembly plant, appears to be undergoing demolition. The water tower located in the south east corner had also been removed.

The building located in the northwest corner of the Snopac parcel has been removed.

Several small out buildings to the west of the initial building have been added at the Manson parcel.

Both sides of the LDW shoreline, to the north of Slip 1, continue to serve as storage for felled timber.

1990

A small dock located in the northeast corner was constructed paralleling the east edge of the slip.

The property to the north (Federal Center South) remained unchanged.

The dock on the east side of Slip 1 adjacent to the Snopac property appears to be in serious disrepair and/or stages of demolition and the lot seems to be vacant with no apparent activity taking place.

The Manson property remains unchanged; however, several more large barges and cranes are present along the south side of the slip.

The LDW appears to no longer serve as storage for felled timber and has undergone considerable development of the shoreline on both sides through the extent of the available photo.

1999

Little change has taken place within Slip 1.

At the Federal Center South facility, the southern-most long narrow building located west of the building 1202 has been removed. In addition, all buildings in the northeast corner were removed and serve as parking.

The building on the Snopac parcel appears to once again be occupied by an unknown type or business.

Activities at Manson parcel appear to remain the same.

The nature and extent of activities along the LDW appear to have attracted various large barges and ships which are moored on both sides of the river.

2004

Slip 1 remains dominated by barges that appear to be associated with Manson construction. The slip itself has undergone no significant changes.

At the Federal Center South no discernible changes have taken place.

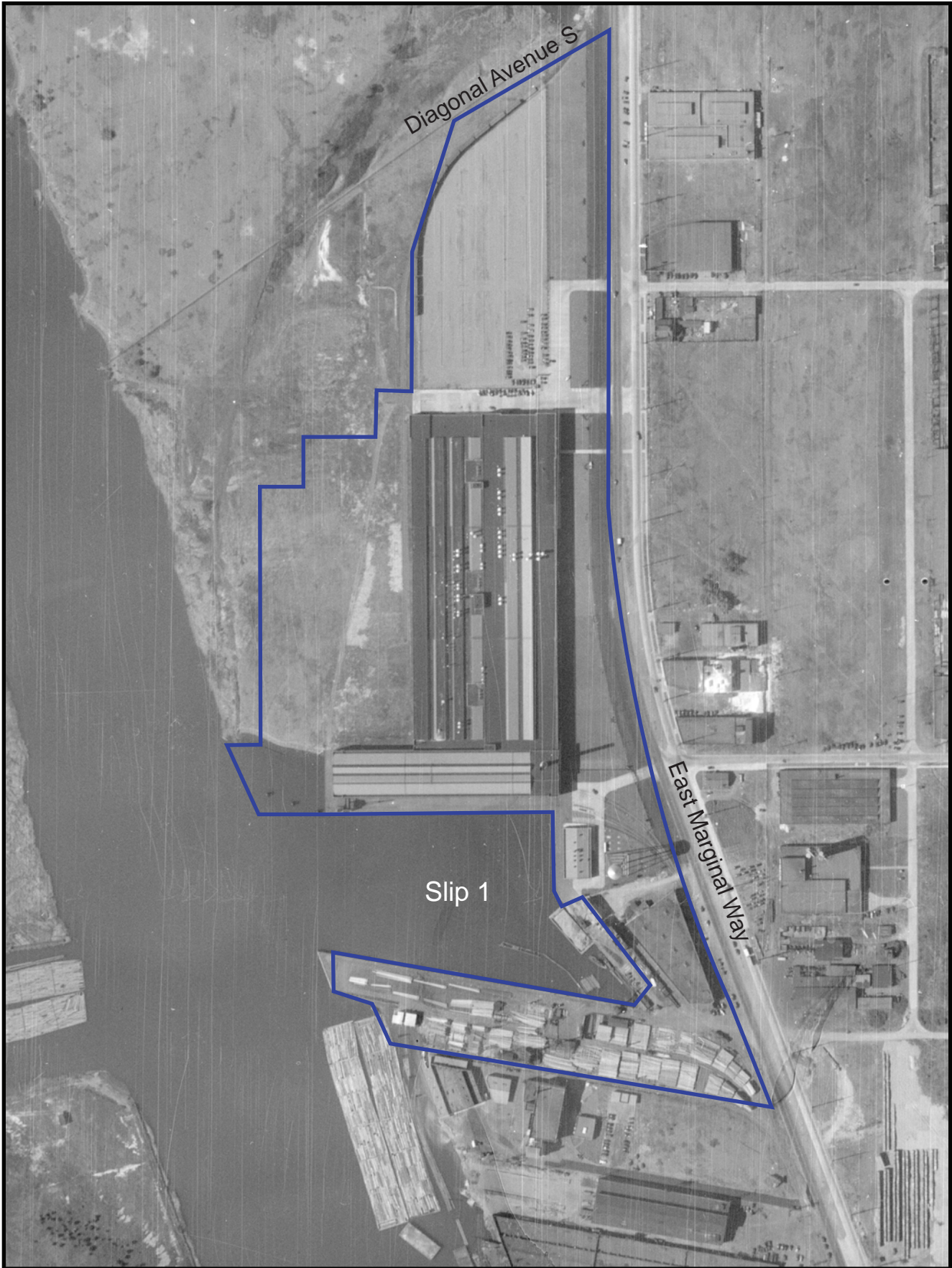
The dock to the west of the Snopac property still appears to be in disrepair and is likely unusable.

Activities at Manson appear to remain the same with the addition of more large barges moored within Slip 1.

Activities along the LDW continue to attract numerous large barges and ships.

APPENDIX B-2
Aerial Photographs 1936-2004

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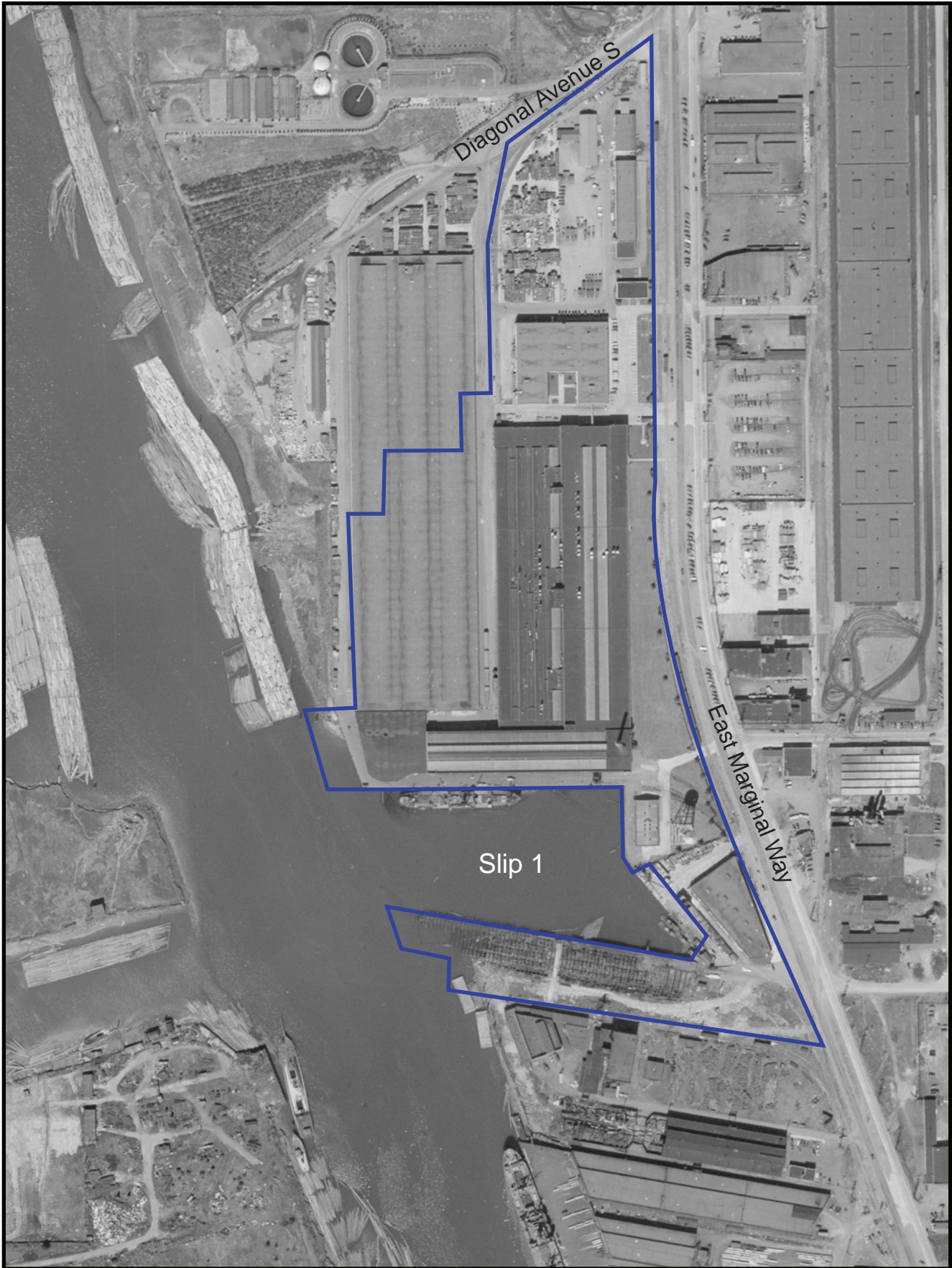



Source Control Area

Figure B-1. RM 0.9–1.0 East (Slip 1): 1936



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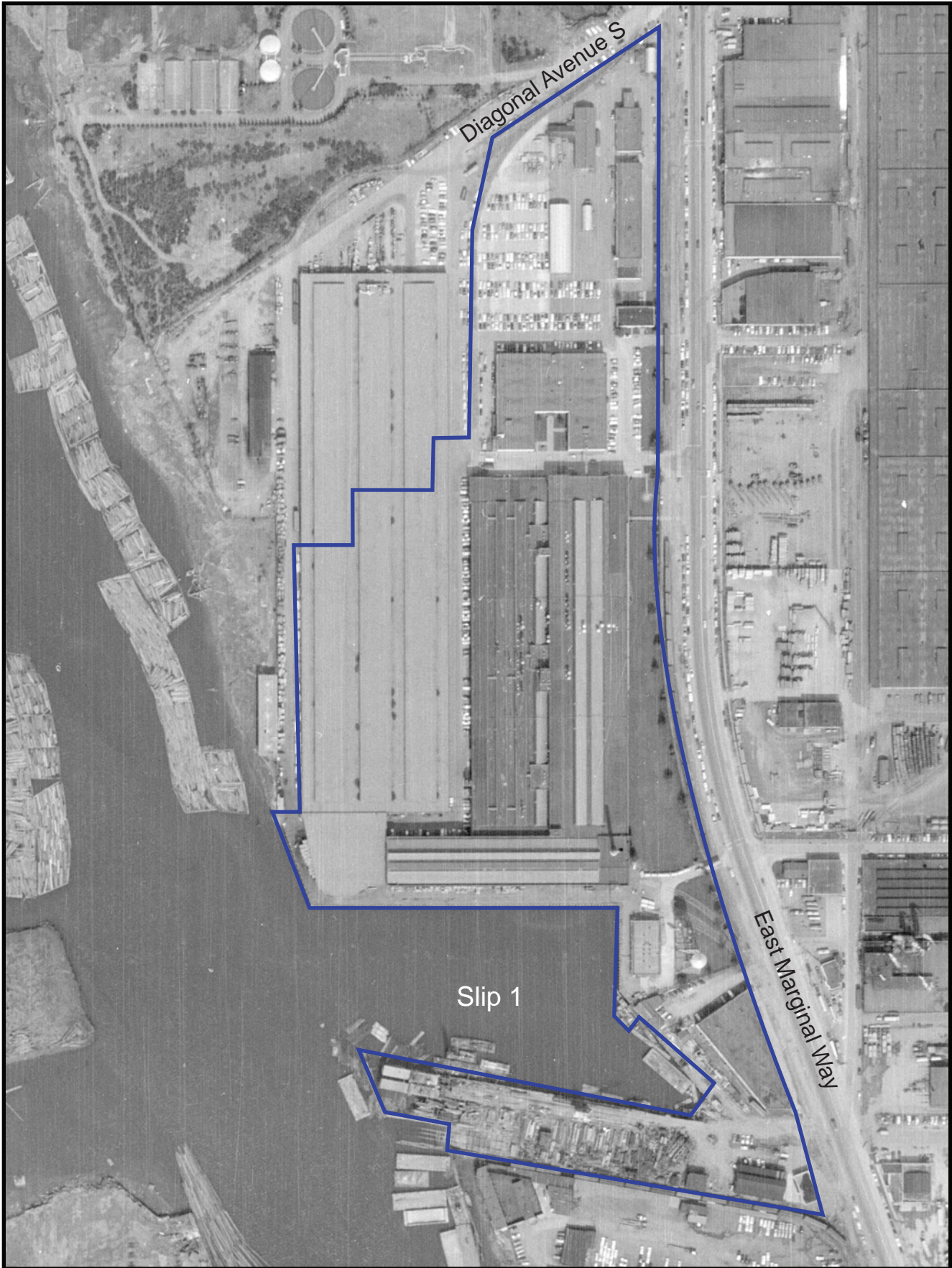



Source Control Area

Figure B-2. RM 0.9–1.0 East (Slip 1): 1946



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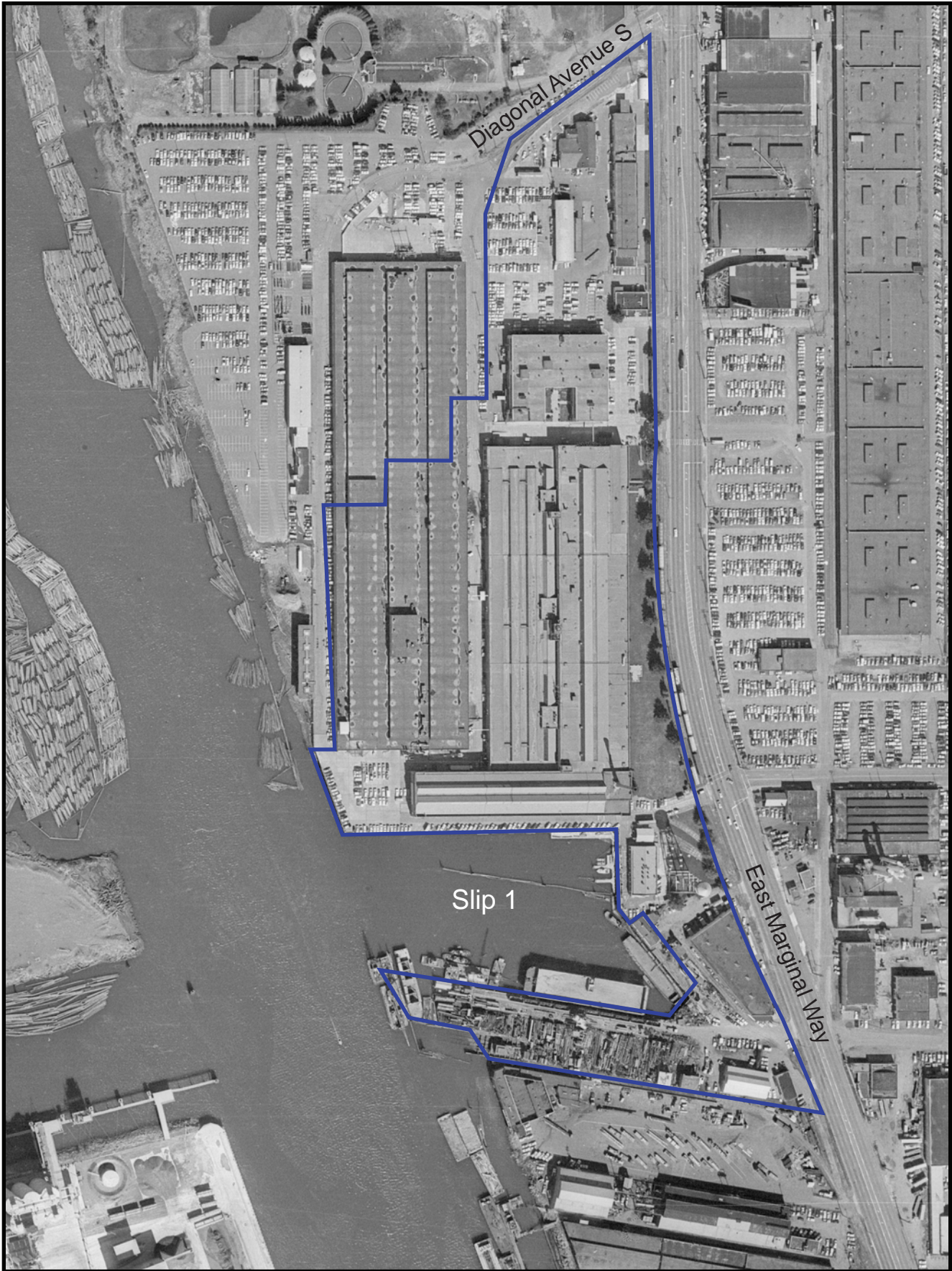



Source Control Area

Figure B-3. RM 0.9–1.0 East (Slip 1): 1956



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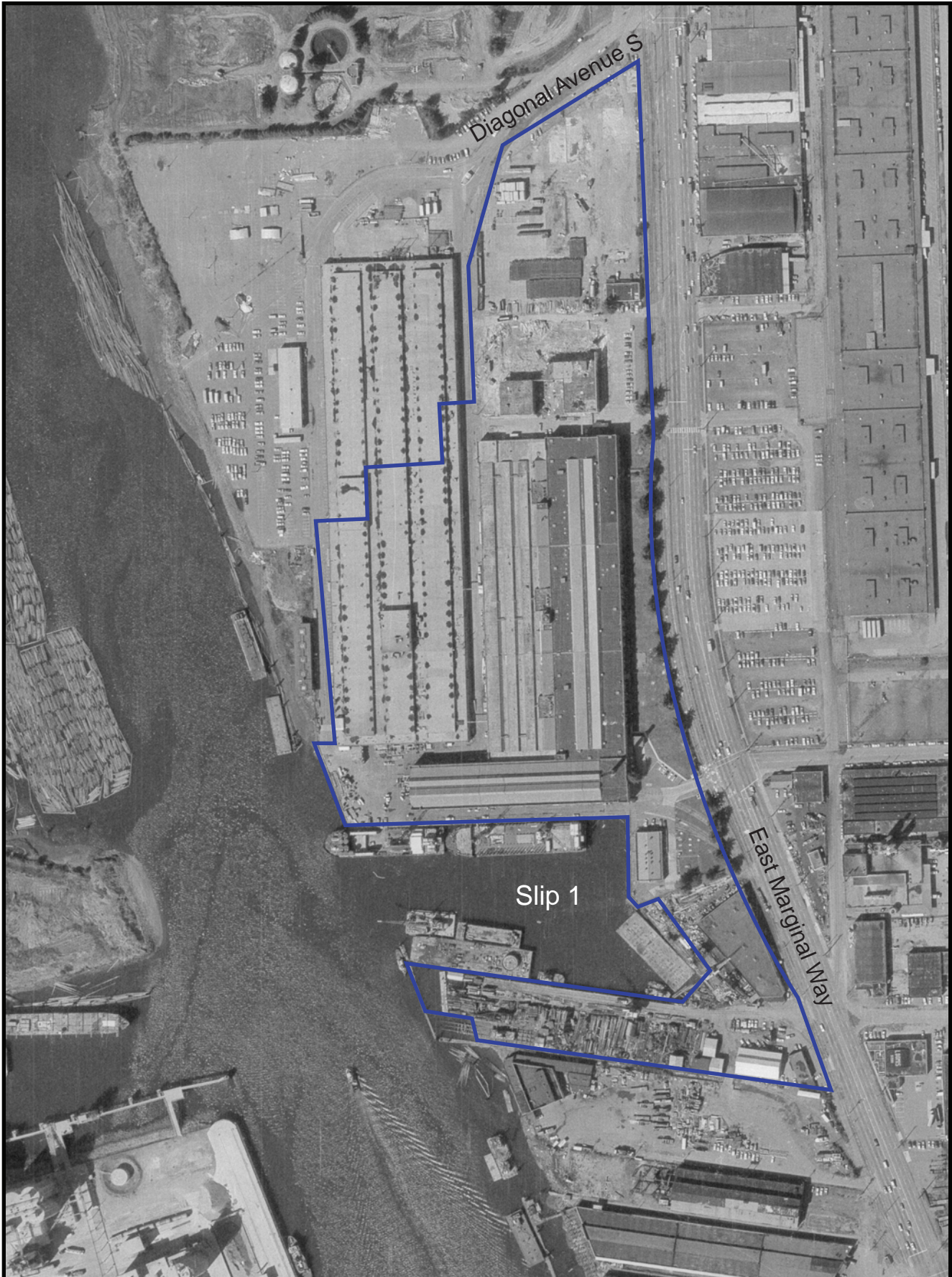



Source Control Area

Figure B-4. RM 0.9–1.0 East (Slip 1): 1969



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Source Control Area

Figure B-5. RM 0.9–1.0 East (Slip 1): 1977



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Source Control Area

Figure B-6. RM 0.9–1.0 East (Slip 1): 1990



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Source Control Area

Figure B-7. RM 0.9–1.0 East (Slip 1): 1999



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Source Control Area

Figure B-8. RM 0.9–1.0 East (Slip 1): 2004



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APPENDIX B-3
Shoreline Photographs 2004

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Figure B-9. RM 0.7–0.9 East (2004)

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Figure B-10. RM 0.8–1.1 East (2004)

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Figure B-11. RM 0.9–1.2 East (2004)

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APPENDIX C

- C-1 Chemicals Detected in Soil, Federal Center South
- C-2 Utility Map, Federal Center South (GSA 1976)

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APPENDIX C-1

**Table C-1: Chemicals Detected in Soil, Federal
Center South**

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**Table C-1
Chemicals Detected in Soil
Federal Center South**

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	Comment
Herrera 1999	May-98	T3-4		Diesel-Range Hydrocarbons	3,700	2,000		1.9	Tank T1-Excavation
Herrera 1999	May-98	T3-1		Diesel-Range Hydrocarbons	550	2,000		<1	Tank T1-Excavation
Herrera 1999	May-98	T3-2		Diesel-Range Hydrocarbons	98	2,000		<1	Tank T1-Excavation
Herrera 1999	May-98	T3-6		Diesel-Range Hydrocarbons	35	2,000		<1	Tank T1-Excavation
Herrera 1999	May-98	T3-4		Heavy Oil-Range Hydrocarbons	180	2,000		<1	Tank T1-Excavation
Herrera 1999	May-98	T3-1		Heavy Oil-Range Hydrocarbons	95	2,000		<1	Tank T1-Excavation
Herrera 1999	May-98	T2-1		Heavy Oil-Range Hydrocarbons	90	2,000		<1	Tank T6-Excavation
Herrera 1999	May-98	T3-12		Heavy Oil-Range Hydrocarbons	89	2,000		<1	Tank T1-Excavation
Herrera 1999	May-98	T2-2		Heavy Oil-Range Hydrocarbons	61	2,000		<1	Tank T6-Excavation
Herrera 1999	May-98	T3-2		Heavy Oil-Range Hydrocarbons	60	2,000		<1	Tank T1-Excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database

b - From: SAIC 2006.

DW - dry weight

CSL - Contaminant Screening Level from Washington Sediment Management Standards

NA - Not available

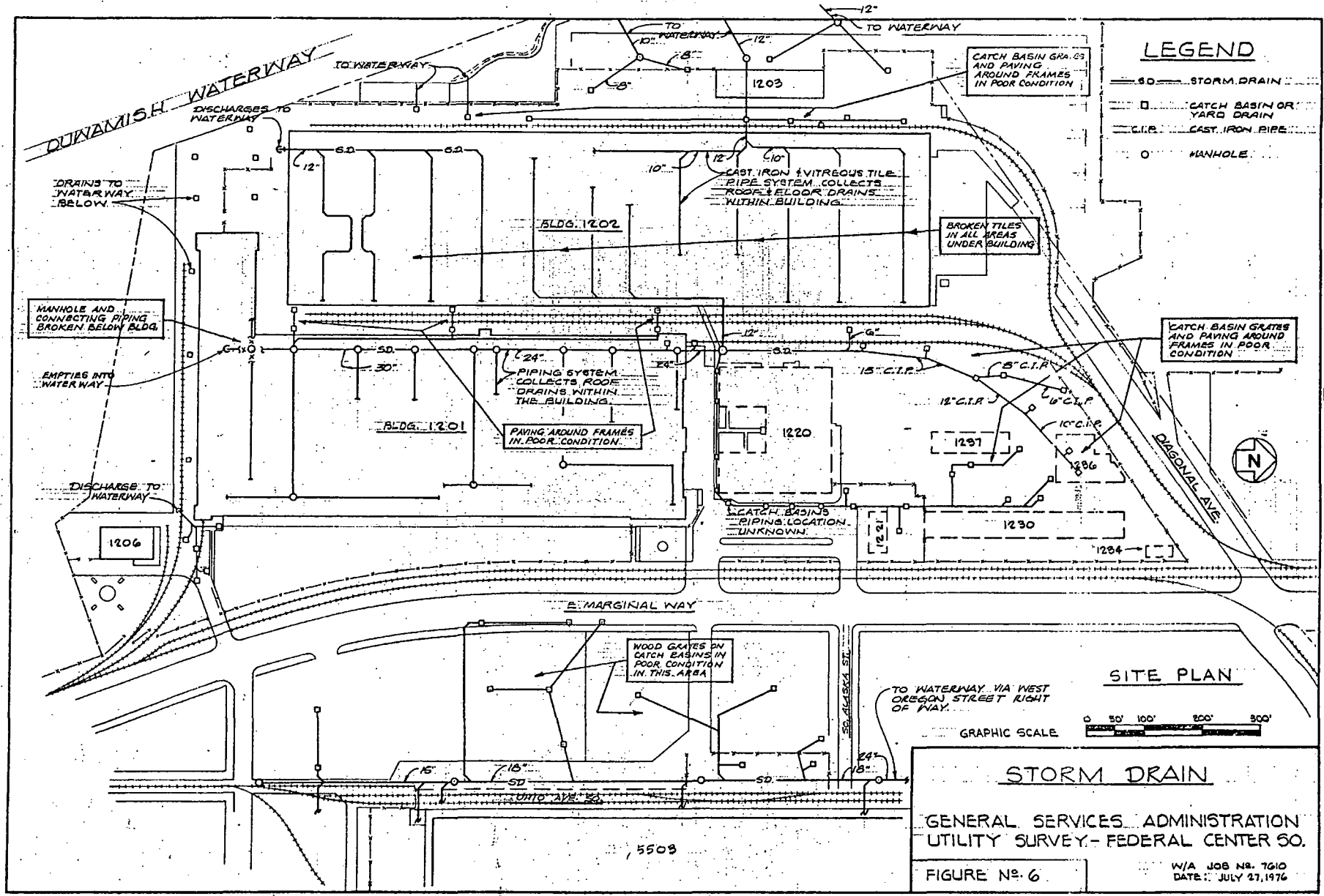
Notes:

- (1) Table presents detected chemicals only.
- (2) Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Value, whichever is lower.
- (3) Chemicals with exceedance factors greater than 1 are highlighted gray.
- (4) Chemicals with exceedance factors greater than 10 are shown in **Bold**.

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APPENDIX C-2
C-2 Utility Map, Federal Center South (GSA 1976)

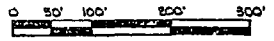
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LEGEND

- SD — STORM DRAIN
- CATCH BASIN OR YARD DRAIN
- C.I.P. — CAST IRON PIPE
- MANHOLE

SITE PLAN



STORM DRAIN

GENERAL SERVICES ADMINISTRATION
UTILITY SURVEY - FEDERAL CENTER 50.

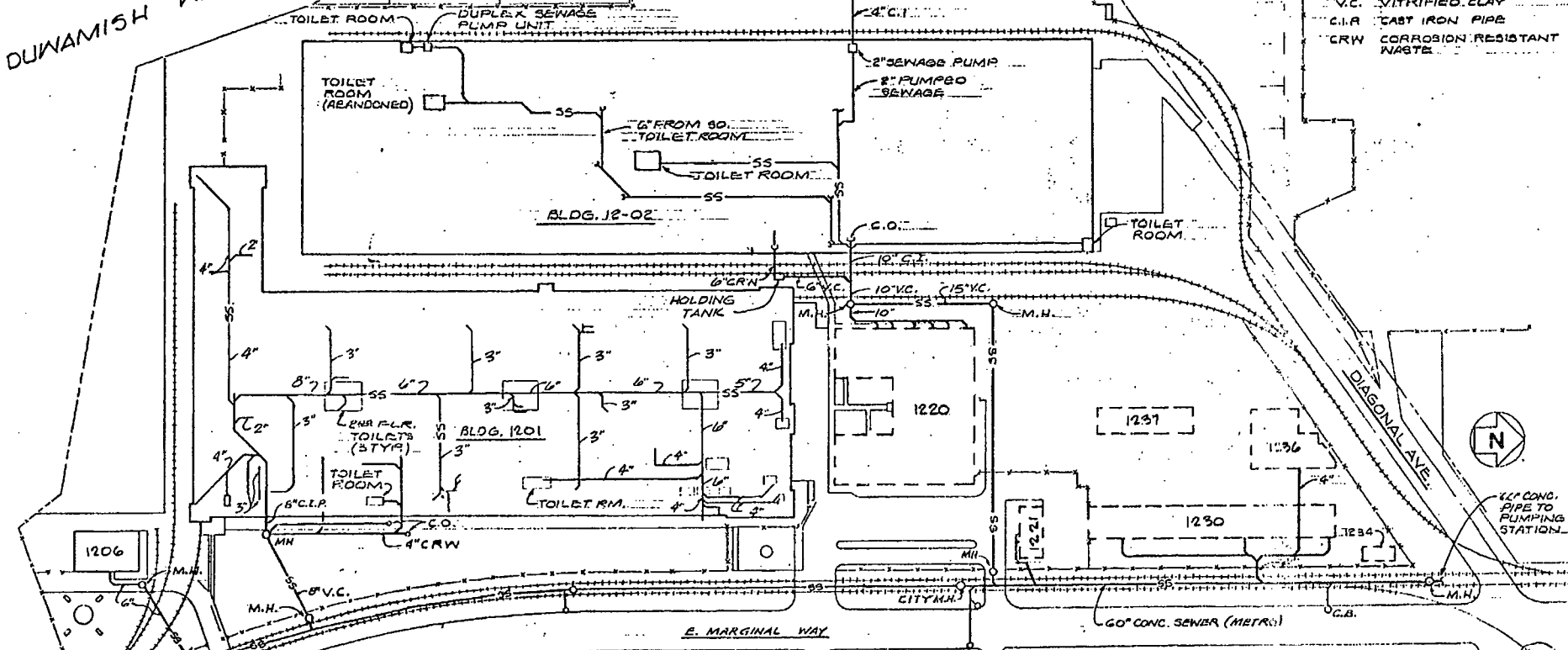
FIGURE NO. 6

W/A JOB NO. 7610
DATE: JULY 27, 1976

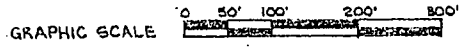
DUNAMISH WATERWAY

LEGEND

- SS— SANITARY SEWER
- C.O.— CLEAN OUT
- M.H. MAN HOLE
- V.C. VITRIFIED CLAY
- C.I.P. CAST IRON PIPE
- CRW CORROSION RESISTANT WASTE



SITE PLAN



SANITARY SEWER

GENERAL SERVICES ADMINISTRATION
UTILITY SURVEY - FEDERAL CENTER SO.

FIGURE NO. 8

W/A JOB NO. 7610
DATE: JULY 27, 1976

5505