

Phase I Report and Inline Sampling Results for the City of Portland Basin 16

Prepared for
City of Portland
Bureau of Environmental Services
Portland Harbor Program

June 2008

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Abbreviations and Acronyms

BEHP	bis(2-ethylhexyl)phthalate
BES	Bureau of Environmental Services
BMP	best management practice
BOM	Bureau of Maintenance
City	City of Portland
CSM	conceptual site model
DDT	4,4' dichlorodiphenyltrichloroethane
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EPA	U. S. Environmental Protection Agency
IGA	intergovernmental agreement
ISA	initial study area
JSCS	Joint Source Control Strategy
LUST	leaking underground storage tank
LWG	Lower Willamette Group
mg/L	milligram(s) per liter
NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCOI	potential contaminant of interest
RI/SCM	remedial investigation/ source control measure
SLV	screening level value
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbon(s)
UST	underground storage tank
WISCO	Willamette Iron and Steel Company

SECTION 1

Introduction

This report evaluates the drainage basin associated with the City of Portland (City) Outfall 16, located in Balch Creek Cove at River Mile 9.7. Outfall 16 is outside of the Portland Harbor Superfund Initial Study Area (ISA), but within the recently expanded Study Area (River Mile 2 to 11). This report was developed pursuant to the remedial investigation/source control measure (RI/SCM) intergovernmental agreement (IGA) between the Bureau of Environmental Services (BES) and the Oregon Department of Environmental Quality (DEQ). The IGA provides for a joint effort between the two public entities to evaluate and control potential upland sources of discharges to the City stormwater conveyance system that might adversely affect sediment and surface water quality in the Portland Harbor.

Development of a Phase I Report is the first step in evaluating sources within a drainage basin and assessing discharges from the outfall. The primary objective of a Phase I Report is to identify basin-specific potential contaminants of interest (PCOI) that are used to focus further source investigation activities. This report goes beyond the typical Phase I basin characterization, in that it also includes an evaluation of source control investigations and measures implemented in the basin.

This report presents the following information:

- A basin characterization, including basin background information, summaries of regulatory file reviews, and outfall setting information (Section 2)
- A conceptual site model (CSM) for Balch Creek Cove and evaluation of the in-river sediment data collected near the outfall to determine which constituents warrant source tracing investigation (Section 3)
- An evaluation of inline stormwater system investigation data for the basin to understand the types and spatial patterns of elevated constituents (Section 4)
- A summary of source control measures implemented by the City based on the inline stormwater system investigation data (Section 5)
- A conceptual model for the basin to identify a basin-specific PCOI list, a summary of the current understanding of past and current potential sources within the basin, and migration pathways (Section 5)
- Planned and proposed follow-up steps for source tracing (Section 6)

SECTION 2

Basin Background

The location of Basin 16 within the Portland Harbor expanded Study Area hydrologic boundary is shown in the inset in Figure 1. The hydrologic boundary represents the entire area that drains into the Willamette River within the bounds of the expanded Study Area. Figure 1 also depicts the approximate drainage basin delineation for Outfall 16.

2.1 Physical Description

2.1.1 Historical Basin Information

Outfall 16 was built in 1930 as a storm-only sewer. The outfall pipe is 36 inches in diameter and is located on the west side of the river in Balch Creek Cove. It originally provided street drainage for about 500 feet of NW Front Avenue, 800 feet of NW 26th Avenue, and 300 feet of NW Yeon Avenue. In 1948, the outfall was converted to a combined system; it continued to collect street drainage but also collected combined flows from some adjacent developed properties. A sanitary system was built along NW 26th Avenue and NW Front Avenue in 1970 and properties connected their wastewater to the sanitary system in the 1970s, thereby converting Outfall 16 back to a storm-only outfall.

The next expansion of the basin occurred in the 1980s. In 1984, additional street drainage for NW Front Avenue was constructed and in 1987 to 1988, the Oregon Department of Transportation significantly expanded the basin by building a storm system along NW Yeon Avenue (Highway 30) and the NW 26th Drive overpass. The final expansion was in 1995, as part of the remediation of the Guilds Lake site. Before 1995, the Guilds Lake area was served by dry wells. Many of the other properties along NW Yeon Avenue historically were served by dry wells and many continue to dispose of a portion of their site stormwater via onsite injection.

2.1.2 Current Basin Setting

All of Basin 16 is zoned for industrial land use, as shown in Figure 2. The stormwater drainage basin served by Outfall 16 is estimated to be approximately 66 acres, including about 6 acres of state highway right-of-way. Railroad right-of-way was not included during basin boundary delineation although some City records suggest that drainages from the rails were historically connected and still may drain to the City's system. Table 1 lists the facilities located in Basin 16.

Outfall 16 is located in the southern corner of Balch Creek Cove, which also receives discharges from several other outfalls including Outfall 17 that drains industrial areas west of Basin 16, outfall WR-235 associated with Port of Portland Terminal 2, and outfall WR-258 associated with City Fire Station 6. Three dock/berth structures located in the cove are associated with Sause Bros. Ocean Towing Co., Port of Portland Terminal 2, and Fire Station 6. Figure 1 shows the location of the cove, outfalls, and dock/berth structures.

2.2 Drainage Basin Information

Drainage basin information has been compiled from existing BES, DEQ, and U.S. Environmental Protection Agency (EPA) files and databases. The information included in the following tables has been compiled to help characterize properties discharging to Basin 16. In addition to sites within the basin, several sites were included in the tables that are adjacent to the outfall. This information helps provide an understanding of other sources that might affect river sediment quality in the Balch Creek Cove.

A list of the tables, along with a brief description, is provided below.

Table 1 summarizes the available information on facilities currently and recently located in Basin 16, including site drainage information, discharge permits, and business type. This table includes information primarily from the City's industrial database (Aquarius) that was created in mid-1990s as part of its Industrial Stormwater Program.

Table 2 shows available stormwater data maintained by BES for industrial facilities required to have a National Pollutant Discharge Elimination System (NPDES) permit to discharge to the Basin 16 stormwater conveyance system. BES maintains monitoring data for 1200- and 1300-series NPDES general stormwater permits.

Table 3 summarizes the Polk Directory information for available addresses within Basin 16 for each decade since 1940.

Table 4 lists basin facilities on EPA's Toxic Release Inventory, which records releases of chemicals to the environment, and the DEQ Hazardous Waste Generator list, which shows sites that generate hazardous materials.

Table 5 shows basin facilities on EPA's Treatment Storage Disposal list of sites that treat, store, or dispose of hazardous materials.

Table 6 lists the sites for which the DEQ has established environmental cleanup site information (ECSI) files and lists hazardous substance sites undergoing EPA investigations as contained in the Comprehensive Environmental Response, Compensation and Liability Information System. This list contains both active and inactive sites, including low to high priority sites. Summaries of available information in DEQ files for these sites are included in Appendix A.

Table 7 is DEQ's list of leaking underground storage tanks (LUST) for facilities in Basin 16. The list includes sites with active leaks and those that have been cleaned up to the satisfaction of DEQ in the past.

Table 8 is the Portland Fire Bureau's list of underground storage tanks (UST) registered with the City.

Table 9 is the State Fire Marshal's list of hazardous material incidents to which the fire department has responded.

Table 10 is the State Fire Marshal's list of hazardous substances that are used or stored at sites within Basin 16. This list may not be comprehensive because companies are not required to provide this information to the State Fire Marshal.

Table 11 is DEQ's list of ECSI sites that have been added to the Confirmed Release List.

The following databases were searched, but the databases did not identify any information for sites within Basin 16:

- DEQ's permitted USTs
- EPA Corrective Action List
- EPA Emergency Response Notification System List

SECTION 3

Evaluation of River Sediment

A conceptual model for potential sources and migration pathways to Balch Creek Cove is developed in Section 3.1. Section 3.2 presents a summary of the available in-river sediment data for the cove. The conceptual model serves as the basis for interpreting and evaluating the in-river data in Section 3.3.

3.1 Balch Creek Cove Conceptual Model

The purpose for evaluating potential sources and migration pathways to the cove is to determine whether concentrations adjacent to Outfall 16 are potentially representative of point source discharges from the outfall or from other outfalls in the cove, and/or non-point sources (e.g., overwater activities, overland flow, bank erosion and sediment redeposition). Potential sources considered in the evaluation include the following:

- Upland sources
- Overwater activities
- Upriver sources

These potential sources are linked to in-river sediment contamination by the following potential migration pathways:

- Discharges from outfalls
- Direct discharge of contaminated material from overwater activities
- Overland migration of contaminated media directly into the river or erosion of riverbank materials
- Redeposition of contaminated sediment from upriver

Direct discharge of contaminated groundwater also was considered as a potential migration pathway; however, no groundwater data are available for sites that bound the cove.

3.1.1 Outfall Discharges

Three outfalls in addition to Outfall 16 are located in the cove. Figure 1 shows the location of the outfalls.

Portland Fire Bureau outfall WR-258 is located approximately 250 feet northwest of Outfall 16 and conveys stormwater from the Fire Station 6 site. Vegetated swales were installed in 2005 to treat stormwater from the fire station roof and parking lot. No environmental concerns have prompted an investigation at this site.

Outfall 17 is located approximately 300 feet northwest of Outfall 16. Inline solids with elevated concentrations of polychlorinated biphenyls (PCB) and zinc have been identified in the Outfall Basin 17 stormwater conveyance system (BES, 2003). As a result of this investigation, DEQ initiated stormwater pathway evaluations at two upland sites within the basin: Galvanizers Company and the GE Inspection and Repair Service Center.

Outfall WR-235 is located approximately 750 feet northeast of Outfall 16 and is associated with Port of Portland Terminal 2 (ECSI #2769). The property has been used for industrial purposes since the late 1800s. An environmental site assessment and preliminary assessment have been conducted at the site. Diesel-range petroleum hydrocarbons were identified in soil near a fueling pad followed by a remedial excavation (15 tons). Limited investigation has been conducted at the site; the stormwater conveyance system and the stormwater pathway have not been evaluated. A summary of information on file with DEQ is included in Appendix A.

3.1.2 Overwater Activities

Three dock/berth structures associated with Port of Portland Terminal 2; Sause Bros. Ocean Towing Co., Inc.; and Portland Fire Station 6 are located in the cove (Figure 1).

Former Terminal 2 overwater activities included loading and unloading of treated lumber, plywood, pulp, and steel. Reported spills at Terminal 2 include releases of hydraulic oil, paints and thinners, and lube and diesel oil. The Willamette Iron and Steel Company (WISCO) occupied the Terminal 2 shipyard for an unknown period of time ending in 1949. WISCO operations included converting, maintaining, and repairing government ships. Based on studies of World War II-era shipyards, discharges of hazardous substances to the surface waters and sediments were likely to include metals, grease and oils, abrasives, solvents, cutting fluids, organic compounds, organotins, resins, fiberglass, cyanide, and used paints (LWG, 2007). Current overwater activities in the cove vary by Port lessee, but include vessel mooring.

Sause Bros. conducts towing and tugboat services from its berth structure located approximately 900 feet northwest of Outfall 16.

Portland Fire Station 6 includes docks and boat housing for two fireboats. Built in 1960, Fire Station 6 provides land and water emergency response services. The berth that accommodates the two fireboats is located approximately 250 feet from Outfall 16. Small volume fuel transfers between boats are conducted at the dock while all bulk fueling occurs off site.

3.1.3 Overland Flow and Bank Erosion

There are four properties adjacent to the cove, described as follows:

1. The southeast to northeast side of the cove (approximately 900 feet) is bordered by the Port of Portland Terminal 2. The riverbank adjacent to Outfall 16 is heavily vegetated; the remainder of the bank consists of docks and sloping riverbank with

partial vegetation and possible riprap. The riverbank material along Terminal 2 has not been investigated.

2. A small undeveloped site (3660 NW Front Avenue) is located about 80 feet west of Outfall 16 with about 100 feet of shoreline frontage. The site is unpaved and stormwater from this site discharges to the cove via sheet runoff. The shoreline is stabilized with riprap and is heavily vegetated.
3. Northwest of this undeveloped site is the Portland Fire Station 6 with about 140 feet of shoreline frontage. The shoreline is stabilized with riprap and heavily vegetated. The riverbank material along this property has not been investigated.
4. Sause Bros. owns the property abutting most of the northwest side of the cove with about 500 feet of shoreline. The shore is partial vegetation and riprap. The riverbank material along this property has not been investigated.

3.1.4 Redeposition of In-River Sediments

Balch Creek Cove is generally an area of sediment accumulation (GeoSea Consulting, 2001). Outfall 16 is at the very end of the cove and is likely an area of increased deposition. This would include solids being discharged by Outfall 16 but also redistribution of solids from upriver and from other sources within the cove.

3.1.5 Conceptual Model

Understanding that some of the sources and pathways described above are better characterized than others, a summary of potential sources and pathways important for evaluating whether sediment contamination adjacent to Outfall 16 is representative of Basin 16 discharges is presented below.

Point Source Discharges

- Outfall 17: Known significant sources of PCBs and metals have been identified in Basin 17.
- Non-City outfall WR-235: No stormwater data are available for the outfall or the associated drainage basin.
- Fire Bureau outfall WR-258: No stormwater data are available for the outfall. However, because on-site vegetated swales treat stormwater before discharge to the cove, this outfall and associated small non-industrial drainage basin are not expected to be sources of contaminants to Balch Creek Cove.

Non-point Sources

- Overwater activities: Historic overwater activities at Port of Portland Terminal 2 may be a source of contaminants (specifically metals and petroleum-related

constituents) to Balch Creek Cove. Although current overwater activities in the cove are a potential source of fuels and polycyclic aromatic hydrocarbons (PAH) that may impact the Outfall 16 area, it is unlikely these activities represent a significant source.

- Overland flow and bank erosion: No information is available to evaluate whether these two pathways represent significant sources to the cove. However, because the bank within the cove is generally stabilized with riprap and heavily vegetated, bank erosion and overland flow are likely insignificant.
- Sediment transport: Balch Creek Cove is sheltered from the Willamette River and is characterized by low flows and sediment deposition (LWG, 2007). Resuspension of sediment from upriver and other sources within the cove and deposition near Outfall 16 are likely.

Based on the number of potential sources to the Balch Creek Cove area and the location of Outfall 16, sediment concentrations could be strongly influenced by redistribution of sediment from other sources. Therefore, while the initial approach to evaluating PCOIs for Outfall 16 is to spatially evaluate where contaminant concentrations appear to be higher near the outfall, the likelihood of sediment redeposition within the cove complicates this evaluation.

3.2 Summary of In-River Sediment Data

In the Balch Creek Cove area, 16 sediment samples collected from 11 locations were identified in the Lower Willamette Group (LWG) database of Portland Harbor sediment data: one sample near Outfall 16, two samples near Outfall 17, four samples (one sampling location) in the center of the cove, five samples (four locations) on the upriver side of the cove adjacent to Port of Portland Terminal 2, and four samples upriver. These sediment analytical data are summarized in Table 12. Figure 3 displays the sample locations.

Several historical data sets are not included in the LWG database. Pre-May 1997 sediment data are not included because the flooding events of 1996/1997 may have redistributed sediment, rendering prior data non-representative of current conditions. The City of Portland collected sediment data adjacent to the Portland Fire Station 6 docks for the purpose of characterizing proposed maintenance dredging (CH2M HILL, August 2004). Approximately 0.4 acre was dredged and capped; this work was completed in January 2005. Because these sediments were removed from the cove, they are not included in the LWG database.

3.3 Data Interpretation

In-river sediment sample analytical results are compared to the Portland Harbor Joint Source Control Strategy (JSCS) toxicity and bioaccumulation screening level values (SLV) (DEQ/EPA; 2005, updated 2007).

For some metals, the DEQ Portland Harbor In-river Baseline concentrations (DEQ, 1999) are greater than the JSCS bioaccumulation SLVs. Because metals are naturally occurring, the DEQ In-River Baseline values may be indicative of natural conditions. Therefore, the baseline values for metals are used for comparison when they exceed the JSCS bioaccumulation SLVs. Baseline values are presented for non-metal contaminant constituents as a reference, but are not used in comparison screening.

For the sample location closest to Outfall 16, there are some exceedances of the JSCS toxicity SLVs. These include bis(2-ethylhexyl)phthalate (BEHP), two PAHs, and phenol. A discussion of all the data, by analyte group, is provided below.

Metals. None of the metals in the sample closest to Outfall 16 exceeds the JSCS toxicity SLVs. Arsenic and lead exceed the bioaccumulation SLVs and DEQ In-river Baseline values. Four metals appear to be higher near Outfall 16: arsenic, copper, lead, and zinc. The highest concentration of zinc was detected near Outfall 17; there is a confirmed source of zinc in Basin 17. Mercury concentrations exceed the bioaccumulation SLV in samples collected from the center of the cove, but not in the sample adjacent to Outfall 16.

Pesticides. Concentrations of 4,4'-DDT and its metabolites exceed the JSCS bioaccumulation SLV throughout the cove. The highest concentrations of total DDT were detected in two of the samples collected near the Terminal 2 dock. The concentration adjacent to Outfall 16 was one of the lowest values within the cove, indicating that the outfall it is not a significant DDT pathway.

PCBs. PCB levels near Outfall 16 were relatively low compared to the other sample locations within the cove; the highest concentrations of total PCBs were detected in the center of the cove and near the Terminal 2 dock. There is a confirmed source of PCBs in Basin 17 and PCB sediments deposited from this outfall could be redistributed within the cove, including near Outfall 16. Because PCBs are of area-specific and harbor-wide concern, sources of PCBs within Basin 16 should be evaluated.

Phthalates. The highest concentration of BEHP within the cove was detected near Outfall 16, above the JSCS toxicity SLV. The spatial pattern suggests potential sources of BEHP in Basin 16.

PAHs. PAHs were detected in all samples within the cove. The highest levels of PAHs were detected in subsurface samples collected in the center of the cove. Although levels of total PAHs near Outfall 16 were considerably lower, concentrations of benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene exceed the JSCS toxicity SLVs. Because PAHs are present in the cove and prevalent in industrial areas, sources of PAHs within Basin 16 should be evaluated.

Phenolic semivolatile organic compounds (SVOC). Only three of the sediment samples within the cove had detections of phenol. The highest concentration of phenol was detected near Outfall 16, but this sample was estimated and was likely close to the laboratory reporting limit, based on the elevated detection limits for all phenolic compounds for this sample. Because of the uncertainty of the value and the fact that phenol does not appear to

be affecting other areas of the cove, phenol is not a priority for source tracing activities. Phenol also was detected in two of the upriver samples at low concentrations.

The spatial distribution of sediment concentrations suggests that upland sources of metals (arsenic, copper, lead, and zinc) and phthalates (BEHP) may be present in Basin 16. Although spatial patterns do not indicate significant sources of PCBs and PAHs within the basin, these chemicals should also be considered for source tracing because of their common association with industrial activities and their potential risk impacts.

SECTION 4

Evaluation of Inline Stormwater System Investigation

EPA and the LWG have identified Balch Creek Cove as an area of potential concern, based on elevated PCBs, zinc, and phthalates (EPA, 2005), and on elevated PCBs alone (LWG, 2007). Based on the spatial distribution of sediment concentrations within the cove, upland sources of metals and phthalates may be present in Basin 16. However, because sediment data in the cove may be affected by other sources, evaluation of inline data is a critical component of PCOI development for the basin. The City collected dry-weather flow and inline solids data from various locations within the basin to determine basin-specific PCOIs and to evaluate whether spatial distributions of contaminants within the basin indicate locations of significant sources.

4.1 Conveyance System Configuration

The current stormwater conveyance system conveys runoff mostly from industrial facilities within Basin 16 (see Figure 1). From the outfall, a 48-inch-diameter pipe runs southeast on NW Front Avenue to manhole AAX408 (see Figure 4). At this location, two storm lines continue southeast on NW Front Avenue. These lines consist of an 8-inch-diameter line along the west side of the road and a 24-inch-diameter line in the center of the right-of-way. The center storm line receives stormwater from the right-of-way and several industrial properties while the west storm line receives stormwater from only industrial properties on the west side of NW Front Avenue.

Also at manhole AAX408, a 42-inch-diameter storm line connects from the southwest and conveys the bulk of the stormwater drainage in the basin. This line continues southwest, under the NW 26th Drive overpass, under the railroad right-of-way and up NW 26th Avenue to the intersection with NW Yeon Avenue. At this location, one 30-inch-diameter branch extends southeast along NW Yeon Avenue and another 30-inch branch continues southwest into the adjacent industrial area.

4.2 Investigation Overview

In 2002, the City sampled dry-weather flow in Outfall 16 and detected elevated arsenic in the sample. In November 2004, the LWG collected a surface water sample within the cove, which showed a slightly higher arsenic concentration [about 0.06 milligrams per liter (mg/L)] compared to other samples collected throughout the lower Willamette River (about 0.03-0.04 mg/L) (LWG, 2005). These results suggested a localized source of arsenic in the cove. Subsequent surface water samples collected by the LWG in March 2005 (high flow conditions) and July 2005 (low flow conditions) indicated lower concentrations in the cove and higher concentrations in some other locations of the river. Therefore, the November result may not be representative of long-term conditions in the cove (see LWG, 2006).

Additionally, the LWG Round 2 in-river sampling program showed elevated BEHP, PAHs, and phenol in a sediment sample collected adjacent to Outfall 16 (as discussed in Section 3). Based on these various data sets, the City collected and analyzed dry-weather flow and/or inline solids samples from Basin 16 in 2005 and 2007 to determine whether portions or subbasins of the City system contained elevated levels of contaminants and to identify potential contaminant sources. Sample locations are depicted on Figure 4.

In July and August 2005, the City sampled two of the three branches that discharge to manhole AAX408 and the main line downstream of this manhole. No dry-weather flow or inline solids were observed in the third branch. The dry-weather flow samples were analyzed for arsenic to identify potential sources for the elevated arsenic detected in the City's 2002 dry-weather flow sample collected in support of the municipal NPDES stormwater permit. The inline solids samples were analyzed for metals, PAHs, phthalates, pesticides, PCBs, total organic carbon, and total petroleum hydrocarbons (TPH).

In October 2005, the City conducted a video survey in a portion of the basin to determine areas of dry-weather flow and solids accumulation. The survey results indicate that groundwater infiltration is the source of dry-weather flow in the portion of the conveyance system downstream from manhole AMZ117.

In November 2005, the City collected additional dry-weather flow and inline solids samples to focus the investigation on the southwestern branch and to fill data gaps from the first phase of sampling. During this phase, the City collected seven dry-weather flow samples and eight inline solids samples. Because arsenic was elevated in dry-weather flow samples collected in August, the November dry-weather flow samples were analyzed for arsenic as well as other metals.

The November 2005 solids samples were analyzed for metals, PAHs, and phthalates. As discussed in the following subsections, PCBs were detected in the samples collected in July from one of the NW Front Avenue branches and not in the sample collected from the NW 26th Avenue branch that discharges to manhole AAX408. Therefore, samples collected in November from the NW Front Avenue branches upstream of manhole AAX408 also were analyzed for PCBs, and samples collected from the NW 26th Avenue and associated branches were not.

In July 2007, the City collected one inline solids sample from a branch that discharges to manhole AMZ116 where elevated arsenic was detected. This sample was analyzed for arsenic only.

Details of the 2005 and 2007 field investigations are provided in data summary reports included in Appendices B and C, respectively.

4.3 Investigation Results

The City collected 9 dry-weather flow samples and 12 inline solids samples in the Outfall 16 stormwater conveyance system at the locations shown in Figure 4. The analytical results and associated spatial patterns, if apparent, are discussed in the following sections by contaminant.

A key factor in evaluating the potential source of arsenic in the downstream end of the conveyance system is the correlation of observed groundwater infiltration and iron-oxide precipitate in storm lines and inline solids. This correlation explains and puts into context the elevated arsenic concentrations detected in dry-weather flow and solids samples from this portion of the system.

The dry-weather flow and inline solids analytical results are summarized in Tables 13 and 14, respectively, and are displayed in Figures 5a, 5b, and 6.

The analytical data for the dry-weather flow samples are compared to the JSCS SLVs for ecological receptors (DEQ/EPA, 2005, updated 2007). The data for the inline solids samples are compared to the JSCS SLVs for bioaccumulation and toxicity.

4.3.1 Metals

The investigation results indicate that metals (cadmium, copper, lead, mercury and zinc) were present in dry-weather flow in the Basin 16 stormwater conveyance system at concentrations that exceed JSCS SLVs for ecological receptors. Arsenic, cadmium, chromium copper, lead, mercury, nickel and/or zinc were detected at concentrations greater than JSCS SLVs in several solids samples.

One of the initial objectives of the source investigations was to determine whether a potential significant source of arsenic was located in the basin. The highest concentrations of arsenic in dry-weather flow were detected in samples collected at the most downstream end of the entire basin (manhole AAX405) and at the downstream end of the NW 26th Avenue branch; however, the detected concentrations are less than JSCS SLVs for ecological receptors. The highest arsenic concentrations in solids samples also were detected at the downstream end of the Basin 16 conveyance system (see Figure 5a). These high arsenic concentrations were detected in samples where reddish-brown iron-oxide precipitate was observed coating the storm lines and/or solids. As discussed in more detail in Appendix B, the iron-oxide precipitate coincides with observations of groundwater infiltration at the downstream end of the conveyance system and is the apparent source of the high arsenic concentrations.

With the exception of arsenic, metals concentrations in dry-weather flow decrease at the downstream end of the NW 26th Avenue branch and are below JSCS SLVs. The highest metals concentrations (except arsenic) in inline solids generally were detected in samples collected from the NW Front Avenue branches. Elevated concentrations of copper, lead, and zinc in the vicinity of the Front Avenue MP site suggest a potential source, though data

also indicate that metals likely are discharged from a variety of individual sources within the basin.

4.3.2 PAHs

PAH concentrations were low at all locations. Solids samples from the two eastern branch laterals under the NW 26th Drive overpass, discharging to manhole AMZ116 and draining the overpass and an area between the railroad right-of-way and Front Avenue MP site, contain the highest PAH concentrations.

4.3.3 Phthalates

BEHP and di-n-butyl phthalate were detected at concentrations greater than the JSCS toxicity SLV in several locations throughout the basin, but there is no distinguishable pattern suggesting a significant source. The concentrations are relatively low compared to catch basin data collected by DEQ at Portland Harbor upland sites for JSCS screening evaluations.

4.3.4 PCBs

PCB Aroclor 1260 was detected in two of the inline solids samples collected in July 2005 at concentrations less than the JSCS toxicity SLV. These samples were collected from the 8-inch-diameter line on NW Front, downstream of the Front Avenue MP lateral connection, and in the main line, downstream of manhole AAX408. Because PCBs were not detected in the 8-inch line at a location above the lateral connection from the Front Avenue MP site, the site may have been an historic and/or current source of PCBs to this branch. PCBs were not detected in the 24-inch diameter NW Front Avenue branch or in the sample collected from the downstream end of the NW 26th Avenue branch.

SECTION 5

Basin 16 Conceptual Site Model

Based on the investigation results discussed in the previous section, the City completed several source control measures within the basin. In 2006, BES cleaned out solids from the 8-inch-diameter line in NW Front Avenue, adjacent to the Front Avenue MP site. These solids may have represented legacy contaminants from the site that has since been removed (see the Front Avenue MP site summary in Appendix A). Additionally, in response to the PAH detections in the two samples collected from laterals draining areas under the NW 26th Drive overpass, the BES Industrial Stormwater program provided technical assistance to the City Bureau of Maintenance (BOM) to identify and implement best management practices (BMP) in early 2008 at a nearby storage yard (refer to Appendix B). Historic equipment washing practices by an adjacent company have been terminated and the BOM installed catch basin filters in the event that stormwater runoff from areas in the vicinity of the overpass discharges to the catch basins in the yard.

The Programmatic Source Control Remedial Investigation Work Plan (CH2M HILL, March 2004) describes the weight-of-evidence approach used during the site characterization process to evaluate the potential for discharges to the City stormwater conveyance system to contribute to Willamette River sediment contamination within the ISA. Based on the preceding evaluation of in-river and inline data for Basin 16, this section identifies the basin-specific PCOI list for future source investigation and identifies potential sources and pathways for these PCOI.

5.1 Basin 16 PCOI List

Two lines of evidence (in-river and inline data) were used to develop the PCOI list for Basin 16, with the understanding that the likelihood of sediment redeposition within the Balch Creek Cove complicates the in-river PCOI evaluation.

The spatial distribution of in-river sediment concentrations suggests that there may be upland sources of the following constituents in Basin 16:

- Metals (arsenic, copper, lead, and zinc)
- BEHP

PCBs and PAHs were also considered in the development of PCOIs as concentrations were elevated in cove sediments.

While inline data were collected from locations throughout Basin 16, the most downstream stormwater solids samples likely have the highest potential to discharge contaminants to the river. The following constituents were detected at concentrations above the JSCS SLVs in the most downstream solids samples collected from each of the major branches:

- Metals (arsenic, copper, cadmium, lead, mercury, nickel, and zinc)
- PCBs
- BEHP and dibutyl phthalate (also called di-n-butyl phthalate)

The following subsections evaluate each analyte group to develop a PCOI list for future source investigation and control within the basin.

5.1.1 Metals

Of those sediment samples collected in the cove, the highest concentrations of arsenic, copper, and zinc were detected in the sample closest to Outfall 16. Lead was detected in this sample but at a similar concentration as detected in other in-river sediment samples in the cove.

The arsenic concentrations detected in in-river sediment samples are low (only one sample had a detection slightly greater than the JSCS bioaccumulation SLV) and neither EPA nor LWG has identified arsenic as a PCOI in the cove. Additionally, the presence of high arsenic in solids at the downstream end of the conveyance system is associated with iron-oxide that precipitates out of infiltrating groundwater and not with stormwater discharges to the system (see Appendix B). Therefore, additional source tracing and/or implementation of source control measures for arsenic are not warranted and arsenic is not included in the PCOI list. Further investigation of groundwater in this area may be needed once sediment remediation goals are established.

Copper, lead, and zinc are retained as PCOI. Although cadmium, mercury and nickel concentrations were elevated in inline samples, the in-river sediments closest to the outfall did not show concentrations above JSCS SLVs, indicating low impacts to sediment. Therefore, cadmium, mercury and nickel are not included in the Basin 16 PCOI list.

5.1.2 PCBs

Because PCBs are elevated above JSCS SLVs in river sediments and are a contaminant of concern for both EPA and LWG in Balch Creek Cove, PCBs are included in the Basin 16 PCOI list.

5.1.3 Phthalates

BEHP was identified as elevated in the in-river sediment sample, but was significantly lower in inline samples closest to Outfall 16, suggesting another source to the cove. However, because the BEHP concentration was highest in the in-river sediment sample collected near the outfall, BEHP is included in the Basin 16 PCOI list. Dibutyl phthalates were elevated slightly in inline samples; however, the river sediment samples did not have concentrations above JSCS SLVs, indicating low impacts to sediment. Therefore, dibutyl phthalates are not included in the Basin 16 PCOI list.

5.1.4 PAHs

PAHs were not detected in the inline solids sample closest to the river and were low in the next upstream solids samples. Although in-river PAHs were slightly elevated adjacent to the outfall, other sources within the cove could be affecting sediment in this area. The lateral with the highest inline PAH concentrations collects runoff from the nearby BOM storage yard. Because BMPs have been implemented in this area, PAHs are not included in the Basin PCOI list.

To summarize, the Basin 16 PCOI list for further source investigation includes:

- Metals (copper, lead and zinc)
- PCBs
- BEHP

As new information becomes available, this PCOI list may be updated to include additional constituents, as needed. For any additional source control efforts undertaken by the City or DEQ, other analytes detected in the inline solids samples that exceeded SLVs will also be included when considering appropriate BMPs to be implemented.

5.2 Potential Sources and Pathways

This section explores potential sources and pathways of the Basin 16 PCOIs. Tables 1 through 11 and Appendix A summarize information compiled from BES, DEQ, and EPA files and databases for sites within the basin. Based on the data collected for this investigation, potential sources of Basin 16 PCOIs are summarized as follows:

Copper, lead and zinc. The highest concentrations of these metals were detected in solids from the two NW Front Avenue branches, in the vicinity of the Front Avenue MP site. Subsurface investigations conducted at the Front Avenue MP site indicated the presence of metals in soil (refer to Appendix A for a more detailed discussion of site investigations). McCracken Motor Freight (3147 NW Front) discharges stormwater to the main NW Front Avenue branch under an NPDES permit (see Table 2). Discharges from this site have met permit benchmarks in recent years for copper, lead, and zinc; however, the total suspended solid limit has been exceeded. Also, the permit benchmarks for metals exceed JSCS stormwater SLVs.

Although copper, lead, and zinc concentrations in dry-weather flow indicate a pathway and potential source in the NW 26th Avenue branch, concentrations at the downstream end of the branch were below SLVs. Based on the low flow volumes and concentrations closest to the river, dry-weather flow (mainly consisting of infiltrating groundwater) does not appear to be a significant pathway to the river.

PCBs. PCBs were detected in inline solids collected from locations downgradient of the lateral connection from the Front Avenue MP site. PCBs also were identified in subsurface soil at the site.

BEHP. There is no distinguishable pattern for the BEHP detections that suggests a significant source.

DEQ issued a No Further Action determination for the Front Ave MP site in May 2004. Currently, the site is covered with pavement and one building, reducing the likelihood of contaminated solids discharging into the City storm lines. Contaminated solids were documented in a catch basin at the site during the site investigation phase, and the onsite catch basin and storm line were cleaned out as part of site remediation activities. As discussed in Section 4.4, following the inline source investigation the City cleaned out solids from the 8-inch-diameter line adjacent to this site. Based on these source control activities, the site is not an apparent ongoing source of metals and PCBs to the City's stormwater conveyance system.

Other than the Front Avenue MP site, data collected for this investigation do not indicate that significant sources are present in Basin 16. As additional analytical data are collected in the basin, the City will review this information to help identify sites that are potential contaminant sources, as appropriate.

SECTION 6

Conclusions and Next Steps

The final Basin 16 PCOI list, developed from the initial PCOI list, the CSM for Basin 16, and the inline stormwater system investigation is summarized below:

- Metals (copper, lead and zinc)
- PCBs
- BEHP

PAHs were also detected in inline samples with the highest concentrations in the lateral that collects runoff from a BOM storage yard. However, PAHs are not included in the list because the detected concentrations were low and the BMPs implemented at the BOM storage yard will control the potential source of PAHs to the conveyance system.

Copper, lead and zinc were detected at concentrations generally less than SLVs in dry-weather flow samples collected from the NW 26th Avenue branch (upstream of manhole AMZ117) and associated upstream branches. Very low volumes of dry-weather flow were observed in these areas. Because concentrations of these metals closest to the river also are less than SLVs and discharge volumes are low, additional source tracing for metals in dry-weather flow does not appear warranted.

The Front Avenue MP site was identified as a potential source of metals and PCBs in inline solids. The site was remediated in 2003 and 2004 and does not appear to represent a current contaminant source. On-site catch basin and line cleanout activities in 2004 and cleanout of the adjacent City's storm line in 2006 likely resulted in the removal of legacy contaminants discharged from this site.

Other than the Front Avenue MP site, there is no distinguishable pattern suggesting a significant source of metals in other areas of the basin. Additionally, a significant source of BEHP is not apparent. The data indicate that metals and BEHP are likely discharged from a variety of individual sources within the basin.

Because very limited PCB data were collected during the City's 2005 inline stormwater system investigation, identifying spatial patterns or sources for PCBs is deferred until more data are available. Upland PCB data (in addition to other constituents) will be available from additional City source control investigations, DEQ upland site stormwater pathway evaluations and site discovery efforts, an inline solids data set collected in 2007 by General Electric in Basins 16 and 17 (AMEC, 2008), and the LWG Round 3A stormwater and stormwater solids sampling conducted in the basin. These data will be used to refine the CSM for Basin 16 and to identify potential contaminant sources of metals, PCBs and BEHP.

SECTION 7

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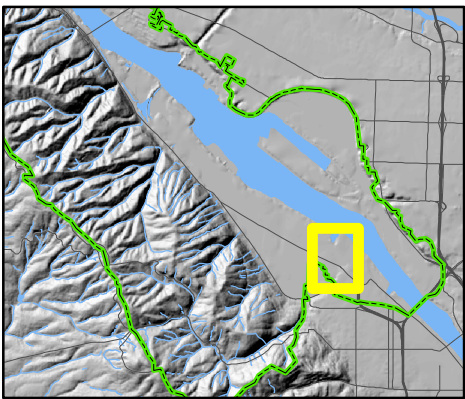
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LWG. 2007. *Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report*. Prepared for the Lower Willamette Group. Prepared by Integral Consulting Inc. Woodward Environmental LLC Kennedy/Jenks Consultants Anchor Environmental L.L.C. February 2007.

Figures



Legend

- | | | | |
|--|---------------|--|---------------------------------|
| | City Outfalls | | Non-City Outfalls |
| | Storm Inlets | | DEQ Environmental Cleanup Sites |
| | Storm Pipe | | Industrial Stormwater Permits |
| | Combined Pipe | | Basin 16 Boundary |
| | Manhole | | Hydrologic Boundary |
| | Tax Lots | | |

Figure 1
Basin 16
Overview

0 80 160 320 Feet

Source: City of Portland BES

Aerial photo 2006

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Sheet No: 1 OF 1

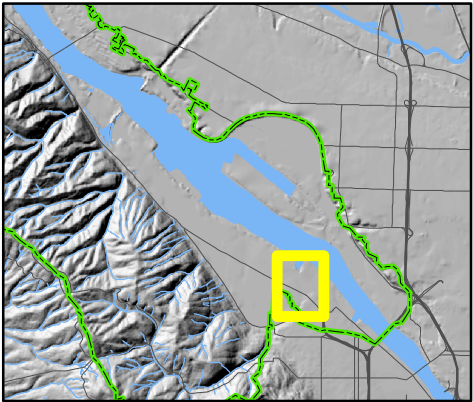


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Portland Harbor Superfund

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Prepared by: Sara Gardner

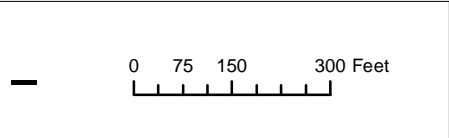


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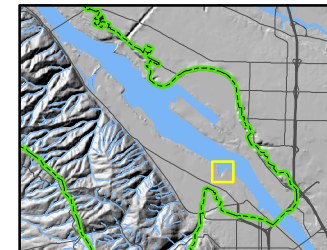
- City Outfalls
- Storm Inlets
- Storm Pipe
- Combined Pipe
- Manhole
- Tax Lots
- Non-City Outfalls
- DEQ Environmental Cleanup Sites
- Industrial Stormwater Permits
- Basin 16 Boundary
- Zoned as Industrial Use
- Hydrologic Boundary

Tax Lot (RNO) Numbers Listed on Map

Figure 2
Basin 16
Land Use and Tax Lot Numbers



Source:	City of Portland BES	ENVIRONMENTAL SERVICES CITY OF PORTLAND 1235 SW 7TH AVENUE, ROOM 1000 PORTLAND, OREGON 97204-3912
File Name:	s:\gis\outfalls\outfalls_16 New_phase1\of16_figure2_final.mxd	Program Manager: Dawn Sanders Portland Harbor Superfund
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Legend

- Storm Pipe
- Storm Inlets
- Manhole
- Basin 16 Boundary
- DEQ Environmental Cleanup Sites
- Industrial Stormwater Permits
- Non-City Outfalls
- City Outfalls
- Sediment Sampling Location
- Hydrologic Boundary

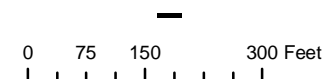


Figure 3
Basin 16
In-River Sediment
Sample Locations

Source: City of Portland BES
Aerial photo 2006

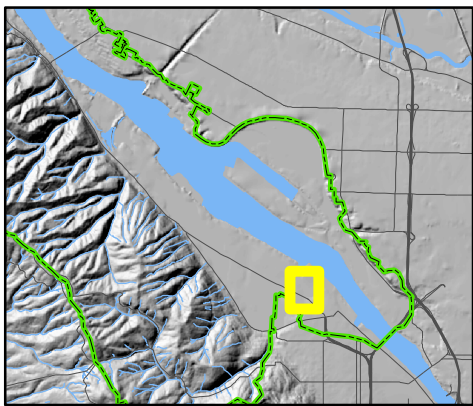
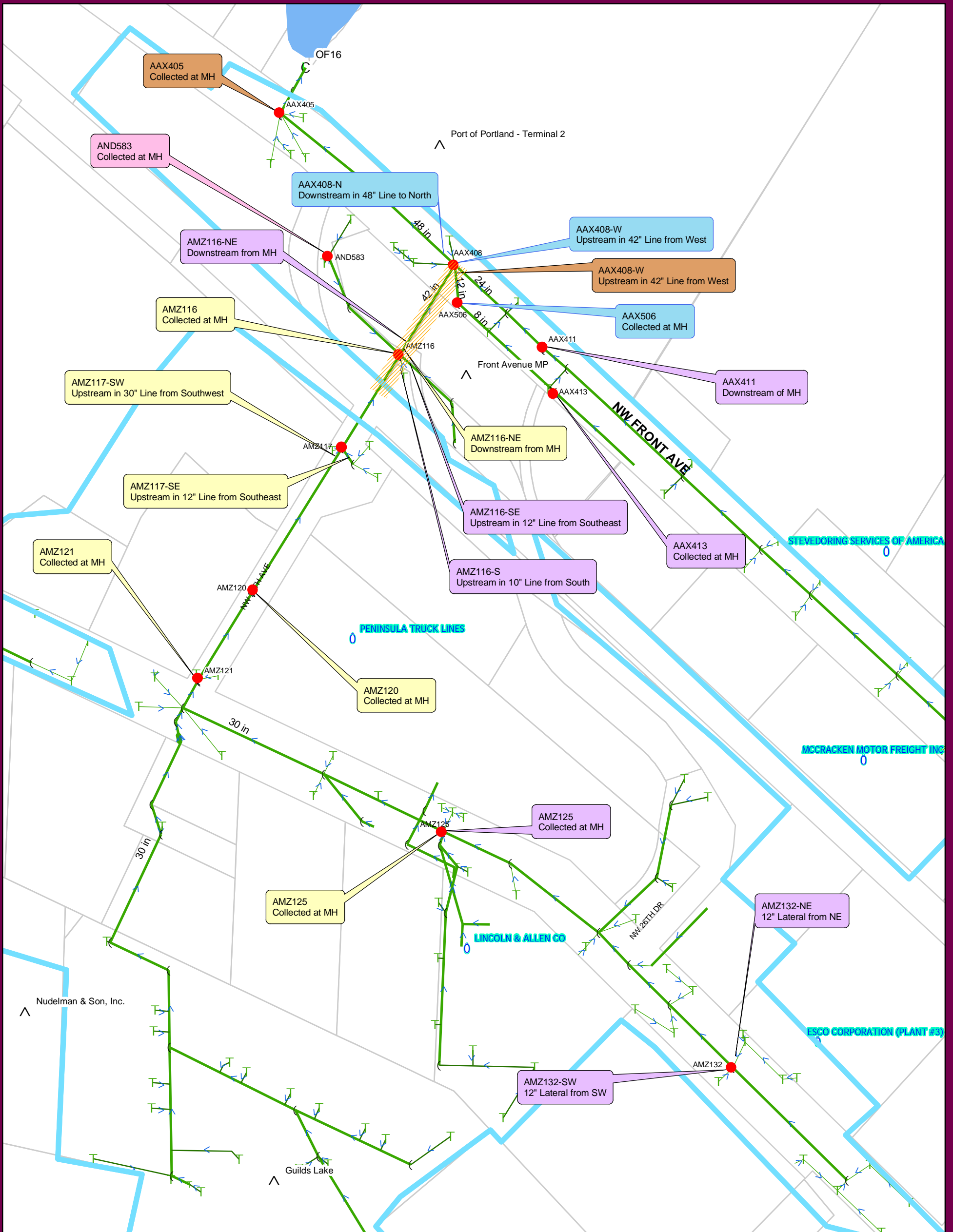
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CITY OF PORTLAND
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|--|---|--|---------------------------------|
| | Basin 16 Boundary | | DEQ Environmental Cleanup Sites |
| | City Outfalls | | Industrial Stormwater Permits |
| | Storm Inlets | | Inline Solids 7/26/2005 |
| | Storm Pipe | | Inline Solids 11/10/2005 |
| | Manhole | | Inline Solids 7/24/2007 |
| | Manhole Accessed | | Dry-Weather Flow 8/7/2005 |
| | Taxlots | | Dry-Weather Flow 11/10/2005 |
| | Groundwater infiltration and/or iron-oxide precipitate observed | | Hydrologic Boundary |

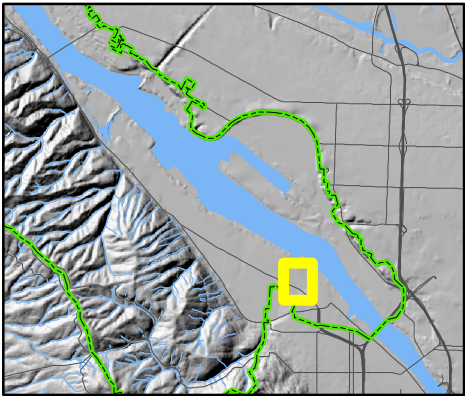
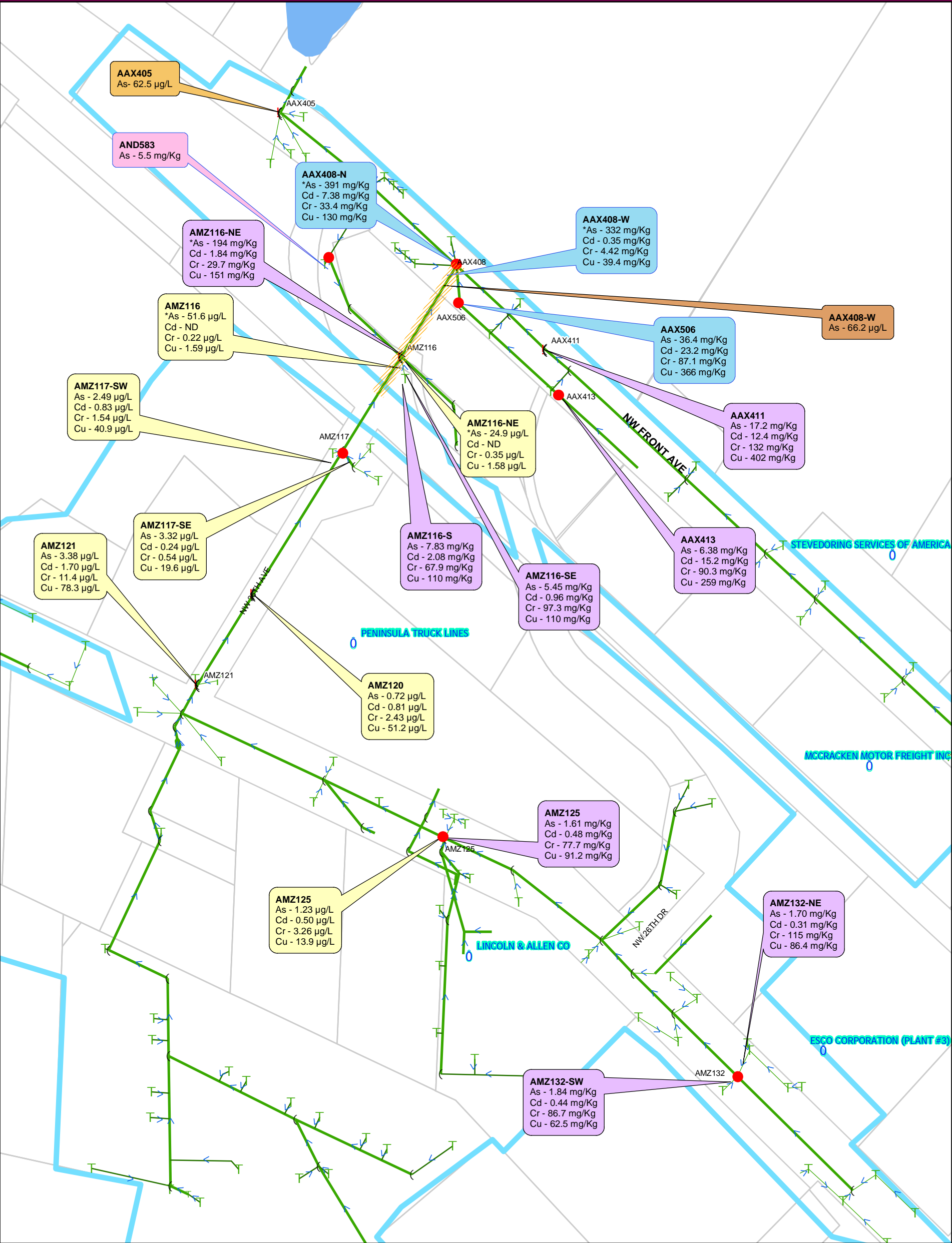
Figure 4
Basin 16
Inline Sample Locations

0 75 150 300 Feet

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Legend

- Basin 16 Boundary
- City Outfalls
- Storm Inlets
- Storm Pipe
- Manhole
- Manhole Accessed
- Hydrologic Boundary

Groundwater infiltration and/or iron-oxide precipitate observed



DEQ Environmental Cleanup Sites



Industrial Stormwater Permits

Inline Solids 7/26/2005

Inline Solids 11/10/2005

Inline Solids 7/24/2007

Dry-Weather Flow 8/7/2005

Dry-Weather Flow 11/10/2005

mg/Kg = milligrams per Kilograms dry weight
µg/L=micrograms per Liter

ND = Non-detect
* Results influenced by iron-oxide precipitate.

Figure 5a
Basin 16
Metals (As, Cd, Cr, Cu)

0 75 150 300 Feet

City of Portland BES

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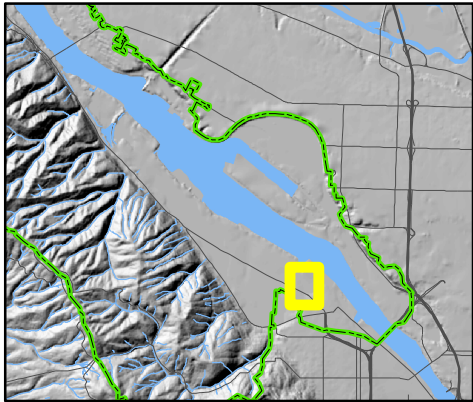
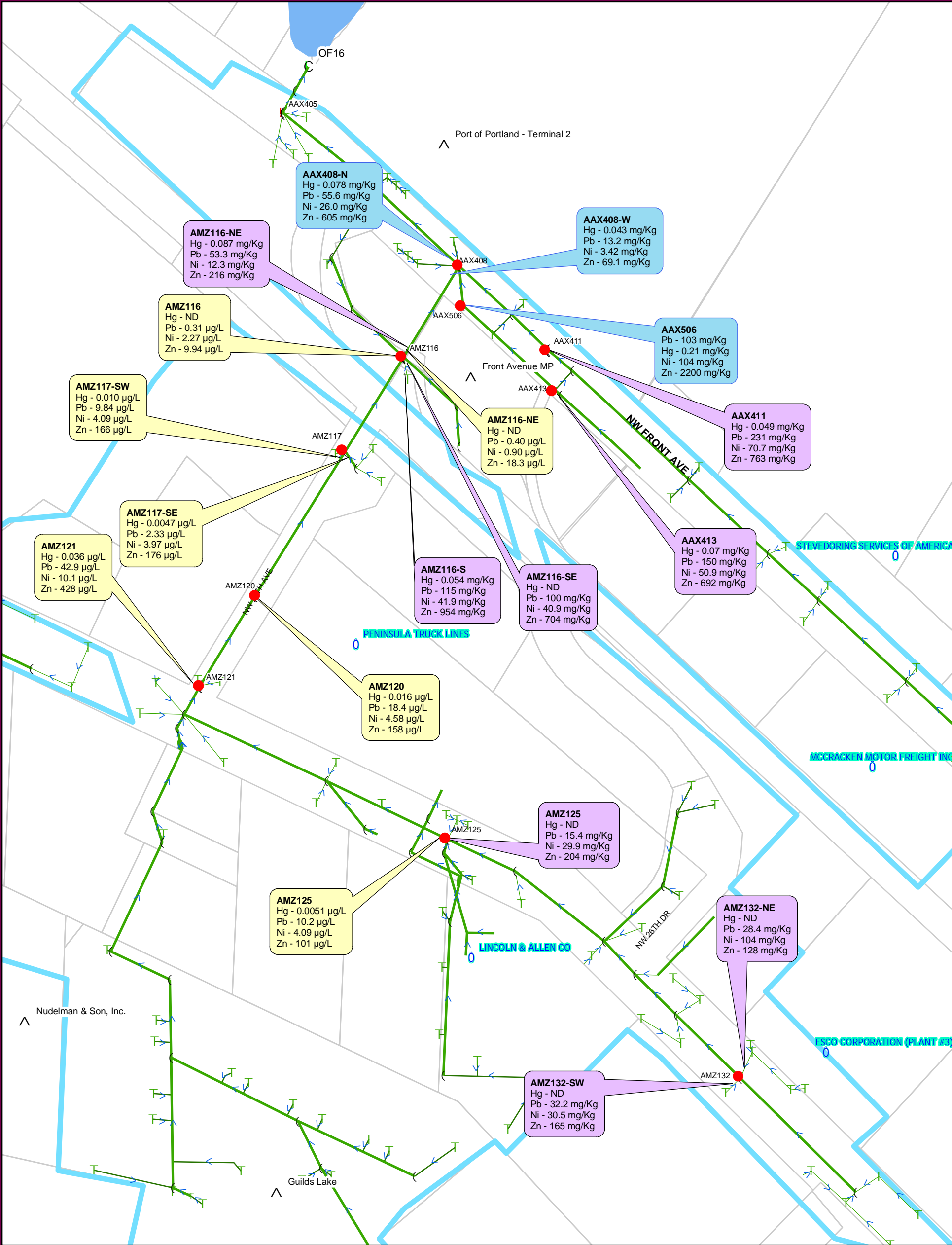
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Legend

- | | |
|---------------------|---------------------------------|
| Basin 16 Boundary | DEQ Environmental Cleanup Sites |
| City Outfalls | Industrial Stormwater Permits |
| Storm Inlets | Inline Solids 7/26/2005 |
| Storm Pipe | Inline Solids 11/10/2005 |
| Manhole | Dry-Weather Flow 8/7/2005 |
| Manhole Accessed | Dry-Weather Flow 11/10/2005 |
| Hydrologic Boundary | |

mg/Kg = milligrams per Kilograms dry weight ND = Non-detect
µg/L=micrograms per Liter

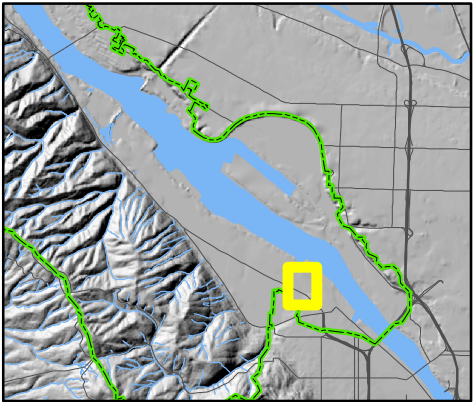
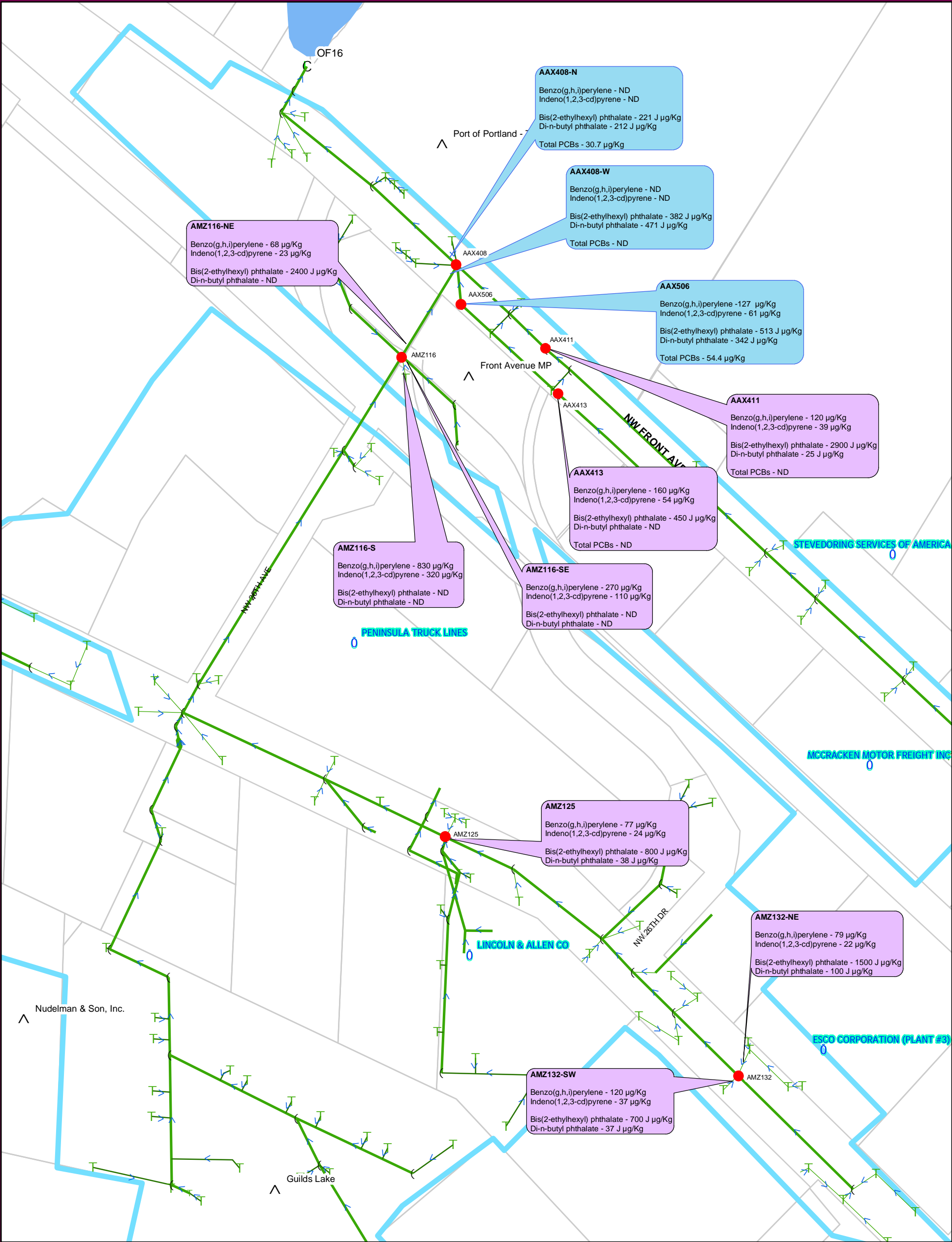
Figure 5b
Basin 16
Metals (Hg, Pb, Ni, Zn)

0 50 100 200 Feet

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Sheet No:
1 OF 1

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Legend

- Basin 16 Boundary
- City Outfalls
- Storm Inlets
- Storm Pipe
- Manhole
- Manhole Accessed
- DEQ Environmental Cleanup Sites
- Industrial Stormwater Permits
- Inline Solids 7/26/2005
- Inline Solids 11/10/2005
- Hydrologic Boundary

ND = Non-detect
µg/Kg=micrograms per Kilogram

Note: Only analytes that exceed JSCS
SLVs in one or more sample are shown.

Figure 6
Basin 16
PAHs, Phthalates
and Total PCBs

0 50 100 200 Feet

Tables

Table 1
Basin 16 Facility List

Aquarius Search: May 24, 2007
Basin Reconn: August 28, 2006

RNO	Business Name	Org ID	Address	Occupant Status	SIC Number	Drainage	Permit Type	Permit No.	Business Type	Comments
Within Basin 16										
R941291840	Calbag Metals Co	4735	2615 NW Industrial	Current	*5093	MS4	NPDES	1200Z	Scrap Metal Recycling	2 CBs in Back Lot connect through O/W separator and StormFilter prior to discharge. Sample point to OF16 is 02
R941291840	Timber Press	35766	2615 NW Industrial	Current	9999	MS4			Distribution/Warehouse	
R941291840	Coffee Bean International	35767	2615 NW Industrial	Current	9999	MS4			Distribution/Warehouse	
R941291840	COP BES Guilds Lake Office	32377	2615 NW Industrial	Current	9999	MS4			Police Evidence Warehouse	
R941291840	GES Exposition Services	4661	2615 NW Industrial	Former	7319	MS4			Advertising, not elsewhere classified	
R941291030	Culver Glass Co Inc	4651	2619 NW Industrial	Current	1793	MS4			Distribution/Warehouse	
R941291030	Accu Direct Response Co	4646	2619 NW Industrial	Former	7331	MS4			Direct Mail Advertising Services	
R941291030	Christensen & Associates	4657	2619 NW Industrial	Former	7311	MS4			Advertising Agencies	
R941291580	ABC&J Recycling (aka Nudelma)	4418	2707 NW Nela	Current	*5093	MS4			Scrap Metal Recycling	A portion of the front of the facility sheet flows into CB connected to MS4 system. There is material unloading in this area.
						UIC				Other sheet flow from front area drain to dry wells. Roof drains to drywell.
R941291690	Peninsula Truck Lines	25583	3182 NW 26th	Current	*4213	MS4	NPDES	1200Z	Transportation / Trucking	Wash pad and shop drain have been replumbed to the sanitary sewer.
R941291690	Market Transport	26087	3182 NW 26th	Former	4213	MS4			Transportation / Trucking	
R649701500	Dvine Wine	35764	3315 NW 26th	Current	9999	MS4			Distribution/Warehouse	
R649701500	City Rubber Stamp	31496	3315 NW 26th	Current	3953, 7389	MS4			Distribution/Warehouse	
R649701500	Fastenal	35765	3315 NW 26th	Current	9999	MS4			Distribution/Warehouse	
R649701500	Restoration Hardware	31470	3315 NW 26th	Current	4225	MS4			Distribution/Warehouse	
R649701500	Climate Control Inc	3947	3315 NW 26th	Former	1711	MS4			Plumbing, heating and air-conditioning	
R649701500	A&B Climate Control	3933	3315 NW 26th	Former	1711	MS4			Plumbing, heating and air-conditioning	
R649701500	J F Shelton & Company	3915	3339 NW 26th	Current	*5169, *5085	MS4			Wholesale distribution of chemicals	1979 building plans show CBs and roof drains to NW 26th Ave.
R941291700	Portland Bindery	3977	3342 NW 26th	Current	*2789	MS4	NPDES	NEC	Bookbinding	
R941291710	Truckways Inc	3944	3342 NW 26th	Current	*4212	MS4	NPDES	NEC	Local Trucking without storage	Drainage to the storm line in NW 26th Ave and to the storm line in Yeon Ave. Both go to outfall 16.
R941291710	Pure Distribution Inc	3969	3342 NW 26th	Current	5033	MS4			Distribution/Warehouse	
R941291710	Fluid Connector Products Co	3988	3342 NW 26th	Current	5084	MS4			Distribution/Warehouse	
R941280550	American Transport Inc	4504	2825 NW Yeon	Former	*4212	MS4			Local Trucking without storage	Site demolished in 2000. Previously, minor drainage via sheet flow to NW Yeon and to Lincoln & Allen property (at storm sewer inlet in the vegetation); both entered city storm system
						UIC				Building plans show drywells for roof drainage and two drywells in the back lot. There is one manhole in the back lot where one of the drywells is indicated on plans.
R941280550	Key Trucking Inc	4541	2825 NW Yeon	Former	*4212	MS4			Local Trucking without storage	Site demolished in 2000. Previously, minor drainage via sheet flow to NW Yeon and to Lincoln & Allen property (at storm sewer inlet in the vegetation); both entered city storm system
						UIC				Building plans show drywells for roof drainage and two drywells in the back lot. There is one manhole in the back lot where one of the drywells is indicated on plans.

Table 1
Basin 16 Facility List

Aquarius Search: May 24, 2007
Basin Recon: August 28, 2006

RNO	Business Name	Org ID	Address	Occupant Status	SIC Number	Drainage	Permit Type	Permit No.	Business Type	Comments
R941280600	One Source	35754	2950 NW Yeon	Current	9999	MS4			Distribution/Warehouse	Catch basin in yard goes to street catch basin. Sump pump in this catch basin lifts stormwater to street level. This provides the main source of drainage for the parking lot.
						UIC				Plmg cards from 1962 show roof drains to drywells (5). It appears that two of the catch basins in the yard are plumbed to drywells but no longer drain.
R941280600	United Paper Converters Inc	4389	2952 NW Yeon	Current	*2789	MS4	NPDES	NEC	Bookbinding	Catch basin in yard goes to street catch basin. Sump pump in this catch basin lifts stormwater to street level. This provides the main source of drainage for the parking lot.
						UIC				Plmg cards from 1962 show roof drains to drywells (5). It appears that two of the catch basins in the yard are plumbed to drywells but no longer drain.
R941280600	Larry Harrington Co	4395	2950 NW Yeon	Former	5074	MS4			Plumbing and heating equipment and supplies	Catch basin in yard goes to street catch basin. Sump pump in this catch basin lifts stormwater to street level. This provides the main source of drainage for the parking lot.
						UIC				Plmg cards from 1962 show roof drains to drywells (5). It appears that two of the catch basins in the yard are plumbed to drywells but no longer drain.
R941290860	Graphic Art Center Publishing	4405	3019 NW Yeon	Current	*2731, *2789, *4225	MS4	NPDES	NEC	Bookbinding & Book Publishing	
R941290860	R & A Walker Inc	4434	3019 NW Yeon	Current	*2789	MS4	NPDES	NEC	Bookbinding	
R941290860	Lincoln & Allen Co	4392	3033 NW Yeon	Current	*2789	MS4	NPDES	1200Z	Bookbinding	MH by the northern corner of the building is the stormwater sample point.
R941290960	Yeon Mini Storage	4382	3055 NW Yeon	Current	*4225	MS4			Warehouse	
R941291280	United Tile	35760	3145 NW Yeon	Current	9999	MS4			Distribution/Warehouse	
R941291280	Wilbur-Ellis Company	4346	3145 NW Yeon	Former	5191	MS4			Distribution/Warehouse	
R941291500	BC Graphics	33820	3155 NW Yeon	Current	7319, 7389, 2759	MS4			Distribution/Warehouse	
R941291500	Rose City Diner	29950	3155 NW Yeon	Former	*5812	MS4			Mobile Catering	
R941291500	Bay News Co	4365	3155 NW Yeon	Former	5199	MS4			Nondurable goods	
R941291500	Taylorred Automotive	31472	3155 NW Yeon	Former	7538	MS4			Vehicle Repair	
R941291290	U S Bank	4330	3165 NW Yeon	Current	6021	MS4			Offices	
R649701480	Lasco Shipping	4223	3200 NW Yeon	Current	*4412	MS4			Offices	
R649701480	Schnitzer Steel Industries	4233	3200 NW Yeon	Current	*5093	MS4			Offices	
R941291490, R941291510	Kramers Metro Mailing Services	31467	3201 NW Yeon	Current	*5044, *7331	MS4			Distribution/Warehouse; Direct Mail Advertising Services	'61 plumbing card show roof drains and 2 CBs to drywells (4-6). '95 building records show CBs to storm with roof drains continuing to go to drywells with overflow to storm.
						UIC				
R941291490, R941291510	Storables USA Inc	4317	3201 NW Yeon	Former	5719	MS4			Offices	'61 plumbing card show roof drains and 2 CBs to drywells (4-6). '95 building records show CBs to storm with roof drains continuing to go to drywells with overflow to storm.
						UIC				
R941291490	Southwest Office Supply & Interiors	33165	3205 NW Yeon	Current	5112	MS4			Stationery and office supplies	'61 plumbing card show roof drains and 2 CBs to drywells (4-6). '95 building records show CBs to storm with roof drains continuing to go to drywells with overflow to storm.
						UIC				
R941291490	All American Office Equipment	4309	3205 NW Yeon	Former	5999	MS4			Distribution/Warehouse	'61 plumbing card show roof drains and 2 CBs to drywells (4-6). '95 building records show CBs to storm with roof drains continuing to go to drywells with overflow to storm.
						UIC				
R941291490	Informativ Inc	4312	3205 NW Yeon	Former	7375	MS4			Information Retrieval Services	'61 plumbing card show roof drains and 2 CBs to drywells (4-6). '95 building records show CBs to storm with roof drains continuing to go to

Table 1
Basin 16 Facility List

Aquarius Search: May 24, 2007
Basin Recon: August 28, 2006

RNO	Business Name	Org ID	Address	Occupant Status	SIC Number	Drainage	Permit Type	Permit No.	Business Type	Comments
R941291490	Information Inc	4312	3203 NW Yeon	Former	7373	UIC			Information Retrieval Services	building records show CBs to storm with roof drains continuing to go to drywells with overflow to storm.
R941291460	McDonald's	4254	3208 NW Yeon	Current	5812	MS4			Restaurant	
R941291490	Adprint Company	35762	3217 NW Yeon	Current	9999	MS4 UIC			Offices/Warehouse	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291490	Paul O Giesey Adcrafters Inc	4288	3217 NW Yeon	Former	*2791, *2759, *2752	MS4 UIC	NPDES	NEC	Offices/Warehouse; Commercial printing, lithographic	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291490	Leslie Holcomb	4294	3217 NW Yeon	Former	7336	MS4			Offices	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291490	Hemco Advertising	4304	3217 NW Yeon	Former	7311	MS4 UIC			Offices	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291490	Western Station Company	25238	3221 NW Yeon	Former	9999	MS4 UIC			Nonclassifiable establishments	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291350	Medallion Industries Inc	4282	3247 NW Yeon	Current	5031	MS4 UIC			Distribution/Warehouse	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291350	Ink Systems Inc	4273	3255 NW Yeon	Current	*2893,*3993	MS4 UIC Sanitary	NPDES pretreatment	NEC 447.004	Printing Ink Manufacturing	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291410	Florida Tile Ceramic Center	4263	3259 NW Yeon	Current	5032	MS4 UIC			Distribution/Warehouse	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291410	Beard Frame Shops	35761	3265 NW Yeon	Current	9999	MS4 UIC			Distribution/Warehouse	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R941291410	Farwest Turf Equipment Co	4252	3265 NW Yeon	Former	5084	MS4 UIC			Industrial Machinery and Equipment	CBs to MS4 and roof drains to drywells per '95 building plans. Prior to '95, all stormwater to drywells.
R649701500	Documart Copies and Printing	19978	3310 NW Yeon	Current	*2752	MS4	NPDES	NEC	Commercial Printing	
R941291270	Fireplace Contractors Inc	4298	3317 NW Yeon	Former	5074, 1741	MS4 UIC			Distribution/Warehouse	Roof drains believed to discharge to dry wells
R941291270	Kneedspeed	27651	3319 NW Yeon	Current	3086	MS4 UIC			Distribution/Warehouse	Roof drains believed to discharge to dry wells
R941291270	Pureforms Inc	4287	3319 NW Yeon	Former	3089	MS4 UIC			Plastic products	Roof drains believed to discharge to dry wells
R941280580	McCracken Motor Freight Inc	4308	3147 NW Front	Current	*4212,*4213	MS4	NPDES	1200Z	Transportation / Trucking	Fueling island and wash pad CBs drain to the oil/water separator and to the sanitary sewer. Other CB at the facility discharges to the CB inlet on Front Ave by office.
R941280570	Viking Fire Protection Company	4248	3245 NW Front	Current	5074	MS4			Distribution/Warehouse	
R941280470	Ager Tank And Equipment Co	4174	3333 NW Front	Current	5084, 5046	MS4			Industrial Machinery and Equipment	
R941280470	Tap-Rich Chemical	4216	3333 NW Front	Former	5999	MS4			Misc. retail stores	
R941280470	Maverick Shoe Company	29044	3333 NW Front	Former	5139	sanitary			Footwear	
R941290850	G T Industries Inc	4036	3345 NW Front	Former	7538	MS4			General automotive repair shops	
R941291980	Qwest Communications	NI	3445 NW Front	Current	NI	MS4				Site has no business signs, however numerous Qwest vans parked in fenced area

Table 1
Basin 16 Facility List

Aquarius Search: May 24, 2007
Basin Reconn: August 28, 2006

RNO	Business Name	Org ID	Address	Occupant Status	SIC Number	Drainage	Permit Type	Permit No.	Business Type	Comments
R941291980	NES Trench Shoring	30639	3445 NW Front	Former	*5082, *7353	MS4			Equipment Storage	One CB (southside) and roof drains to line in Front Ave. North portion of property drains to unimproved area to north with some sheet flow to street
R941291980	Blue Pacific Truck Lines	3954	3455 NW Front	Former	4731	MS4			Transportation	
R941290830	Speedometer Service	35763	3551 NW Front	Current	9999	MS4			Auto repair	
R941200980	International Restaurant	31466	3653 NW Front	Current	5046	MS4			Distribution/Warehouse	
R941200980	Jinthy Trading Co	30450	3677 NW Front	Current	5946, 5099	MS4			Camera and photographic supplies	
R941200980	Harris Welco	3876	3653 NW Front	Former	5084	MS4			Industrial machinery and equipment	
R941200980	Concannons Portland Paper	3899	3641 NW Front	Former	*5113, *4212, *5111	MS4			Distribution/Warehouse	
R941200980	Lincoln Electric Company	2675	3683 NW Front	Former	5063	MS4			Electrical apparatus and Equipment Wiring Supplies, and Construction Materials	
Adjacent to Outfall 16										
R941280630	Port of Portland Terminal 2	25025	3110 NW Front	Current	4499	WR-236, WR-236			Miscellaneous Services for Water Transportation	
						Sanitary	pretreatment	400.004		
R941201280 R941280500 R941280710	US Customs, Tower Building T-2	28779	3556 NW Front	Current	9311	WR-235, WR-236			Offices	
R941201280 R941280500 R941280710	Alexander Gow Inc	31325	3556 NW Front	Current	4499	WR-235, WR-236			Miscellaneous Services for Water Transportation	
R941280630	Stevedoring Services of America	3872	3556 NW Front	Current	4491*	WR-235, WR-236	NPDES	1200Z	Marine Cargo Handling	At Port of Portland T-1. Facility used to operate at other tax lots (R941201280, R941280500, R941280710); operations have been scaled back in recent years
R941201280 R941280500 R941280710	Gulf & Atlantic	28765	3556 NW Front	Former	4449	WR-235, WR-236			Miscellaneous Services for Water Transportation	
R941201280 R941280500 R941280710	Pacific Maritime Association	14798	3556 NW Front	Former	8611	WR-235, WR-236			Offices	
R941201280 R941280500 R941280710	Crowley Marine Services	3964	3556 NW Front	Former	4424	WR-235, WR-236			Deep Sea Transportation	
R941201280 R941280500 R941280710	IM T Agencies	3898	3556 NW Front	Former	4412	WR-235, WR-236			Deep Sea Transportation	
R941201280 R941280500 R941280710	Interocean Steamship Corp	3920	3556 NW Front	Former	4412	WR-235, WR-236			Deep Sea Transportation	
R941200870	Front Avenue Express	27411	3660 NW Front	Former	5812	Sheet Flow			Mobile Food Cart	
R941201040	Portland Fire Bureau #6	31676	3660 NW Front	Current	9224	WR-258			Fire Station	

Facility List is based on information contained in City's Industrial Facility database (Aquarius). This table reflects information accumulated since the mid-1990s and does not reflect historic facilities associated with these properties.

Table 1
Basin 16 Facility List

Aquarius Search: May 24, 2007
 Basin Recon: August 28, 2006

RNO	Business Name	Org ID	Address	Occupant Status	SIC Number	Drainage	Permit Type	Permit No.	Business Type	Comments
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* = SIC identified by Industrial Stormwater program; typically field verified

NEC = No Exposure Certification

NI = No Information

Table 2
NPDES Stormwater Results for Industries Discharging to (or near) Outfall 16

Database Search: October 30, 2007

Collection Date	pH	E. coli mpn/100 ml	Spec. Cond. mg/l	TSS mg/L	TOC mg/L	Arsenic mg/L	Cadmium mg/L	Chromium mg/L	Copper mg/L	Lead mg/L	Mercury mg/L	Nickel mg/L	Silver mg/L	Zinc mg/L	Total Oil &Grease mg/L
Current 1200Z benchmarks	5.9-9.0			130					0.1	0.4				0.6	10
Within Basin 16															
Calbag Metals Co															
Sample Point X03: Large Vault Oil/Water Separator -Back Lot before Stormfilter Installed (drains to OF16)															
04/11/96	6.59		20	22	6.6		0.0005	<0.05	<0.02	0.034		<0.04		0.17	4.2
11/21/96	7.7		84	179	71	0.0013	0.001	0.023	1.38	0.684	0.0015	0.029		0.875	34.2
10/09/97	6.2		260	96	6	<0.001	<0.005	<0.05	1.1	0.76	0.0009	<0.04		0.25	10.1
11/19/97	6.9			63					0.61	0.286				0.328	18
06/24/98	6.5		55	61	30	0.0013	0.005	<0.05	1.1	0.54	<0.0002	<0.04		0.61	4.7
11/23/98	6.5			132					1.1	0.424				0.551	16
12/28/98	6.6		40	174	46	<0.01	<0.001	0.023	2.391	1.325	0.0005	0.071		1.084	13
02/18/99	7.2			101					0.76	0.43				0.53	17.9
05/14/99	6.4		80	30	24.5	<0.002	0.0029	0.0089	0.447	0.229	0.0003	0.011		0.46	3.4
11/16/99	7.1			77					0.81	0.56				0.53	7.2
01/10/00	7.5			165					1.91	1.59				0.817	18
02/25/00	7.8			40					0.491	0.19				0.171	7
04/13/00	7.2			40					0.506	0.18				0.335	6
12/19/00	7.25			31					0.449	0.16				0.39	9.62
04/10/01	6.39			21					0.267	0.131				1.21	<5
11/13/01	7.84			19					0.193	0.16				0.116	5.47
11/12/02	7.18			39					0.738	0.476				0.868	<5
06/17/02	6.9			48					0.459	0.258				1.49	5.19
11/12/02	7.18			39					0.738	0.476				0.868	<5
03/12/03	9.6			230					2.19	1.55		0.0752		0.974	13
03/19/03	7.59			389					3	1.89				1.39	22.6
Sample Point 02: Spigot From Stormfilter - Back Lot (drains to OF16)															
02/13/04				28.7					0.249	0.115				0.259	<6.25
05/27/04	6.94			277					2.07	1.14				1.26	15.3
01/28/05	7.34			85					0.502	0.284				0.349	5.94
05/04/05	7.26			94					0.335	0.123				0.194	6.08
11/3/05	2.21			<10					0.321	0.00894				0.0734	<5
4/10/06	7.57			<10					0.0159	0.00211				0.0173	<4.85
11/21/06				22					0.125	0.111				0.165	<4.9
5/2/07	7.59			32					0.202	0.0992				0.13	<5
Sample Point 01: Sample Port By Catch Basin In Front Lot (drained to OF15)															
11/01/95	9.6		1900	140	51	<0.004	<0.01	0.028	0.69	0.2	<0	0.044		0.34	8.5
02/06/96	7.6		93	54.5	22	<0.003	<0	0.0158	0.111	0.0331	<0	0.0284		0.162	10.5
04/09/97	6.5		120	108	31	0.002	0.005	<0.05	0.639	0.27	<0.0002	<0.04		0.375	10.6
11/19/97	8.7		25	31	<1	<0.001	0.0008	<0.05	<0.02	0.06	<0.0002	<0.04		0.093	1.5
11/06/98	6.3			15					0.409	0.17				0.151	14
12/28/98	6.6		40	73	11	<0.01	<0.001	0.009	1.146	0.605	0.0004	0.055		0.475	5.8
01/10/00	7.6			70					0.847	0.499				0.331	11
02/25/00	7.1			45					0.683	0.306				1.78	8
04/13/00	7.4			190					1.12	0.479				0.747	24
12/19/00	6.96			10					0.112	0.0529				0.112	<5

Table 2
NPDES Stormwater Results for Industries Discharging to (or near) Outfall 16

Database Search: October 30, 2007

Collection Date	pH	E. coli mpn/100 ml	Spec. Cond. mg/l	TSS mg/L	TOC mg/L	Arsenic mg/L	Cadmium mg/L	Chromium mg/L	Copper mg/L	Lead mg/L	Mercury mg/L	Nickel mg/L	Silver mg/L	Zinc mg/L	Total Oil &Grease mg/L
	SU														
Current 1200Z benchmarks	5.9-9.0			130					0.1	0.4				0.6	10
04/10/01	6.64			23					0.159	0.0492				0.111	6.32
11/13/01	7.68			129					0.96	0.52				1.23	10.8
06/17/02	7.45			24					0.678	0.16				0.218	5
11/12/02	7.6			<10					0.0777	0.0446				0.0606	<5
03/19/03	7.35			29					0.262	0.143				0.106	<5
02/16/04	7.32			44					0.25	0.122				0.152	<5
05/27/04	7.33			63					0.429	0.347				0.262	7.9
01/28/05	7.85			141					0.71	0.418				0.437	10.3
05/04/05	7.09			13					0.0577	0.024				0.0697	5
11/03/05	7.42			34					0.128	0.0675				0.0928	<4.72
04/10/06	7.46			23					0.12	0.0466				0.0743	<4.85
11/21/06				16					0.0732	0.0295				0.0585	<4.81
05/02/07	7.47			66					0.365	0.152				0.193	<4.81
Sample Point X02: Catch Basin #2 At Loading Dock (drained to OF15)															
11/01/95	7.3		33	94	24	<0.004	<0.01	0.011	1.1	0.42	0.00052	<0.03		0.52	23
04/11/96	6.9		69	60	77	0.002	0.004	<0.05	0.193	0.216	0.0009	<0.04		0.619	14
11/19/96	8.05		22	23	<1	<0.001	0.002	<0.05	0.213	0.096	<0.0002	0.049		0.229	<1
04/09/97	6.6		100	191	20	0.003	0.016	<0.05	1.65	0.925	0.0011	<0.04		0.884	7.8
10/09/97	6.3		230	119	5	<0.001	<0.005	0.09	1.4	0.95	0.0007	<0.04		0.68	17
06/24/98	6.9		360	18	25	<0.001	0.0002	<0.05	0.64	0.0017	<0.0002	<0.04		0.067	4.5
Esco Corporation (Plant #3)															
Sample Point 01: Large Catch Basin Near Yeon Ave															
4/28/1995	6.75				1					0.006				0.523	
10/3/1995	6.6			59	49	<0.005	<0.003	0.011	0.023	0.01	<0	<0.02		0.268	4
11/22/1995	7.5			397	54		<0.001	0.012	0.007	0.05	<0	<0.004	<0	0.121	10
5/15/1996	6.6			77	31	<0.005	<0.004	0.022	0.025	0.019	<0	<0.02		0.182	6
10/18/1996	6.21			67	140	<0.005	<0.004	0.034	0.036	0.026	<0.0005	0.026		0.21	10
11/21/1996	8.1			144	72.8	<0.001	0.001	0.015	0.018	0.03	<0.0005	0.012		0.181	17
4/23/1997	7.44			89	100	<0.005	<0.004	0.024	0.028	0.017	<0.0005	<0.02		0.271	<5
4/23/1997	7.6			192	38.8	<0.001	<0.001	0.067	0.052	0.04	<0.0002	0.034		0.349	14
10/8/1997	7.4			618					0.031	<0.3				0.34	22.1
10/30/1997	7.13			68	39.8	<0.005	<0.004	0.029	0.019	0.015	0.0005	<0.02		0.234	6
5/12/1998	7.19			152					0.048	0.037				0.39	7
10/15/1998				5											<5
12/1/1998	8.4			42					0.062	0.1				0.147	31.4
2/18/1999	7.2			33.3					<0.03	<0.1				0.16	8.8
5/17/1999				34											5
12/7/1999				52											<3
1/10/2000	6.1			24					<0.03	<0.1				0.16	9.4
4/25/2000				86											<3
1/9/2001				68											<3
4/23/2001				30											<3
12/13/2001				140											<3
5/7/2002				3											<3
12/4/2002				30											10

Table 2
NPDES Stormwater Results for Industries Discharging to (or near) Outfall 16

Database Search: October 30, 2007

Collection Date	pH	E. coli	Spec. Cond.	TSS	TOC	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Zinc	Total Oil & Grease
	SU	mpn/100 ml	mg/l	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Current 1200Z benchmarks	5.9-9.0			130					0.1	0.4				0.6	10
4/23/2003				36											<5
12/5/2003				22											7
4/15/2004				<3											2
Sample Point 02: Catch Basin Near Yeon Ave in Forklift Area															
12/14/06	6.89			47					<0.01	<0.02				0.0914	<5
02/20/07	6.43			16					0.0115	<0.02				0.126	<10
Lincoln & Allen Co															
Sample Point 01: Manhole Near Yeon In North Driveway															
6/24/1999	6.4			31.8					0.052	<0.1				0.4	5.2
11/16/1999	6.4			11					<0.03	<0.1				0.19	<5
3/8/2000	6.92			126					<0.04	<0.02				0.15	<5
4/10/2001	6.59			<5					<0.03	<0.02				0.192	<5
6/27/2001	6.3			13					<0.03	<0.02				0.141	<5
10/10/2001	5.8			14					<0.05	<0.2				0.321	<5
12/11/2001	6.39			<5					<0.01	<0.02				0.0815	<5
6/7/2002	6.45			63					0.096	0.02				0.75	24.8
11/19/2003	6.43			18					<0.01	<0.02				0.0857	<6
1/29/2004	7.03			<5					<0.01	<0.02				0.098	<5
12/6/2004	6.9			11					<0.01	<0.02				0.117	<5
3/23/2005	6.59			67					0.0161	<0.02				0.202	<5
12/27/2005	5.91			8					<0.01	<0.02				0.228	<5
4/10/2006	5.87			<5					<0.01	<0.02				0.163	<5
01/04/07	5.47			6					<0.01	<0.02				0.123	<5
05/02/07	6.17			28					0.0321	<0.02				0.332	<5
McCracken Motor Freight Inc															
Sample Point 02: Catch Basin Near Wash Pad															
6/24/1999	6.1			275					0.055	0.032				0.31	<5
6/24/1999	6			233					0.13	<0.1				0.41	25.9
11/16/1999	6.4			720					0.23	0.12				0.81	11
2/4/2001	7			30					<0.02	<0.01				0.05	<5
6/5/2001	6.5			22					0.057	<0.01				0.05	<5
10/30/01	6.5			50					0.15	0.012				0.28	<5
06/17/02	6			14					0.058	<0.01				0.26	<5
01/30/03	6.1			33					0.026	<0.01				0.14	<5
03/12/03	5.9			286					0.0499	0.0203				0.205	9.7
05/16/03	6.3			52					0.073	0.01				0.36	<5
01/30/04	6.6			38					<0.02	<0.01				0.12	<5
04/20/04	6.4			119					0.041	0.012				0.25	<5
03/23/05	6.6			44					0.035	0.009				0.24	5
05/20/05	6.8			92					0.029	0.014				0.26	<5
01/06/06	6.2			62					0.027	0.012				0.13	<5
05/26/06	6.4			52					0.024	0.011				0.32	<5
02/15/07	6.3			178					0.042	0.035				0.31	<5
06/09/07				45					0.062	0.01				0.29	<5

Table 2
NPDES Stormwater Results for Industries Discharging to (or near) Outfall 16

Database Search: October 30, 2007

Collection Date	pH	E. coli mpn/100 ml	Spec. Cond. mg/l	TSS mg/L	TOC mg/L	Arsenic mg/L	Cadmium mg/L	Chromium mg/L	Copper mg/L	Lead mg/L	Mercury mg/L	Nickel mg/L	Silver mg/L	Zinc mg/L	Total Oil &Grease mg/L
	SU														
Current 1200Z benchmarks	5.9-9.0			130					0.1	0.4				0.6	10
Sample Point 03: Catch Basin By Loading Docks Of The North Yard															
6/24/1999	5.9			295					0.088	0.1				0.32	13.1
6/24/1999	5.9			178					0.045	0.024				0.26	<5
2/4/2001	6.1			60					0.04	0.014				0.2	<5
6/5/2001	6.4			48					0.063	<0.01				0.21	<5
10/30/01	6.2			260					0.098	0.049				0.51	<5
06/17/02	5.4			15					0.038	<0.01				0.2	<5
01/30/03	6.2			40					0.02	<0.01				0.13	<5
05/16/03	6.1			49					0.052	0.011				0.34	<5
01/30/04	6.7			76					0.033	0.051				0.26	<5
04/20/04	5.8			171					0.043	0.022				0.28	<5
03/23/05	6.3			47					0.06	0.014				0.45	<5
05/20/05	6.7			40					0.012	0.01				0.08	<5
01/06/06	6.6			34					0.019	0.018				0.11	<5
05/26/06	6.4			72					0.033	0.007				0.3	<5
02/15/07	6.6			142					0.033	0.026				0.21	<5
06/09/07				89					0.057	0.012				0.34	<5
Peninsula Truck Lines															
Sample Point 01: Catch Basin in Main Yard															
2/17/1999	6.2			487					0.049	<0.1				0.23	26
3/12/1999	6.7			550					0.0223	<0.025				0.165	32
6/21/1999	7.1			1450					0.0398	0.042				0.318	15
11/16/1999	6.7			411					0.059	<0.1				0.31	7.1
12/8/1999	6.9			200					0.022	<0.025				0.163	10
6/7/2000	6.2			35					0.0315	<0.025				0.238	5
11/29/2000	6.29			229					0.0381	0.0354				0.305	<5
4/23/2001	6.9			216					0.057	<0.2				0.474	6.9
10/10/2001	5.8			115					0.073	<0.2				0.59	5.8
11/12/01	6.63			123					0.0202	0.019				0.198	<5
03/06/02	6.75			499					0.0439	0.039				0.296	8.8
12/30/02	6.79			47					0.009	0.00881				0.0901	7.08
04/23/03	6.62			64					0.0166	0.0101				0.136	<5
11/20/03	7.66			68					0.0183	0.021				0.205	5.21
02/17/04	7.66			100					0.0171	0.024				0.138	<5
03/23/05	6.92			112					0.004	0.0223				0.545	5.94
06/07/05	6.17			76					0.0256	0.0134				0.226	<5
10/31/05	7.97			17					0.00478	0.00447				0.0525	<4.9
05/22/06	6.9			42					0.0222	0.0118				0.116	5.39
01/04/07	7.14			16					0.00529	0.00471				0.0449	<4.76
04/16/07	6.72			19					0.0556	0.0202				0.675	<5
Adjacent to Outfall 16															
Stevedoring Services of America															
Sample Point 01: Manhole In Front Of Gearlocker (drains to Port outfall)															

Table 2
NPDES Stormwater Results for Industries Discharging to (or near) Outfall 16

Database Search: October 30, 2007

Collection Date	pH	E. coli mpn/100 ml	Spec. Cond. mg/l	TSS mg/L	TOC mg/L	Arsenic mg/L	Cadmium mg/L	Chromium mg/L	Copper mg/L	Lead mg/L	Mercury mg/L	Nickel mg/L	Silver mg/L	Zinc mg/L	Total Oil &Grease mg/L
	SU														
Current 1200Z benchmarks	5.9-9.0			130					0.1	0.4				0.6	10
03/16/06	6.1			24					<0.03	0.024				0.16	<6
06/12/06				7.3					<0.03	<0.0052				<0.5	<3
11/02/06	6.6			39					<0.03	0.022				0.21	<2.6
11/22/06	6.4			95					0.038	0.048				0.2	<3.1
02/14/07	6.8			65					<0.03	0.02				0.15	<3
Sample Point X01: Port Outfall Under Berth 203															
03/10/98	6.72			140					0.04	0.3				0.49	27
05/11/99	7.05			7					0.02	<0.05				0.15	<3
05/11/99	7.05			7					0.02	<0.05				0.15	<3
07/03/00	5.7			10					0.134	1.36				0.011	<5
12/13/00	7.2			12					0.08	<0.05				0.37	<5
06/05/01	5.5			12					0.009	0.005				0.131	<5
01/31/02	5.9			6					0.0055	<0.05				0.0707	<5
04/09/02	6.8			12					0.0296	0.0122				0.16	<5
12/30/02	5.9	300		10					<0.005	0.005				0.15	<5
02/25/04	6.6	280		<5					<0.003	<0.006				<0.02	<5
06/09/04	5.7	1700		<5					0.0086	<0.006				0.14	<5
Sample Point X02: Port Outfall Under Berth 204															
03/10/98	6.61			45					<0.02	<0.05				0.3	45
05/11/99	6.25			7					0.02	<0.05				0.24	<3
07/03/00	5.9			10					0.159	0.0198				1.2	<5
12/13/00	6.5			9					0.03	0.01				0.17	<5
06/05/01	6.3			13					0.0135	<0.005				0.109	<5
01/31/02	5.5			<5					<0.005	<0.005				0.061	<5
04/09/02	6			<5					0.0148	<0.005				0.168	<5
12/30/02	6	>16000		10					<0.005	0.0051				0.05	<5
02/25/04	6.2	80		<5					<0.003	<0.006				0.049	<5
06/09/04	6.2	2400		<5					0.0071	<0.006				0.062	<5
05/09/05	7.3			<5					<0.003	<0.006				<0.02	<5

Table 3**Basin 16 Polk Directory List**

Database Search: 10/31/2007

Address	1940	1950	1960	1970	1980	1990	2000
3182 NW 26th	NL	NL	NL	North Pacific Forwarders / Ringsby-Pacific Ltd Truck Lines	Transcon Lines - truck lines	Transcon Lines	Pnnsl Truck Lines Inc
3315 NW 26th	NL	NL	NL	NL	NL	Climate Cntrl Inc / Quick Print	Climate Cntrl Inc
3339 NW 26th	NL	NL	NL	NL	NL	DRB Paper Co / JF Shelton Co	JF Shelton & Co / Watkins & Shepard
3342 NW 26th	NL	NL	NL	NL	NL	Fluid Cnctr Prod	Fluid Cnctr Inc / Portland Bindery / Pure Dstrb Or A / Truckways Inc
2211 NW Brewer	NL	NL	NL	Edward EH Co Cable Mfgs	L-T-D Auto fender flares Mfrs	NL	NL
3079 NW Front	NL	NL	Wilco Co. (gas station eqp.)	Wilco Co. (gas station eqp.)	Kelly-Goodwin (hardwood floors)	NL	NL
3110 NW Front	Miesen Fuel Co	NL	NL	NL	NL	NL	NL
3147 NW Front	NL	McCracken Bros Motor Freight	McCracken Bros Motor Freight	McCracken Bros Motor Freight	McCracken Bros Motor Freight	McCracken Motor Freight	Courtesy Trucking / McCracken Mtr Frght / McCracken Lease & Rpr
3245 NW Front	NL	NL	Viking Automatic Sprinkler Co	Viking Automatic Sprinkler Co	Viking Automatic Sprinkler Co	Fire Protectn Sply / Viking Auto Sprinklers	Fire Protect Sply / Viking Automatic Co
3333 NW Front	NL	US Plywood Corp	US Plywood Corp	US Plywood Corp	Dayton Tires Sales Co	FTL Inc / Sea-Port Distribn / Tap-Rich Chemical	Ager Tank & Equip / Maverick Shoe Co
3345 NW Front	NL	Willamette Hauling Co	Gadd Enterprises - cargo service	Gadd Equip - cargo service	De Fabco truck repair	Thomsons Truck Repair	Ptld Truck & Diesel
3445 NW Front	NL	NL	Manitou Equip Co - logging equip	Manitou Equip Co - logging equip	Gray's Crane & Rigging Inc	HD Repair Service	Total Western
3455 NW Front	NL	NL	NL	NL	NL	NL	NL
3551 NW Front	NL	NL	NL	NL	Vacant	Frasier Paper Co.	A-Boy Electric & Plumb
3556 NW Front	NL	NL	NL	NL	NL	Crowley Maritime / Epic Ins Svc Inc / Eagle Pacific Ins / Hawaiian Marine Ln / Stevedoring Svc	Port Portland / Gulf & Atl Serv Inc
3641 NW Front	NL	NL	NL	NL	McBreen Trucking / Fitchett Truck Co	R Stoll	Concannon Paper
3653 NW Front	NL	NL	NL	NL	Thermacote-Welco - whol welding supplies	Thermacote-Welco	Intrntnl Rstrnt
3660 NW Front	NL	NL	NL	City Fire Bur- Eng Co No 6 / City Fire Bur - Fire Boat No 2	Fire Bur - Eng Co No 106 / City Fire Bur - Fire Boat No 2	NL	Front Ave Express
3677 NW Front	NL	NL	NL	NL	NL	Jinthy Trading	NL

Table 3**Basin 16 Polk Directory List**

Database Search: 10/31/2007

Address	1940	1950	1960	1970	1980	1990	2000
3683 NW Front	NL	NL	NL	NL	Lincoln Elec Co	Lincoln Electric	NL
2615 NW Industrial	NL	NL	NL	NL	NL	Untd Beer Dstrbtrs	Ges Expo Services
2619 NW Industrial	NL	NL	NL	NL	NL	Barber-Ellis Paper / Culver Glass Co	Culver Glass Co
2707 NW Nela	NL	NL	NL	Nudelman SJ & Son Scrap Iron & Mtls	Nudelman SJ & Son Scrap Iron & Mtls	Nudelman SJ & Son	Nudelman SJ & Son
2495 NW Nicolai	NL	Cal Bag & Metal Co	California Bag & Metal Co - junk dlrs	Calbag Metals Co - junk dlrs	Calbag Metals Co - junk dlrs	Calbag Metals Co	Calbag Metals Co
2760 NW Yeon	US Forestry Services (Purch dept)	US Forestry Services (Purch dept)	NL	NL	NL	NL	NL
2770 NW Yeon	NL	NL	Shofner Iron & Steel Works	ESCO Plant No.3	ESCO Plant No.3	NL	NL
2820 NW Yeon	NL	Clydes Iron & Steel Junk Yard	Clydes Iron & Steel Junk Yard	Clydes Iron & Steel Junk Yard	NL	NL	NL
2825 NW Yeon	NL	NL	Pierce Frt Lines Inc	Valley Copper State System Trans Line	East Texas Motor Freight - trans line	ABF Freight System	Dawes Trnspt Inc / Frntr Trailer & Eqp / Key Trucking Inc
2950 NW Yeon	NL	NL	NL	Phelps Dodge Tube Co	Harrington Larry Co - mft agt	Bell & Gossett Div / L Harrington Co / ITT Bell & Gossett	Bell & Gossett Div / Harrington L Co / ITT Bell & Gossett
2952 NW Yeon	NL	NL	NL	NL	Guardian Industries Corp - glass dlrs	NL	United Ppr Cnvtrs
3019 NW Yeon	NL	NL	NL	NL	NL	Grphc Art Ctr Pblg / R&A Walker Inc	Grphc Arts Ctr / R&A Walker Inc
3033 NW Yeon	NL	NL	Northwestern Drug Co (br)	Northwestern Drug Co	Lincoln & Allen - bk mfgs	Lincoln & Allen Co	Lincoln & Allen
3055 NW Yeon	NL	BF Goodrich Co (whse)	Seaport Appl Inc - whol telev. Sets	Honeyman May Co (whse)	Fabricon - rubber sup mfrs / Goodyear Rubber & Supply Co	Beltservice Corp	RI Chapman / Aghast Productions / Famous Food / U-HI Co Indpdnt / Yeon Mini Storage
3145 NW Yeon	NL	NL	Am Cyanamid Co / Formica Corp - plastic mfrs / Lederle Labys - pharmaceuticals	American Cyanamid Co - chem mfrs / Animal Industry - feed mfrs / Formica Corp - plastic mfrs / Lederle Labs - pharmaceuticals	American Cyanamid Co - chem mfrs / Lederle Labs - pharmaceuticals	DV Moar / Wilbur-Ellis Co	Wilbur-Ellis Co
3155 NW Yeon	NL	NL	NL	Fred Bay News - whol dlrs / Davis Industrial Park	Fred Bay News - whol magazine	Fred Bay News Co	Gary & Mike
3165 NW Yeon	NL	NL	US National Bank	US National Bank	US National Bank	US National Bank	US Bank

Table 3

Basin 16 Polk Directory List

Database Search: 10/31/2007

Address	1940	1950	1960	1970	1980	1990	2000
3200 NW Yeon	NL	Industrial Air Products Co - oxygen producers	Industrial Air Products Co - acetylene gas mfrs	Industrial Air Products Co - acetylene gas mfrs	Lasco Shipping Co / Schnitzer Steel Products Co - junk dealers	Island Equip Co / Lasco Shipping / Schnitzer Investm / Schnitzer Steel / Yeon Business Ctr	Island Equip Co / Lasco Shipping / Schnitzer Steel / Schnitzer Investm / Yeon Business Ctr
3201 NW Yeon	NL	NL	NL	Johnson Nut Co / Original Pizza Crust of Or / DOB Corp - Fairmont Foods Co - pizza sups whol	Associated Foods - pizza sups whol	Storables office	Curtiscirculation
3205 NW Yeon	NL	NL	NL	Fetsch Geo A & Assoc - printing machinery & sup	G A F A - Fetsch printing machinery & sup	SW Office Supply	Sprr Intrrs Inc
3208 NW Yeon	NL	NL	NL	NL	NL	McDonalds Restaurants	McDonalds Corp
3217 NW Yeon	NL	NL	NL	American Bank Stationery Co - check printing	American Bank Stationery Co - check printing	Adcrafters-Giesey / PO Giesey - Adcfrtr	Adcfrtrs Gsy PI / Agiesey P Adcfrtrs
3221 NW Yeon	NL	NL	NL	Rankin Equip Co of Ore - farm machinery whol	Ceazan JN Co - tire dlrs	Anthro Corp	NL
3247 NW Yeon	NL	NL	NL	Goodall Rubber Co - mfrs	Medallion Industries	Medallion Industries Inc	Medallion Industries Inc
3255 NW Yeon	NL	NL	Dayton Rubber Co - tire mfrs	MacWhyte Co - whol wire & rope	MacWhyte Co - whol wire & rope	NL	Ink Systems NW Inc
3259 NW Yeon	NL	NL	NL	Richardson Ink Co	Croda Ink - mfrs	NL	R Tile Svc Ctr
3265 NW Yeon	NL	NL	NL	Westinghouse Electric Supply	Westinghouse Electric Supply	Cushman Vehicles Farwest Equipment Co.	Cushman Vehicles Farwest Equipment Co.
3317 NW Yeon	NL	NL	Western Kitchens	Philco Distributors Inc / Philco Parrrts - refrgr access & parts whol	Coin Wash Equip Co / Adams Realty / Alpine Cleaning & Laundry	Accuventure / B&B Creations / Full Circle Indstr	NL
3310 NW Yeon	NL	NL	NL	NL	NL	ACE Portland Warehouse/ Delphina's Bakery/Hot Lips Pizza/Neighborhood baking/NW Roller Co/ Portland Occupational Medical Center	Delphina's Bakery/Neighborhood Baking Co.
3319 NW Yeon	NL	NL	Rawleigh, WT Co - gen mdse whol	Dayco Corp - whse	Wilsey Distribution	Pureforms Inc	Kneedspeed

NL = Not listed

Table 4
Basin 16 EPA Toxic Release Inventory List and DEQ Hazardous Waste (HW) Generator List

RNO	Address	Company	EPA ID	TRI ID	SIC Code	Generator Status	Releases to Environment	Chemicals Used on Site
Within Basin 16								
R941290960	3055 NW Yeon	Beltservice Corporation	ORD982659005	97210BLTSR3055N	3052	*	air	toluene
R941292190	2495 NW Nicolai	Calbag Metals	ORD987201415	*	5093	CEG	*	*
R649701500	3315 NW 26th Ave	CRS Data Solutions	ORQ000018606			CEG		
R941280050	2211 NW Brewer	Esco Corporation	ORD987173184	97210SCCRP2141N	3325	CEG (1997-1992 SQG, 1991 LQG)	air, landfill	metals, phenols
R941291470	3255 NW Yeon	Ink Systems Inc	ORD982657124	*	2893	CEG	*	*
R941290860	3033 NW Yeon	Lincoln & Allen	ORQ000013565	*	2789	CEG	*	*
R941291500	3155 NW Yeon	Rose City Diner (Fred N Bay News)	ORQ000018747	*	5812	CEG	*	*
R941291350	3247 NW Yeon	Medallion Industries Inc	ORD063455406	*	5039, 2341	CEG	*	*
R941291691	3182 NW 26th Ave	Peninsula Truck Lines Inc	ORQ000004945	*	4231	CEG	*	*
Adjacent to Outfall 16								
R941280550	2825 NW Yeon	Oregon Publishing Properties	ORD987179918	*	1542	CEG (SQG 2000)		
R941201286 R941280500 R941280710	3556 NW Front Ave	Portland Port Of Terminal 2	ORD981771488	*	4491, 0831, 7699	CEG	*	*
R941201286 R941280500 R941280710	3556 NW Front Ave Ste 360	Stevedoring Services Of America	ORR000000190	*	4491	RCRA-CEG (LQG 1992)	landfill	metals, methyl ethyl ketone
R941291270	3319 NW Yeon Ave	Pureforms Inc (Kneedspeed)	ORD987185725	97210PRFRM3319N	3086	LQG	air	1,1-Dichloro-1-Fluoroethane, Dichloromethane, Methylene Diphenyl Isocyanate, Trichlorofluoromethane

CEG=Conditionally Exempt Generator - generates less than 220 pounds of HW in a calendar month

SQG = Small Quantity Generator - generates between 220 and 2,200 pounds of HW in a calendar month

LQG = Large Quantity Generator - generates more than 2,200 pounds of HW in a calendar month

* No information available in database

Table 5**Basin 16 EPA Resource Conservation and Recovery Act (RCRA) Treatment Storage Disposal (TSD)**

Address	EPA ID	TRI Facility ID	Name
Within Basin 16			
3055 NW Yeon Ave	ORD982659005	97210BLTSR3055N	Beltservice/Fabiricon Corp.
2211 NW Brewer	ORD987173184	97210SCCRP2211N	Esco Corp.
3319 NW Yeon Ave	ORD987185725	97210PRFRM3319N	Kneedspeed Inc.

Table 6
Basin 16 DEQ Environmental Cleanup Site Information List (ECSI)

RNO	Address	Company	ECSI ID	CERCLIS	Action	Status	Notes
Within Basin 16							
R941291030 R941291840	2615-2619 NW Industrial St	Guilds Lake	404	987172582	Operation & Maintenance	LIS	
R941291980 R941292170	3445 NW Front Avenue	Front Avenue MP	4008	*	ICP	NFA	The site owner is now Peanut Butter Properties LLC
R941291580	2707 NW Nela	ABC&J Recycling (aka Nudelman)	966	*	Site Screening Recommended	SUS	
Adjacent to Outfall 16							
R941201286 R941280500 R941280710	3556 NW Front	Port of Portland / Terminal 2	2769	*	Preliminary assessment	SUS	

NFA = No Further Action

* No information available in database

Table 7
Basin 16 DEQ Leaking Underground Storage Tanks List (LUST)

RNO	Address	Log Number	Company	Zip	Cleanup Start	Cleanup End	Site Work Complete
Within Basin 16							
R941291691	3182 NW 26th	26-91-0113	Consolidated Freight/Transcon Lines	97210	3/12/1991	9/3/1992	9/3/1992
R941280580	3147 NW Front	26-91-0048	McCracken Motor Freight, Inc/ Peninsula Truck Lines, Inc	97210	10/1/1990		
R941292040 R941290840 R941290830 R941291980	3445 NW Front	26-92-0029	Gray's Crane Front Avenue MP	97210	2/10/1992	9/17/1996	1/13/1997
R941280550	2825 NW Yeon	26-90-0314	ABF Freight System	97210	8/31/1991	1/26/1994	3/4/1994
R941280550	2825 NW Yeon	26-00-0453	New Oregonian Printing Facilities	97210	4/4/2000	3/29/2001	5/11/2001
R941290960	3055 NW Yeon	26-93-6041	Beltservice Ahot	97210	6/16/1993	10/29/1993	7/20/1994
R941291500	3155 NW Yeon	26-90-0160	Fred N. Bay News/ Rose City Diner	97210	3/12/1990	3/12/1990	11/23/1990
R941280530	2770 NW Yeon	26-93-0168	ESCO Corporation	97210	9/29/1993	10/21/1996	10/21/1996
Adjacent to Outfall 16							
R941200980	3660 NW Front	26-91-0010	Engine 6	97210	9/30/1998	3/24/1999	5/25/1999
R941201286 R941280710 R941280500	3556 NW Front Ave	26-97-0949	Port of Portland - Terminal 2	97210	12/12/1997	5/18/1998	

Table 8
Basin 16 Portland Fire Bureau Underground Storage Tank List

Address	Name	Date	Size	AST/UST	Location	Comments
Within Basin 16						
3182 NW 26th Ave	Ringsby Truck Co	63	550	*	*	Waste oil
3182 NW 26th Ave	Converse Truck Lines	63	6,000	*	*	Total gal on premises 22,000
3182 NW 26th Ave	Converse Truck Lines	63	6,000	*	*	Total gal on premises 22,000
3182 NW 26th Ave	Converse Truck Lines	63	10,000	*	*	Total gal on premises 22,000
3182 NW 26th Ave	*	91	tank removal	*	*	Remove 2 -10,000g, 1- 6,000g
3182 NW 26th Ave	Consolid. Freight	98	250	*	*	LPG tank/
3445 NW Front Ave	Manitou	60	550	*	*	*
3445 NW Front Ave	Manitou Eq Co	67	550	*	yard	Diesel
3445 NW Front Ave	Gray's Crane	74	10,000	UST	yard	*
3445 NW Front Ave	Gray's Crane	74	10,000	*	*	Total tanks 4; total gal 21,000
3333 NW Front Ave	FTL Motor Freight	90	250	UST	yard	Steele ASME
2615 NW Industrial	United Beer Distrib Co	86	12,000	*	*	Total tanks 2; total gal 24,000
2615 NW Industrial		86	12,000	*	*	*
2615 NW Industrial	LPG	87	1,150	*	detached	*
2615 NW Industrial		91	10,000	*	yard	*
2615 NW Industrial		91	10,000	*	yard	*
2707 NW Nela	ABC&J Recycling (aka Nudelman)	66	2,000	*	*	Total 2 tanks; total gal 3,000 / 1- gasoline, 1-diesel
2707 NW Nela		66	1,000	*	*	*
2707 NW Nela		93	tank removal	*	*	Remove 1-1,000g , 1-1,500g tanks
2495 NW Nicolai	Calbag Metals Co	65	1,000	*	*	*
2495 NW Nicolai	Calbag Metals Co	84	499	*	*	*
2495 NW Nicolai	Calbag Metals Co	90	500	AST	detached	*
2825 NW Yeon	Pierce Freight Lines	52	1,000	*	*	*
2825 NW Yeon		52	1,000	*	*	*
2825 NW Yeon	Valley Copper State System	70	500	AST		*
2825 NW Yeon	Ryder Trucks	81	1,000	*	*	18 mo temp
2825 NW Yeon	Steelworks NW	90	tank removal	*	*	Removed 1-HOT, 1-waste oil, 4- motor fuel tanks (no sizes)
2825 NW Yeon	American Transport Inc	92	15,000	*	*	*
3033 NW Yeon	Von Weidlein International	73	1,000	AST	detached	*
3055 NW Yeon	LH Hoffman	49	675	*	yard	Ofc
3055 NW Yeon	LH Hoffman	49	675	*	yard	Whse
3055 NW Yeon	LH Hoffman	49	675	*	yard	Whse (consecut. Permits)

Table 8
Basin 16 Portland Fire Bureau Underground Storage Tank List

Address	Name	Date	Size	AST/UST	Location	Comments
3055 NW Yeon	Goodman Bros	97	tank removal	UST	*	Decommissioning UST #4; others already done
3055 NW Yeon	*	97	abandon	*	*	Abandon in place 675 (pea gravel)
3155 NW Yeon	*	61	2,000	*	*	Total tanks 1; total gal 2,000
3155 NW Yeon	*	74	1,750	*	*	Total tanks 2, total gal 3,750
3155 NW Yeon	*	78	6,000	*	*	*
3155 NW Yeon	*	87	4,000	*	*	*
3155 NW Yeon	*	78	500	*	*	Total tanks 5; total gal 14,000
3200 NW Yeon	Industrial Air Products	46	1,000	UST	yard	*
3200 NW Yeon	Industrial Air Products	51	12,000	*	*	Acetone
3200 NW Yeon	Signal Oil Co	52	5,000	UST	yard	*
3200 NW Yeon	Industrial Air	56	10,000	UST	yard	Diesel
3200 NW Yeon	Industrial Air	63	4,000	UST	yard	*
3200 NW Yeon	Schnitzer	79	10,000	UST	yard	*
3200 NW Yeon	Schnitzer	79	5,000	UST	yard	*
3200 NW Yeon	Schnitzer	88	10,000	UST	yard	*
3200 NW Yeon	Schnitzer	88	6,000	UST	yard	Removal of two tanks; 1-10,000g, 1-6,000g
3200 NW Yeon	Schnitzer	88	*	UST	yard	Remove 2 tanks in pkg lot behind bldg
Adjacent to Outfall 16						
3556 NW Front Ave	Port of Ptl'd terminal 2	98	6,000	*	yard	Diesel
3556 NW Front Ave	Port of Ptl'd terminal 2	98	2,000	*	yard	Unleaded
3556 NW Front Ave	Stevedoring Services of America repair shop	93	1,100	AST	*	3-compartment tank (lube oils)
3556 NW Front Ave		95	350	*	unknown	*
3660 NW Front Ave		60	550	*	unknown	PFB #6
3660 NW Front Ave	Fire Bureau	87	520	*	yard	E-6
3660 NW Front Ave		91	tank removal	*	*	Remove 2 - 550g tanks

AST=Aboveground Storage Tank

REM=Removed or Replaced

UST=Underground Storage Tank

* = Not available in database

Table 9
Basin 16 State Fire Marshal Hazardous Spills List

RNO	Address	Chemical	Date	Incident ID
Within Basin 16				
R941292190	2495 NW Nicolai	Titanium	1/11/1989	0291-890058
R941291840	2615 NW Industrial	Unknown chemical	1/2/1996	0291-960042
R941291030 R941291840	2619 NW Industrial - Building "B"	Natural gas	2/11/1993	0291-930015
R941200980	3653 NW Front Ave	Diesel fuel	12/21/1991	HM-06-930336
Adjacent to Outfall 16				
R941200980	3660 NW Front Ave	Unknown chemical	10/25/1997	HM-06-970344

Table 10
Basin 16 State Fire Marshal Hazardous Substances List

Date of Search 2002 (updated 2007)

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqnty	Haz Class 1	Haz Class 2
Within Basin 16											
R941280470	3333 NW Front Ave	Ager Tank & Equipment Co	35975	5172	*	*	*	*	*	*	*
R941291490	3221 NW Yeon	Anderson News	69065	5192	*	*	*	*	*	*	*
R941291490	3217 NW Yeon Ave	Adprint Reflection Graphics Co	003369	2752	Anchor Metering Roller Cleaner	Aliphatic Hydrocarbons	Liquid	Gallons	5-9	Flammable Liq.(Of<Fp<73f)	Acute Health Hazard
R941291490	3217 NW Yeon Ave	Adprint Reflection Graphics Co	003369	2752	Gans Low Odor Wash	Aromatic 100	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291490	3217 NW Yeon Ave	Adprint Reflection Graphics Co	003369	2752	Isopropyl Alcohol	Isopropyl Alcohol	Liquid	Gallons	5-9	Flammable Liq.(Of<Fp<73f)	Acute Health Hazard
R941291500	3155 NW Yeon	BC Graphic	22901	2396	Plastisol	PVC Resins	Solid	Pounds	1,000-4,999	Misc.Haz. Materials	*
R941280550	2825 NW Yeon	Click Express	78260	4731	*	*	*	*	*	*	*
R649701500	3315 NW 26th Ave	Climate Control Inc	51334	1711	*	*	*	*	*	*	*
R941280600	2950 NW Yeon Ave	Columbia Hydronics Co	34725	5074	*	*	*	*	*	*	*
R941280600	2950 NW Yeon	Columbia Hydronics Company	85092	5074	*	*	*	*	*	*	*
R941291950 R941291990 R941291770	3641 NW Front Ave	Concannon Paper	46321	5111	*	*	*	*	*	*	*
R649701500	3315 NW 26th	Documart	24319	2752	Star Wash	Mineral Spirits	Liquid	Gallons	20-49	Flamm.Liq. (73f<Fp<141f)	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Acetylene	Acetylene	Gas	Cubic Feet	500-999	Flammable Gases	Acute Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Alloys	*	Solid	Pounds	100,000-249,999	Misc.Haz. Materials	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Antifreeze	Ethylene Glycol	Liquid	Gallons	50-199	Acute Health Hazard	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Argon Liquid	Argon	Gas	Gallons	200-499	Nonflammable Gases	Acute Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Carbon Dioxide	Carbon Dioxide	Gas	Cubic Feet	5,000-9,999	Nonflammable Gases	Acute Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Drakeol 19	Mineral Oil	Liquid	Gallons	50-199	Acute Health Hazard	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Ferrux Hot Topping 107	None As Per 29cfr 1910.1200	Solid	Pounds	1,000-4,999	Dangerous When Wet	Reactive Material
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Gp2001 Liquid Hexamine	Hexamethylenetetramine	Liquid	Gallons	5,000-9,999	Chronic Health Hazard	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Grease	Severely Refined Petroleum Distillate	Solid	Pounds	200-499	Combustible Materials	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Hydraulic Oil 46	Highly Refined Base Oils	Liquid	Gallons	50-199	Combustible Materials	Acute Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Lube Oil	Solvent Dewaxed Heavy Paraffinic Dist.	Liquid	Gallons	50-199	Combustible Materials	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Molten Metals	Molten Alloys	Liquid	Pounds	10,000-49,999	Dangerous When Wet	*

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Nalco Water Treatment	Sodium Hydroxide	Liquid	Gallons	50-199	Corrosives	Chronic Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Oxygen	Oxygen	Gas	Cubic Feet	1,000-4,999	Nonflammable Gases	Oxidizers
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Oxygen Liquid	Oxygen	Gas	Gallons	5,000-9,999	Nonflammable Gases	Oxidizers
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Parac Gp5510 Powdered Phenolic Resin	Hexamethylenetetramine	Solid	Pounds	1,000-4,999	Reactive Material	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Propane	Propane	Gas	Gallons	1,000-4,999	Flammable Gases	Acute Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Resi-Flake Gp2211	Phenol	Solid	Pounds	100,000-249,999	Reactive Material	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Safety Kleen Solvent	Petroleum Naphtha	Liquid	Gallons	20-49	Combustible Materials	Acute Health Hazard
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Shielding Gas #8	Argon	Gas	Cubic Feet	500-999	Nonflammable Gases	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Silica Sand	Quartz	Solid	Pounds	500,000-749,999	Chronic Health Hazard	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Sodium Silicate	Sodium Silicate	Liquid	Gallons	1,000-4,999	Misc.Haz. Materials	*
R941280050	2211 NW Brewer	Esco Corporation	3222	3532	Zircon Sand	Zircon	Solid	Pounds	50,000-99,999	Misc.Haz. Materials	*
R941291410	3259 NW Yeon Bldg F	Florida Tile Industries	52779	5032	*	*	*	*	*	*	*
R941291700 R941280950 R941280990	3342 NW 26th Ave	Fluid Connector Products	35270	5084	Hydraulic Oil	Highly Refined Base Lubricating Oils	Liquid	Gallons	200-499	Combustible Materials	*
R941290860	3019 N Yeon Ave	Graphic Arts Center Pub	6154	2731	*	*	*	*	*	*	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	0-15	CHINA WOOD OIL	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	057 Gelusoy	None As Per 29cfr 1910.1200	Solid	Pounds	200-499	Misc.Haz. Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	C-75/Water Fighter	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	C77/Plastic Solvent	Methyl Pyrollidone	Liquid	Gallons	5-9	Combustible Materials	Acute Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	D 17/Grafo Drier	Manganese	Liquid	Gallons	5-9	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	D1 Drier	Manganese Tallate	Liquid	Gallons	50-199	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	D2 Drier	Cobalt Neodecanoate	Liquid	Gallons	50-199	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	D45	Zirconium 2-Ethylhexanoate	Liquid	Gallons		Flamm.Liq. (73f<Fp<141f)	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Dw 802/Bentone 500	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	Chronic Health Hazard

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Dw 809/Ok412	Amorphous Silicon Dioxide Hydrate	Solid	Pounds	50-199	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Dw 811/Aerosil	Hydrophobic Amorphous Silica	Solid	Pounds	50-199	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Dw 822/Polyolefin	Paraffin/Hydrocarbon Wax	Solid	Pounds	50-199	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Dw 832/Mother Of Pearl	Petroleum Distillate	Liquid	Gallons	5-9	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Gp-69/70/71/72	Light Petroleum Distillate	Liquid	Gallons	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	H 931/Vehicle	Aliphatic Hydrotreated Distillate	Liquid	Gallons	50-199	Combustible Materials	Acute Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	H-939/Ink Vehicle	Aliphatic Hydrocarbon Solvent	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hb 310/Blue Flush	Hydrotreated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hb 319/Blue Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hb 328	Acetic Acid	Solid	Pounds	500-999	Combustible Materials	Acute Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hb307	Treated Middle Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hc 826/C-629	Aliphatic Hydrocarbon Solvent	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hc-835/Ink Wax	Aliphatic Hydrocarbon Solvents	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hg 500/Green Flush	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hg 502/Green Flush	Hydrotreated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Ho 605/Orange Flush	Hydrotreated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hp 700/Rhodamine B	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hr 205/Rhodamine Y	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hr 207/Red Flush	Treated Middle Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hr 215/Pink Flush	Technical White Oil	Solid	Pounds	20-49	Combustible Materials	*

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hr 224/Orange Flush	Technical White Oil	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hr 261/Red Flush	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hy 108/Chartruk	Hydrotreated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Hy127	Treated Middle Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Nhc 820/Ink Grease	Naphenic Hydrotreated Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Orange Solid Oil	Solventdewaxed Heavy Paraffinic Dist.	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Printers Ink	Hydrocarbon Solvent	Solid	Pounds	10,000-49,999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb 378/Blue Flush	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb 415/Blue Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb 421/Blue Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb 576/Blue Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb 622	Phthalocyanine Blue	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb 632	Linseed Oil	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb178	Mineral Oil	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxb-354/Blue Flush	None As Per 29cfr 1910.1200	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc 253/Silicone	Silicone	Liquid	Gallons	0-4	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc 333/Protech 200	None As Per 29cfr 1910.1200	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc 366	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	5-9	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc 397/Polytech 500	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc 437/V/m&P Naphtha	Light Aliphatic Solvent Naphtha	Liquid	Gallons	50-199	Flammable Liq.(Of<Fp<73f)	Acute Health Hazard

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc242	Aliphatic Hydrocarbon Solvent	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc-453/Pe Wax	None As Per 29cfr 1910.1200	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxc-454/Ptfe Wax	None As Per 29cfr 1910.1200	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxk 524/Black Flush	Hydrotreated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxk 623	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxk-461 Black Flush	Aliphatic Hydrocarbon Solvent	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxl 604	Proprietary	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxp 352/Purple Flush	Refined Soybean Oil	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 113	C.I. Pigment Red 53:1	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 307/Red Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 350	C.I. Pigment Red 81:2	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 414/Red Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 420/Red Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 463/Red Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 567/Pink Flush	Hydrotreated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 575/Red Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 591/Red Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr 621	Lithol Rubin Red 57:1	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxr-445/Red Flush	None As Per 29cfr 1910.1200	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 477	Alphatic Hydrocarbon Solvents	Solid	Pounds	200-499	Flamm.Liq. (73f<Fp<141f)	*

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 480/Varnish	Treated Middle Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 522	Aliphatic Hydrocarbon Solvents	Solid	Pounds	200-499	Flamm.Liq. (73f<Fp<141f)	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 523	Aliphatic Hydrocarbon Solvents	Solid	Pounds	200-499	Flamm.Liq. (73f<Fp<141f)	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 537/O/P Varnish	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 548 O/P Varnish	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 568/Vehicle	Treated Middle Distillate	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 587/Vehicle	Treated Middle Distillate	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 596	Cobalt Carboxyalte	Liquid	Gallons	200-499	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 625	None As Per 29cfr 1910.1200	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 629	None As Per 29cfr 1910.1200	Liquid	Gallons	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv 630	None As Per 29cfr 1910.1200	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv207	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	10-19	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv218	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv-410/Ink Vehicle	Aliphatic Hydrocarbon Solvents	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv-411/Ink Vehicle	Aliphatic Hydrocarbon Solvent	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv-418/Ink Vehicle	Aliphatic Hydrocarbon Solvent	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv-467/Hs Gloss Op Varnish	Aliphatic Hydrocarbon Solvent	Solid	Pounds	1,000-4,999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxv-479/Freeflow Vehicle	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxy 274/Yellow Flush	Hydrotreated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxy 419/Yellow Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*

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R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxy 481/Yellow Flush	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxy 593/Yellow Flush	Refined Linseed Oil	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Pxy-457/Yellow Flush	None As Per 29cfr 1910.1200	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Qo 600/Orange Flush	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	R19/Tack Adjuster	None As Per 29cfr 1910.1200	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S10	Plastic Solvent N,N-Dimethylformamide	Liquid	Gallons	5-9	Flammable Liq.(0f<Fp<73f)	Organic Peroxides
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S16 Hypothiolate	Aromatic Hydrocarbon	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-22	Diethylene Glycol	Liquid	Gallons	5-9	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-26	Aliphatic Hydro-Solvent	Liquid	Gallons	50-199	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S39	Solvent 60	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S5	Technical White Oil	Liquid	Gallons	50-199	Combustible Materials	Acute Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S6	Magiesol 47 Oil	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S9	Tridecanol (Tda)	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S900	Lithkyd 3	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-90008/Ink Vehicle	Treated Middle Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-90009/Ink Vehicle	Treated Middle Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S906	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S910	Treated Middle Distillate	Solid	Pounds	1,000-4,999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S914	Solvar-Aliphatic Hydrocargon Sol.	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-927/Ink Varnish	None As Per 29cfr 1910.1200	Liquid	Gallons	5-9	Combustible Materials	*

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R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S962	Treated Middle Distillate	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S964	Alkali Fefined Soya Bean Oil	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-967/Gelled	Linseed Oil	Solid	Pounds	500-999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	S-994/Ink Varnish	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sb-312/Qs Victoria Blue	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	So 608/Orange Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sp 703/Violet Flush	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sp 704/Violet Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sp38/Silver Paste	Aluminum	Solid	Pounds	200-499	Combustible Materials	Chronic Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sr 234/Red Flush	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sr 247/Red Flush	Treated Middle Distillate	Solid	Pounds	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Sy 107/Hr Yellow	Treated Middle Distillate	Solid	Pounds	20-49	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Uk413	Treated Middle Distillate	Solid	Pounds	1,000-4,999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xc 70412/Antioxidant	Tripropylene Glycol	Liquid	Gallons	50-199	Combustible Materials	Acute Health Hazard
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xhv 70621/Webvar 79	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xhy 71014	Acetoacetanilide	Solid	Pounds	500-999	Combustible Materials	Corrosives
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xsk 159-Black Flush	Hydrotreated Petroleum Distillate	Solid	Pounds	200-499	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xsk-70567/Black Flush	None As Per 29cfr 1910.1200	Solid	Pounds	1,000-4,999	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xsu 70542/Vehicle	Treated Middle Distillate	Liquid	Gallons	50-199	Combustible Materials	*
R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xsv 70748/Cirergrl 200g	Aliphatic Hydrocarbon Solvent	Liquid	Gallons	50-199	Combustible Materials	*

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R649701500 R941291350 R941291470	3255 NW Yeon Ave	Ink Systems Inc	31399	2893	Xvc 70603/Fluoron 960	Aliphatic Hydrocarbon Solvent	Solid	Pounds	200-499	Combustible Materials	*
R941291490 R941291510	3201 NW Yeon Ave	Kramer's Metro Mailing Service	8411	5084	*	*	*	*	*	*	*
R941290860	3033 NW Yeon Ave	Lincoln & Allen Co	46234	2789	Glue Cold Melt	Vinyl Acetate Monomer	Liquid	Gallons	1,000-4,999	Misc.Haz. Materials	*
R941290860	3033 NW Yeon Ave	Lincoln & Allen Co	46234	2789	Glue Hot Melt	Ethylene Vinyl Acetate Copolymer	Solid	Pounds	10,000-49,999	Combustible Materials	*
R941290860	3033 NW Yeon Ave	Lincoln & Allen Co	46234	2789	Glue Pur	Vm&P Naphtha	Liquid	Gallons	200-499	Misc.Haz. Materials	Acute Health Hazard
R941290860	3033 NW Yeon Ave	Lincoln & Allen Co	46234	2789	Industrial Oil	Solvent Dewaxed	Liquid	Gallons	10-19	Combustible Materials	Chronic Health Hazard
R941290860	3033 NW Yeon Ave	Lincoln & Allen Co	46234	2789	Oxygen	Oxygen	Gas	Cubic Feet	200-499	Nonflammable Gases	Oxidizers
R941290860	3033 NW Yeon Ave	Lincoln & Allen Co	46234	2789	Propane	Propane	Gas	Gallons	50-199	Flammable Gases	Acute Health Hazard
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Acetylene	Acetylene	Gas	Cubic Feet	200-499	Flammable Gases	Acute Health Hazard
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Antifreeze	Ethylene Glycol	Liquid	Gallons	50-199	Acute Health Hazard	*
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Argon	Argon	Gas	Cubic Feet	500-999	Nonflammable Gases	*
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Argon And Carbon Dioxide Mixture	Argon	Gas	Cubic Feet	500-999	Nonflammable Gases	*
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Diesel	Petroleum Distillates	Liquid	Gallons	10,000-49,999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Engine Oil	Petroleum Hydrocarbon	Liquid	Gallons	500-999	Combustible Materials	*
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Motor Oil	Petroleum Hydrocarbons	Liquid	Gallons	500-999	Combustible Materials	Chronic Health Hazard
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Nitrogen	Nitrogen	Gas	Cubic Feet	500-999	Nonflammable Gases	*
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Oxygen	Oxygen	Gas	Cubic Feet	200-499	Nonflammable Gases	Oxidizers
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Propane	Propane	Gas	Gallons	500-999	Flammable Gases	Acute Health Hazard
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Ultra Duty Grease	Petroleum Distillates	Liquid	Gallons	50-199	Combustible Materials	*
R941280580	3147 NW Front Ave	Mccracken Motor Frt Inc	21854	4231	Universal Gear Lube	Lubricating Base Oil	Liquid	Gallons	50-199	Combustible Materials	*
R941291350	3247 NW Yeon St	Medallion Industries Inc	14301	5063	Lacquer 330	Methyl Ethyl Ketone	Liquid	Gallons	200-499	Flammable Liq.(0f<Fp<73f)	*
R941291350	3247 NW Yeon St	Medallion Industries Inc	14301	5063	Propane	Propane	Gas	Gallons	50-199	Flammable Gases	Acute Health Hazard
R941291350	3247 NW Yeon St	Medallion Industries Inc	14301	5063	Solvent #1	Toluene	Liquid	Gallons	50-199	Flammable Liq.(0f<Fp<73f)	Acute Health Hazard
R941291350	3247 NW Yeon St	Medallion Industries Inc	14301	5063	Stain Premixed Misc.	Xylene	Liquid	Gallons	200-499	Flamm.Liq. (73f<Fp<141f)	*

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R941292040 R941290840 R941290830 R941291980	3445 NW Front Ave	Nes Trench Shoring	82537	5082	*	*	*	*	*	*	*
R941291490	3217 NW Yeon Ave	Paul O Giesey Adcrafters	7940	2791	*	*	*	*	*	*	*
R941200980	3660 NW Front Ave	Portland Fire Bureau #6	18249	9224	*	*	*	*	*	*	*
R941290860	3019 NW Yeon Ave	R & A Walker Inc	31248	2789	*	*	*	*	*	*	*
R941290960	3055 NW Yeon St #6	Roger J Campbell	85573	4212	*	*	*	*	*	*	*
R941291580	2707 NW NEla	S J Nudelman & Son Inc	15590	5093	*	*	*	*	*	*	*
R649701480	3200 NW Yeon Ave	Schnitzer Invenstment Corp	54938	4731	*	*	*	*	*	*	*
R649701480	3200 NW Yeon Ave	Schnitzer Steel Ind Inc	13054	5093	*	*	*	*	*	*	*
R941291490	3205 NW Yeon Ave	Superior Interiors Inc	83180	1721	*	*	*	*	*	*	*
R941290960	3055 NW Yeon St	Trim-Flex Vinyl Co	46608	7641	*	*	*	*	*	*	*
R941291700 R941280950 R941280990	3342 NW 26th	Truckways Inc	59517	4212	Motor Oil	Petroleum Hydrocarbons	Liquid	Gallons	200-499	Combustible Materials	Chronic Health Hazard
R941291700 R941280950 R941280990	3342 NW 26th	Truckways Inc	59517	4212	Propane	Propane	Gas	Gallons	20-49	Flammable Gases	Acute Health Hazard
R941280600	2952 NW Yeon	United Paper Converters I	35267	2789	*	*	*	*	*	*	*
R941280570	3245 NW Front Ave	Viking Automatic Sprinkler Co	26370	1711	Acetylene	Acetylene	Gas	Cubic Feet	200-499	Flammable Gases	Acute Health Hazard
R941280570	3245 NW Front Ave	Viking Automatic Sprinkler Co	26370	1711	Nitrogen	Nitrogen	Gas	Cubic Feet	500-999	Nonflammable Gases	
R941280570	3245 NW Front Ave	Viking Automatic Sprinkler Co	26370	1711	Oxygen	Oxygen	Gas	Cubic Feet	500-999	Nonflammable Gases	Oxidizers
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	2,4-D	2,4-Dichlorophenoxyacetic Acid	Solid	Pounds	500-999	Pesticide	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	2,4-D-Liquid	2,4-Dichlorophenoxyacetic Acid	Liquid	Gallons	10,000-49,999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Acephate	O,S-Dimethyl Acetylphosphoramidothioate	Solid	Pounds	1,000-4,999	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Activated Carbon	Carbon	Solid	Pounds	10,000-49,999	Combustible Materials	*
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Alachlor	Alachlor	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Alcholethoxylates	Alcohol Ethoxylates	Liquid	Gallons	200-499	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Aldicarb	O's-Dimethyl Acetylphosphoramidothioate	Solid	Pounds	1,000-4,999	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Aliette	Aluminum-Tris Aluminum Salt	Solid	Pounds	5,000-9,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ammonium Nitrate	Ammonium Nitrate	Solid	Pounds	50,000-99,999	Oxidizers	*
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ammonium Phosphate	Ammonium Phosphate	Solid	Pounds	1,000-4,999	Combustible Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ammonium Sulfate	Ammonium Sulfate	Solid	Pounds	50,000-99,999	Acute Health Hazard	
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Aqua Ammonia	Ammonium Hydroxide	Liquid	Gallons	50-199	Corrosives	Acute Health Hazard

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R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Aromatic Naphtha	Aromatic Naphtha	Liquid	Gallons	200-499	Flamm.Liq. (73f<Fp<141f)	*
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Asulam	Methyl Sulfanilylcarbamate	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Atrazine	Atrazine	Solid	Pounds	10,000-49,999	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Atrazine-Liquid	Atrazine	Liquid	Gallons	1,000-4,999	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Avermectin	Avermectin B1	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Azinophos	Azinophos Methyl	Solid	Pounds	200-499	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Azinophos-Liquid	Azinophos Methyl	Liquid	Gallons	0-4	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Azoxystrobin	Azoxystrobin	Liquid	Gallons	200-499	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Bacillus Thuringiensis	Bacillus Thuringiensis	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Bendiocarb	Ethylcarbamate	Solid	Pounds	500-999	Pesticide	Chronic Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Benomyl	Benomyl	Solid	Pounds	1,000-4,999	Flammable Solids	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Bentazon	Bentazone	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Bromacil	Bromacil	Solid	Pounds	1,000-4,999	Misc.Haz. Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Bromoxynil	Bromoxynil	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Calcium Chloride	Calcium Chloride	Solid	Pounds	5,000-9,999	Misc.Haz. Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Calcium Chloride-Liquid	Calcium Chloride	Liquid	Gallons	50-199	Acute Health Hazard	
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Calcium Nitrate	Calcium Nitrate	Solid	Pounds	100,000-249,999	Acute Health Hazard	Oxidizers
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Captan	Captan	Solid	Pounds	1,000-4,999	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Captan-Liquid	Captan	Liquid	Gallons	50-199	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Carbaryl-Liquid	Methyl Carbamate	Liquid	Gallons	200-499	Pesticide	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Carbofuran	Carbofuran	Liquid	Gallons	200-499	Poisonous Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Chlormequat Chloride	Chlormequat Chloride	Liquid	Gallons	50-199	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Chlorothalonil	Tetrachloroisophthalonitrile	Solid	Pounds	1,000-4,999	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Chlorothalonil-Liquid	Tetrachloroisophthalonitrile	Liquid	Gallons	500-999	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Chlorpyrifos	Chlorpyrifos	Solid	Pounds	1,000-4,999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Chlorpyrifos-Liquid	Chlorpyrifos	Liquid	Gallons	500-999	Poisonous Materials	Acute Health Hazard

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Chlorsulfuron	Chlorsulfuron	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Clopyralid	Clopyralid	Liquid	Gallons	500-999	Chronic Health Hazard	Flamm.Liq. (73f<Fp<141f)
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Copper Hydroxide	Cupric Hydroxide	Solid	Pounds	5,000-9,999	Acute Health Hazard	Corrosives
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Copper Hydroxide-Liquid	Cupric Hydroxide	Liquid	Gallons	50-199	Acute Health Hazard	Corrosives
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Copper Sulfate	Copper Sulfate Pentahydrate	Solid	Pounds	10,000-49,999	Misc.Haz. Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Copper Sulfate-Liquid	Copper Sulfate	Liquid	Gallons	10-19	Acute Health Hazard	Misc.Haz. Materials
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Copper Triethanolamine	Copper Triethanolamine	Liquid	Gallons	200-499	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Cyanazine	Cyanazine	Liquid	Gallons	50-199	Acute Health Hazard	Chronic Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Cycloate	Cycloate	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Cyclohexanone	Cyclohexanone	Liquid	Gallons	500-999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Cyfluthrin	Cyfluthrin	Liquid	Gallons	500-999	Poisonous Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Cypermethrin	Cypermethrin	Liquid	Gallons	5-9	Acute Health Hazard	Poisonous Materials
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Diazinon	Diazinon	Solid	Pounds	5,000-9,999	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Diazinon-Liquid	Diazinon	Liquid	Gallons	200-499	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Dicamba	Dicamba	Liquid	Gallons	500-999	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Dichlobenil	2,6-Dichlorobenzonitrile	Solid	Pounds	5,000-9,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Diclofop-Methyl	Diclofop-Methyl	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Dienochlor	Dienochlor	Liquid	Gallons	5-9	Acute Health Hazard	Poisonous Materials
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Dimethenamid	Dimethenamid	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Dimethoate	Dimethoate	Liquid	Gallons	500-999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Dimethylamine	Dimethylamine	Liquid	Gallons	200-499	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Diquat	Diquat Dibromide	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Disulfoton	Disulfoton	Solid	Pounds	500-999	Poisonous Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Disulfoton-Liquid	Disulfoton	Liquid	Gallons	20-49	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Diuron	Diuron	Solid	Pounds	10,000-49,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Diuron-Liquid	Diuron	Liquid	Gallons	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Endosulfan	Endosulfan	Solid	Pounds	200-499	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Endosulfan-Liquid	Endosulfan	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Endothall	Endothall	Liquid	Gallons	50-199	Poisonous Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Eptc	S-Ethyl Dipropylthiocarbamate	Liquid	Gallons	500-999	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Esfenvalerate	Esfenvalerate	Liquid	Gallons	20-49	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ethanol	Ethanol	Liquid	Gallons	50-199	Flammable Liq.(0f<Fp<73f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ethofumesate	Ethofumesate	Liquid	Gallons	1,000-4,999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ethoprop	Ethoprop	Solid	Pounds	1,000-4,999	Acute Health Hazard	Chronic Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ethoprop-Liquid	Ethoprop	Liquid	Gallons	1,000-4,999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Ethylene Glycol	Ethylene Glycol	Liquid	Gallons	20-49	Acute Health Hazard	Chronic Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Fenamiphos	Fenamiphos	Solid	Pounds	20-49	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Fenamiphos-Liquid	Fenamiphos	Liquid	Gallons	5-9	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Fenbutatin Oxide	Fenbutatin Oxide	Solid	Pounds	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Fenpropathrin	Fenpropathrin	Liquid	Gallons	0-4	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Fonofos	Fonofos	Liquid	Gallons	10-19	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Glyphosate	Isopropylamine Salt Of Glyphosate	Liquid	Gallons	5,000-9,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Hexazinone	Hexazinone	Solid	Pounds	1,000-4,999	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Hexazinone-Liquid	Hexazinone	Liquid	Gallons	200-499	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Imazapyr	Imazapyr	Solid	Pounds	500-999	Flammable Liq.(0f<Fp<73f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Iprodione	Iprodione	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide

RNO	Loc Address	Company Name	SFM ID	SIC Number	Chemical Trade Name	Most Hazardous Ingredient	Physical State	Unit	Maxqty	Haz Class 1	Haz Class 2
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Iprodione-Liquid	Iprodione	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Iron Sulfate	Ferrous Sulfate	Solid	Pounds	10,000-49,999	Acute Health Hazard	
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Iron Sulfate-Liquid	Ferrous Sulfate	Liquid	Gallons	1,000-4,999	Acute Health Hazard	
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Isobutane	Isobutane	Liquid	Gallons	50-199	Flammable Gases	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Isophorone	Isophorone	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Isopropyl Alcohol	Isopropyl Alcohol	Liquid	Gallons	1,000-4,999	Flammable Liq.(0f<Fp<73f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Isoxaben	Isoxaben	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Kerosene	Kerosene	Liquid	Gallons	500-999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Lime Sulfur	Calcium Polysulfides	Liquid	Gallons	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Lindane-Liquid	Lindane	Liquid	Gallons	10-19	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Malathion	Malathion	Liquid	Gallons	200-499	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Maleic Hydrazide	Maleic Hydrazide	Liquid	Gallons	200-499	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Mancozeb	Mancozeb	Solid	Pounds	1,000-4,999	Reactive Material	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Mancozeb-Liquid	Mancozeb	Liquid	Gallons	1,000-4,999	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Maneb	Maneb	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Manganese Sulfate	Manganese Sulfate	Solid	Pounds	500-999	Misc.Haz. Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Mcpa	Dimethylamine Salt Of 2,4-D	Liquid	Gallons	1,000-4,999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Mcpp	Potassium Salt	Liquid	Gallons	200-499	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Metaldehyde	Metaldehyde	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Metam-Sodium	Metam Sodium	Liquid	Gallons	1,000-4,999	Corrosives	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Methamidophos	Methamidophos	Liquid	Gallons	50-199	Poisonous Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Methomyl	Methomyl	Solid	Pounds	200-499	Acute Health Hazard	Chronic Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Methomyl-Liquid	Methomyl	Liquid	Gallons	0-4	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Methyl Alcohol	Methyl Alcohol	Liquid	Gallons	50-199	Flammable Liq.(0f<Fp<73f)	Acute Health Hazard

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R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Methyl Isobutyl Ketone	Methyl Isobutyl Ketone	Liquid	Gallons	50-199	Flammable Liq.(0f<Fp<73f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Metolachlor	Metolachlor	Liquid	Gallons	1,000-4,999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Metribuzin	Metribuzin	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Metsulfuron-Methyl	Metsulfuron-Methyl	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Monoethanolamine	Monoethanolamine	Liquid	Gallons	200-499	Corrosives	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Myclobutanil	Myclobutanil	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Naphthalene	Naphthalene	Liquid	Gallons	200-499	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Napropamide	Napropamide	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Non-Ionic Surfactants	Octylphenoxyethoxyethanol	Liquid	Gallons	5,000-9,999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Non-Ionic Surfactants-Liquid	Octylphenoxyethoxyethanol	Liquid	Gallons	500-999	Acute Health Hazard	
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Norflurazon	Norflurazon	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Orzalin	Orzalin	Liquid	Gallons	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Oxadiazon	Oxadiazon	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Oxamyl	Oxamyl	Liquid	Gallons	20-49	Flammable Liq.(0f<Fp<73f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Oxyfluorfen	Oxyfluorfen	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Oxyfluorfen-Liquid	Oxyfluorfen	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Paraffinic Oil	Light Paraffinic Distillates	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Paraquat	1,1-Dimethyl-4,4-Bi-Pyridinium	Liquid	Gallons	1,000-4,999	Acute Health Hazard	Chronic Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Pcnb	Pentachloronitrobenzene	Solid	Pounds	1,000-4,999	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Pendimethalin	Pendimethalin	Solid	Pounds	5,000-9,999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Pendimethalin-Liquid	Pendimethalin	Liquid	Gallons	500-999	Flamm.Liq. (73f<Fp<141f)	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Petroleum Distillates	Petroleum Distillates	Liquid	Gallons	10,000-49,999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Picloram	Amino Trichloropicolinic	Liquid	Gallons	50-199	Chronic Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Pinolene	Pine Oil	Liquid	Gallons	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Potassium Chloride	Potassium Chloride	Solid	Pounds	10,000-49,999	Acute Health Hazard	

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R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Potassium Nitrate	Potassium Nitrate	Solid	Pounds	10,000-49,999	Oxidizers	Poisonous Materials
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Potassium Sulfate	Potassium Sulfate	Solid	Pounds	1,000-4,999	Misc.Haz. Materials	
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Prodiamine	Prodiamine	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Pronamide	Acetone	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Propargite	Propargite	Liquid	Gallons	50-199	Acute Health Hazard	Flamm.Liq. (73f<Fp<141f)
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Pyrazon	Acetone	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Quaternary Ammonium	Alkyl Dimethyl Benzyl Ammonium Chloride	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Simazine	Simazine	Liquid	Gallons	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Sodium Chlorate	Sodium Chlorate	Solid	Pounds	10,000-49,999	Oxidizers	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Sodium Metaborate	Sodium Metaborate Tetrahydrate	Solid	Pounds	10,000-49,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Sulfometuran Methyl	Sulfometuran Methyl	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Sulfotep	Tetraethyl Dithiopyrophosphate	Solid	Pounds	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Sulfur	Sulfur	Solid	Pounds	100,000-249,999	Combustible Materials	Corrosives
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Super Quick	Super Quick	Liquid	Gallons	50-199	Acute Health Hazard	Corrosives
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Terbacil	Terbacil	Solid	Pounds	500-999	Pesticide	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Thiophanate	Thiophanate	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Thiophanate-Liquid	Thiophanate	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Thiram	Tetramethylthiuram Disulfide	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Thiram-Liquid	Thiram	Liquid	Gallons	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Triadimefon	Triadimefon	Solid	Pounds	1,000-4,999	Pesticide	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Triallate	Triallate	Liquid	Gallons	200-499	Combustible Materials	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Triclopyr	Triethylamine Salt	Liquid	Gallons	1,000-4,999	Chronic Health Hazard	Combustible Materials
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Triflumizole	Triflumizole	Solid	Pounds	500-999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Trifluralin	Trifluralin	Solid	Pounds	1,000-4,999	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Trifluralin-Liquid	Trifluralin	Liquid	Gallons	50-199	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Triphenyltin Hydroxide	Triphenyltin Hydroxide	Solid	Pounds	50-199	Acute Health Hazard	Pesticide
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Urea	Urea	Solid	Pounds	50,000-99,999	Acute Health Hazard	*
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Urea-Liquid	Urea	Liquid	Gallons	200-499	Acute Health Hazard	*

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R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Xylene	Xylene	Liquid	Gallons	1,000-4,999	Flamm.Liq. (73f<Fp<141f)	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Zinc Phosphide	Zinc Phosphide	Solid	Pounds	500-999	Poisonous Materials	Acute Health Hazard
R941291280	3145 NW Yeon Ave	Wilbur Ellis Co	16465	5191	Zinc Sulfate	Zinc Sulfate Monohydrate	Solid	Pounds	5,000-9,999	Acute Health Hazard	Chronic Health Hazard
R941290960	3055 NW Yeon	Yeon Mini Storage	65968	4225	*	*	*	*	*	*	*
Adjacent to Outfall 16											
R941201286 R941280710 R941280500	3556 NW Front St	Journal Of Commerce Inc	54492	5192	*	*	*	*	*	*	*
R941201286 R941280710 R941280500	3556 NW Front Ave #385	National Cargo Bureau Inc	55989	4491	*	*	*	*	*	*	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Acetylene	Acetylene	Gas	Cubic Feet	1,000-4,999	Flammable Gases	Acute Health Hazard
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Antifreeze	Ethylene Glycol	Liquid	Gallons	50-199	Acute Health Hazard	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Argon And Carbon Dioxide Mixture	Argon	Gas	Cubic Feet	1,000-4,999	Nonflammable Gases	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Big O/Orange Mist	Orange Oil	Liquid	Gallons	50-199	Combustible Materials	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Bio Clean	Sodium Metasilicate	Liquid	Gallons	50-199	Acute Health Hazard	Chronic Health Hazard
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Carbon Dioxide	Carbon Dioxide	Gas	Gallons	10-19	Nonflammable Gases	Acute Health Hazard
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Diesel Fuel #2	Petroleum Mid- Distillate	Liquid	Gallons	5,000-9,999	Flamm.Liq. (73f<Fp<141f)	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Gasoline, Unleaded	Petroleum Distillates	Liquid	Gallons	5,000-9,999	Flammable Liq.(Fp<0f)	Chronic Health Hazard
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Lead Acid Batteries-Wet	Sulfuric Acid	Solid	Pounds	500-999	Corrosives	Acute Health Hazard
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Lube Oil	Solvent Dewaxed Heavy Paraffinic Dist.	Liquid	Gallons	1,000-4,999	Combustible Materials	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Nitrogen	Nitrogen	Gas	Cubic Feet	500-999	Nonflammable Gases	*
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Oxygen	Oxygen	Gas	Cubic Feet	1,000-4,999	Nonflammable Gases	Oxidizers
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Propane	Propane	Gas	Gallons	500-999	Flammable Gases	Acute Health Hazard
R941201286 R941280710 R941280500	3556 NW Front Ave Ste 360	Stevedoring Services Amer	11147	4491	Waste Oil	Petroleum Hydrocarbons	Liquid	Gallons	200-499	Combustible Materials	Chronic Health Hazard

Table 11
Basin 16 Confirmed Release List (CRL)

Site Name	Address	Zip	ECSI ID	Substances	Media	Phase	Program
Within Basin 16							
Guilds Lake	2615-2619 NW Industrial St	97210	404	Arsenic, Cadmium, Chromium, Lead, Petroleum	Soil, Groundwater	Long-term Monitoring	SRS

Program

SRS = Site Response

Table 12 Summary of Chemical Analytical Results In-river Sediment Samples Outfall Basin 16																				
Location Data Source Sample Type Sample ID Sample Date Depth	Outfall 16	Outfall 17		Center of Cove				Adjacent to T2 Dock on Upstream Side of Cove					Upstream				JSCS ⁽¹⁾ Screening Level Value (Toxicity) (Bioaccumulation)	DEQ Inriver Baseline ²		
	60' offshore	200' from OF 17	200' from OF 17	375' offshore from OF 16 - center of cove				580' from OF 16		620' from OF16	685' from OF 16 near nav channel		At upstream corner of Balch Creek Cove	50' upstream of Balch Creek Cove	130' upstream of Balch Creek Cove	500' upstream of Balch Creek Cove				
	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	T2/T5 '01 Dredge Char Study	T2/T5 '01 Dredge Char Study	T2/T4 Sed Study	LWG Round 2	LWG Round 2	LWG Round 2	Will. R. O&M Sed Char	T2/T5 '01 Dredge Char Study	LWG Round 2				
	surface	surface	beach	subsurface	subsurface	subsurface	subsurface	subsurface	subsurface	core	surface	surface	surface	core	subsurface	surface				
	LW2-G497	LW2-G494	LW2-B026	LW2-C494b	LW2-C494c	LW2-C494d	LW2-C494e	44001-4402	44001-4401	15012-1501	LW2-G492-2	LW2-G492-1	LW2-G489	94071-9419	44002-4402	LW2-G493				
	8/24/2004	10/3/2004	7/26/2004	10/28/2004	10/28/2004	10/28/2004	10/28/2004	6/28/2001	6/28/2001	9/15/1998	8/24/2004	8/24/2004	10/31/2004	9/18/2004	6/28/2001	10/31/2004				
0-27 cm	0-26 cm	0-15 cm	30-118 cm	118-221 cm	221-338 cm	338-382 cm	121-152 cm	152-182 cm	0-91 cm	0-28 cm	0-27 cm	0-27 cm	0-91.4	152-182 cm	0-27 cm					
Class Analyte Units																				
Total Organic Carbon																				
TOC	%	4.12	3.23	1.97	1.88	1.93	3.42	2.3	0.75	1.74	1.37	2.08	1.93 T	2.62 T	3.59	9 U	2.68 T	--	--	20000
Metals																				
Aluminum	mg/kg	15000	14800	15000	12800	16700	18800	19200	NA	NA	NA	20600	18000 T	28500 T	NA	NA	28300 T	--	--	42800
Antimony	mg/kg	0.44 J	0.46 J	0.16 UJ	0.19 UJ	0.24 UJ	0.16 UJ	0.12 UJ	NA	NA	0.13	0.17 J	0.15 JT	0.14 JT	0.1	NA	0.17 JT	64	--	5
Arsenic	mg/kg	7.76	3.47 J	2.84	2.32 J	2.91 J	2.96 J	3.48 J	NA	NA	1.4	3.36	3.18 T	3.92 T	2.4	NA	3.58 JT	33	7	5
Cadmium	mg/kg	0.766 J	0.294	0.24	0.28 J	0.403 J	0.294 J	0.211 J	NA	NA	0.17	0.24	0.25 T	0.217 T	0.18	NA	0.204 T	4.98	1	0.6
Chromium	mg/kg	36.3	26	30.4	20.5 J	25.4 J	26.6 J	25.1 J	NA	NA	15.7	26	23.6 T	35.5 T	NA	NA	34.3 T	111	--	41
Copper	mg/kg	68.1	30.4	27.1 J	25.5 J	34.6 J	31.6 J	31 J	NA	NA	17.2	28.4	26.1 T	38.5 T	26.3	NA	40.4 T	149	--	60
Lead	mg/kg	48.5	27.7	30.8	23.2	48	37	26.3	NA	NA	14.4	16.5	17.7 T	12.5 T	12.3	NA	12.2 T	128	17	30
Mercury	mg/kg	0.069	0.044	0.047	0.09	0.356	0.15	0.197	NA	NA	0.05	0.056	0.051 T	0.056 T	0.05	NA	0.059 T	1.06	0.07	0.1
Nickel	mg/kg	23.1	16.5	19.1	15.1	20	21.6	22.6	NA	NA	12.9	17.4	15.9 T	29 T	17.6	NA	23.9 T	48.6	--	32
Selenium	mg/kg	0.14 U	0.12	0.04 U	0.1 U	0.11 U	0.12 U	0.1 U	NA	NA	NA	0.14 J	0.12 JT	0.17 T	NA	NA	0.235 T	5	2	15
Silver	mg/kg	0.156	0.134	0.125	0.29	0.308	0.213	0.356	NA	NA	0.14	0.125	0.129 T	0.295 T	0.1	NA	0.218 T	5	--	1.4
Zinc	mg/kg	416	614	284	325	412	278	89.9	NA	NA	85.7	205	217 T	102 T	82	NA	107 T	459	--	118
Pesticides																				
2,4'-DDD	ug/kg	0.56 J	1.08 NJ	0.56 NJ	2.11 NJ	1.88 NJ	3.29 NJ	0.2 U	NA	NA	NA	0.412 J	0.492 JT	0.663 J	NA	NA	0.661 NJ	--	--	--
2,4'-DDE	ug/kg	0.151 UJ	1.08 NJ	0.0416 U	0.0394 U	0.0412 U	0.22 U	0.212 U	NA	NA	NA	0.147 U	0.626 JT	0.0597 U	NA	NA	0.65 NJ	--	--	--
2,4'-DDT	ug/kg	0.151 UJ	1.64 NJ	0.785 NJ	0.0521 U	0.761 NJ	0.291 U	0.28 U	NA	NA	NA	0.147 U	0.231 T	0.079 UJ	NA	NA	0.207	--	--	--
4,4'-DDD	ug/kg	1.15 J	1.44 J	2.75	2.6 NJ	3.26 NJ	2.88 NJ	0.299 U	16 U	5.6	2 U	0.531	0.592 T	0.937	1.7	1	0.846	--	--	--
4,4'-DDE	ug/kg	0.543 J	1.3 J	2.18 J	1.85 NJ	1.93 NJ	2.03 NJ	0.617 NJ	16 U	3.8	2 U	0.884 J	0.919 T	2.07	2.4	1.8	0.404 U	--	--	--
4,4'-DDT	ug/kg	0.441 J	0.84 J	13 NJ	3.03 NJ	3.99 NJ	4.87 J	NA	78	17	2 U	0.38 J	0.497 JT	0.26 J	0.93 U	5 U	0.404 U	--	--	--
Estimated Total DDT	ug/kg	2.134	3.58	17.93	7.48	9.18	9.78	0.617	78	26.4	ND	1.795	2.008	3.267	4.1	2.8	0.846	--	0.33	220
alpha-BHC (a-BHC) ³	ug/kg	0.151 UJ	0.723 J	0.0407 U	0.0385 U	0.0402 U	0.215 U	0.207 U	16 U	1.4 U	2 U	1.93 J	2.07 JT	0.0584 UJ	NA	1.4 U	0.143 J	--	--	--
beta-BHC (b-BHC) ³	ug/kg	4.71 J	4.71 NJ	4.56 NJ	2.39 NJ	2.97 NJ	2.02 NJ	2.05 NJ	16 U	1.4 U	2 U	5.97 J	4.09 JT	0.756	NA	1.4 U	1.26 NJ	--	--	--
delta-BHC (d-BHC) ³	ug/kg	0.443 J	0.11 UJ	0.087 UJ	0.0823 U	0.0861 U	0.461 U	0.443 U	16 U	1.4 U	2 U	0.147 UJ	0.146 UJT	0.125 UJ	NA	1.4 U	0.176 UJ	--	--	--
gamma-BHC (g-BHC, Lindane) ³	ug/kg	3.6 J	4.07 NJ	0.093 U	1.51 NJ	2.34 NJ	0.492 U	0.474 U	16 U	1.4 U	2 U	7.15 J	0.146 UT	0.133 UJ	0.17 U	1.4 U	0.176 UJ	4.99	--	--
Aldrin	ug/kg	2.78 J	0.0482 UJ	0.0381 UJ	0.0361 UJ	0.0377 UJ	0.202 UJ	0.194 UJ	16 U	1.4 U	2 U	0.147 UJ	0.146 UJT	0.0547 UJ	0.43 U	0.38	0.176 UJ	40	--	--
alpha-Chlordane	ug/kg	0.44 J	0.661 J	0.567	0.811 J	1.22 J	0.977 J	0.207 U	16 U	1.4 U	2 U	0.107 J	0.156 JT	0.218 J	0.36 U	1.4 U	0.323 NJ	--	--	--
beta-Chlordane	ug/kg	0.303 J	0.477 NJ	0.654 NJ	0.0242 U	0.982 NJ	1.22 NJ	0.13 U	24 U	1.4 U	2 U	0.647 J	0.535 JT	0.515 NJ	0.84 U	0.96	0.42 NJ	--	--	--
Oxychlordane	ug/kg	6.81 J	0.0278 U	0.0219 U	0.0208 U	0.0217 U	0.116 U	0.112 U	NA	NA	NA	0.588 J	1.62 JT	0.0315 UJ	NA	NA	0.176 UJ	--	--	--
cis-Nonachlor	ug/kg	0.151 UJ	0.298 J	0.445 NJ	0.763 J	0.628 J	1.43 NJ	0.259 U	NA	NA	NA	0.147 U	0.146 UT	0.0729 UJ	NA	NA	0.176 U	--	--	--
trans-Nonachlor	ug/kg	0.214 J	0.0559 U	0.345 U	0.0418 U	0.0437 U	0.618 J	0.225 U	NA	NA	NA	0.213 J	0.122 JT	0.272 J	NA	NA	0.198	--	--	--
Estimated Total Chlordane ⁴	ug/kg	7.767	1.436	1.666	1.574	2.83	4.245	ND	NA	NA	NA	1.555	2.433	1.005	NA	NA	0.941	17.6	0.37	ug/kg
Dieldrin	ug/kg	4.85 J	0.0789 U	0.0623 U	0.059 U	0.0617 U	0.33 U	0.318 U	16 U	1.4 U	2 U	0.147 U	0.146 UT	0.0895 UJ	0.17	1.4 U	0.176 U	61.8	0.0081	--
alpha-Endosulfan	ug/kg	0.485 J	0.0444 U	0.0351 U	0.0332 U	0.0347 U	0.186 U	0.179 U	16 U	1.4 U	2 U	0.147 U	0.146 UT	0.0503 UJ	NA	1.4 U	0.176 U	--	--	--
beta-Endosulfan	ug/kg	0.151 UJ	0.037 U	0.0293 U	0.0277 U	0.0289 U	0.155 U	0.149 U	52	2.7 U	2 U	0.147 U	0.146 UT	0.683 J	NA	1.4 U	0.176 U	--	--	--
Endosulfan sulfate	ug/kg	0.151 UJ	0.114 UJ	0.0899 UJ	0.0851 U	0.0889 U	0.476 U	0.458 U	20 U	1.4 U	2 U	0.147 UJ	0.146 UJT	0.129 UJ	NA	1.4 U	0.176 UJ	--	--	--
Endrin	ug/kg	0.151 UJ	0.0612 UJ	0.0483 UJ	NA	NA	NA	NA	40	2.7 U	2 U	NA	NA	NA	NA	1.4 U	0.176 UJ	207	--	--
Endrin aldehyde	ug/kg	0.151 UJ	0.0673 U	0.0532 U	0.0503 U	0.0526 U	0.282 U	0.271 U	16 U	1.4 U	2 U	0.147 U	0.146 UT	0.0764 U	NA	1.4 U	0.176 UJ	--	--	--
Endrin ketone	ug/kg	0.151 UJ	0.0453 U	0.0358 U	8.32 NJ	0.0354 U	0.19 U	0.182 U	19 U	1.4 U	2 U	1.2 NJ	1.23 NJT	0.283 NJ	NA	1.4 U	0.176 U	--	--	--
Heptachlor	ug/kg	0.151 UJ	0.0469 U	0.037 U	0.035 U	0.0366 U	0.196 U	0.189 U	16 U	0.59	2 U	0.147 U	0.146 UT	0.0532 U	0.17 U	1.4 U	0.176 U	10	--	--
Heptachlor epoxide	ug/kg	0.151 UJ	0.0612 U	0.0483 U	0.0457 U	0.0478 U	0.256 U	0.246 U	16 U	0.91	2 U	0.937 J	0.146 UT	0.0694 UJ	NA	1.4 U	0.176 UJ	16	--	--
Methoxychlor	ug/kg	4.99 J	0.061 UJ	0.0482 U	0.0456 UJ	0.0476 UJ	0.255 UJ	0.245 UJ	16 U	2.9 U	4 U	3.33 J	0.146 UT	0.0692 UJ	NA	1.4 U	0.176 U	--	--	--
Mirex	ug/kg	0.151 UJ	0.0554 U	0.0437 U	0.0414 U	0.0433 U	0.232 U	0.223 U	NA	NA	NA	0.147 U	0.146 UT	0.0628 UJ	NA	NA	0.176 UJ	--	--	--
Toxaphene	ug/kg	18.8 UJ	14.5 U	11.5 U	10.8 U	11.3 U	60.6 U	58.4 U	770 U	70 U	110 U	18.4 U	18.3 UT	16.4 U	NA	67 U	21.9 U	--	--	--

Table 12 Summary of Chemical Analytical Results In-river Sediment Samples Outfall Basin 16																				
Location Data Source Sample Type Sample ID Sample Date Depth		Outfall 16	Outfall 17		Center of Cove			Adjacent to T2 Dock on Upstream Side of Cove					Upstream				JSCS ⁽¹⁾ Screening Level Value (Toxicity) (Bioaccumulation)	DEQ Inriver Baseline ²		
		60' offshore	200' from OF 17	200' from OF 17	375' offshore from OF 16 - center of cove				580' from OF 16		620' from OF16	685' from OF 16 near nav channel		At upstream corner of Balch Creek Cove	50' upstream of Balch Creek Cove	130' upstream of Balch Creek Cove			500' upstream of Balch Creek Cove	
LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	T2/T5 '01 Dredge Char Study	T2/T5 '01 Dredge Char Study	T2/T4 Sed Study	LWG Round 2	LWG Round 2	LWG Round 2	Will. R. O&M Sed Char	T2/T5 '01 Dredge Char Study	LWG Round 2				
surface	surface	beach	subsurface	subsurface	subsurface	subsurface	subsurface	subsurface	subsurface	core	surface	surface	surface	core	subsurface	surface				
LW2-G497	LW2-G494	LW2-B026	LW2-C494b	LW2-C494c	LW2-C494d	LW2-C494e		44001-4402	44001-4401	15012-1501	LW2-G492-2	LW2-G492-1	LW2-G489	94071-9419	44002-4402	LW2-G493				
8/24/2004	10/3/2004	7/26/2004	10/28/2004	10/28/2004	10/28/2004	10/28/2004		6/28/2001	6/28/2001	9/15/1998	8/24/2004	8/24/2004	10/31/2004	9/18/2004	6/28/2001	10/31/2004				
0-27 cm	0-26 cm	0-15 cm	30-118 cm	118-221 cm	221-338 cm	338-382 cm		121-152 cm	152-182 cm	0-91 cm	0-28 cm	0-27 cm	0-27 cm	0-91.4	152-182 cm	0-27 cm				
PCBs																				
Aroclor 1016	ug/kg	5.6 U	19.1 U	15 U	5.75 UJ	10.8 UJ	4.82 UJ	1.53 UJ	160 U	14 U	10 U	7.3 U	7.4 UT	2.21 UJ	3.1 U	NA	2.26 U	530	--	--
Aroclor 1221	ug/kg	10 U	35.5 U	28 U	10.7 UJ	19.9 UJ	8.93 UJ	2.84 UJ	310 U	28 U	10 U	14 U	14 UT	4.08 UJ	3.1 U	NA	4.18 U	--	--	--
Aroclor 1232	ug/kg	9.4 U	32 U	25 U	9.63 UJ	18 UJ	8.07 UJ	2.57 UJ	160 U	14 U	10 U	12 U	12 UT	3.69 UJ	3.1 U	NA	3.78 U	--	--	--
Aroclor 1242	ug/kg	5.7 U	19.5 U	15 U	5.85 UJ	10.9 UJ	4.91 UJ	1.56 UJ	160 U	14 U	10 U	7.5 U	7.5 UT	2.24 UJ	3.1 U	NA	2.3 U	--	--	--
Aroclor 1248	ug/kg	71	86.5 J	82	109 J	162 J	125 J	2 UJ	160 U	14 U	10 U	16	23 T	2.87 UJ	3.1 U	NA	2.94 U	1500	--	--
Aroclor 1254	ug/kg	3.4 U	104	9.1 U	134 J	287 J	133 J	0.932 UJ	160 U	14 U	10 U	4.5 U	4.5 UT	8.21 J	3.1 U	NA	1.37 U	300	--	--
Aroclor 1260	ug/kg	200	409	240	246 J	522 J	369 J	1.2 UJ	770	74	26	94	150 T	1.72 UJ	21	NA	8.04	200	--	--
Aroclor 1262	ug/kg	5.3 U	17.9 U	14 U	5.37 UJ	10 UJ	4.51 UJ	1.43 UJ	NA	NA	NA	6.9 U	6.9 UT	2.06 UJ	NA	NA	2.11 U	--	--	--
Aroclor 1268	ug/kg	11 UJ	15.4 U	12 U	4.61 UJ	8.62 UJ	3.87 UJ	1.23 UJ	NA	NA	NA	15 UJ	15 UJT	1.77 UJ	NA	NA	1.81 UJ	--	--	--
Estimated Total PCBs	ug/kg	271	495.5	322	489	971	627	ND	770	74	26	110	173	8.21	21	NA	8.04	676	0.39	180
Phthalates																				
Bis(2-ethylhexyl) phthalate	ug/kg	3900	1200 UJ	170	400	1700	390 U	13 U	NA	NA	240	170	155 T	160 J	71	NA	120 J	800	330	390
Butylbenzyl phthalate	ug/kg	190	74 J	2.3 U	19 J	13 U	25 U	12 U	NA	NA	20 U	5 U	8.6 T	3.6 UJ	2.6 U	NA	3.8 UJ	--	--	20
Di-n-butyl phthalate	ug/kg	97 U	31 J	10	12 J	31 J	42 U	20 U	NA	NA	20 U	8.6 U	4.4 UT	6.3 UJ	4.9	NA	6.8 J	100	60	20
Diethyl phthalate	ug/kg	130 U	6.9 UJ	5.3 U	11 U	29 U	57 U	27 U	NA	NA	20 U	12 U	5.9 UT	8.4 UJ	5.9 U	NA	8.9 UJ	600	--	--
Dimethyl phthalate	ug/kg	63 U	3.6 UJ	2.8 U	5.6 U	15 U	29 U	14 U	NA	NA	20 U	6 U	3.1 UT	4.3 UJ	3.1 U	NA	4.6 UJ	--	--	20
Di-n-octyl phthalate	ug/kg	42 U	2.4 UJ	1.9 U	3.8 U	9.7 U	20 U	9.1 U	NA	NA	20 U	4 U	2.1 UT	2.9 UJ	2.1 U	NA	3.1 UJ	--	--	20
PAHs																				
2-Methylnaphthalene	ug/kg	15	5.4	3.4	4.9	22	100	27	NA	NA	NA	2.7	2.05 JT	1.8 J	3	NA	2.4 J	200	--	150
Acenaphthene	ug/kg	36	10	4.8	6	35	470	370	NA	NA	20 U	2.9	1.8 JT	1.3 J	4.2	NA	1.4 J	300	--	180
Acenaphthylene	ug/kg	12	15	42	13	17	220	79	NA	NA	20 U	4.2	3.8 T	2 J	10	NA	2.7 J	200	--	60
Anthracene	ug/kg	52	23	34	19	49	410	440	NA	NA	20 U	7.5	7.05 T	2.4 J	11	NA	3 J	845	--	150
Benz(a)anthracene	ug/kg	260	100	130	42	79	620	800	NA	NA	73	32	25 T	10	37	NA	10	1050	--	360
Benzo(a)pyrene	ug/kg	360	140	250	67	100	1200	2000	NA	NA	100	43	38.5 T	11	57	NA	11	1450	--	500
Benzo(b)fluoranthene	ug/kg	510	190	240	77	120	1000	1500	NA	NA	75	55	47 T	16	44	NA	16	--	--	--
Benzo(g,h,i)perylene	ug/kg	460	150	280	77	92	1300	2700	NA	NA	77	44	39.5 T	11	62	NA	13	300	--	250
Benzo(k)fluoranthene	ug/kg	160	51	72	27	41	330	470	NA	NA	65	18	15.5 T	4.3	39	NA	4.1	13000	--	--
Chrysene	ug/kg	360	170	200	70	110	860	1100	NA	NA	100	57	43 T	12	52	NA	17	1290	--	425
Dibenz(a,h)anthracene	ug/kg	85	19	24	8.6	14	80	120 J	NA	NA	20 U	6.8	6.15 T	1.5 J	6.8	NA	2.5 J	1300	--	125
Fluoranthene	ug/kg	800	370	430	130	250	3500	4800	NA	NA	240	110	70.5 T	20	110	NA	23	2230	37000	600
Fluorene	ug/kg	36	13	7.7	8.1	31	160	100	NA	NA	20 U	3.5	2.35 T	1.4 J	6.4	NA	1.7 J	536	--	125
Indeno(1,2,3-cd)pyrene	ug/kg	420	140	240	65	85	1100	1900	NA	NA	95	40	36 T	8.2	50	NA	8.7	100	--	225
Naphthalene	ug/kg	23	7.7	6.5	12 U	40	420	200	NA	NA	20 U	7.4 U	5.5 UT	4.8	6.4	NA	8 U	561	--	200
Phenanthrene	ug/kg	310	150	180	70	160	2600	3400	NA	NA	93	45	32 T	10	45	NA	12	1170	--	700
Pyrene	ug/kg	570	380	570	150	250	4700	6400	NA	NA	280	110	72 T	22	110	NA	24	1520	1900	700
Estimated Total PAHs	ug/kg	4469	1934.1	2714.4	834.6	1495	19070	26406	NA	NA	1198	581.6	442.2	139.7	653.8	NA	152.5	--	--	--
Phenolic SVOCs																				
2,3,4,5-Tetrachlorophenol	ug/kg	5.1 U	5.7 U	0.88 U	0.9 U	0.94 U	0.94 U	4.4 U	NA	NA	NA	4.8 U	4.9 UT	5.2 U	NA	NA	7.4 U	--	--	--
2,3,4,6;2,3,5,6-Tetrachlorophenol coelution	ug/kg	3.2 U	3.6 U	0.55 U	0.56 U	0.59 U	2 J	2.8 U	NA	NA	NA	3 U	3.1 UT	5.1 U	NA	NA	4.6 U	--	--	--
2,4-Dichlorophenol	ug/kg	63 U	3.6 UJ	2.8 U	5.6 U	15 U	29 U	14 U	NA	NA	NA	6 U	3.1 UT	4.3 UJ	NA	NA	3.7 U	--	--	--
2,4-Dimethylphenol	ug/kg	200 U	11 UJ	8.3 U	18 U	45 U	89 U	42 U	NA	NA	6 U	19 U	9.3 UT	14 UJ	9.3 U	NA	4.6 U	--	--	--
2,4-Dinitrophenol	ug/kg	1300 U	71 UJ	55 U	120 U	300 U	580 U	280 U	NA	NA	NA	120 U	61 UT	86 UJ	NA	NA	4.6 UJ	--	--	--
2,4,5-Trichlorophenol	ug/kg	2.6 U	2.9 U	0.44 U	0.45 U	0.47 U	0.47 U	2.2 U	NA	NA	NA	2.4 U	2.5 UT	4 U	NA	NA	14 UJ	--	--	--
2,4,6-Trichlorophenol	ug/kg	3.2 U	3.6 U	0.55 U	0.56 U	0.59 U	0.58 U	2.8 U	NA	NA	NA	3 U	3.1 UT	3 U	NA	NA	91 UJ	--	--	--
2-Chlorophenol	ug/kg	60 U	3.4 UJ	2.6 U	5.3 U	14 U	28 U	13 U	NA	NA	NA	5.7 U	2.9 UT	4.1 UJ	NA	NA	4.3 UJ	--	--	--
2-Methylphenol	ug/kg	120 U	6.7 UJ	5.2 U	11 U	28 U	55 U	26 U	NA	NA	6 U	12 U	5.7 UT	8.2 UJ	5.8 U	NA	8.6 UJ	--	--	--
2-Nitrophenol	ug/kg	91 U	5.1 UJ	4 U	8.1 U	21 U	42 U	20 U	NA	NA	NA	8.6 U	4.4 UT	6.3 UJ	NA	NA	6.6 UJ	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	60 U	3.4 UJ	2.6 U	5.3 U	14 U	28 U	13 U	NA	NA	NA	5.7 U	2.9 UT	4.1 UJ	NA	NA	4.3 UJ	--	--	--
4-Chloro-3-methylphenol	ug/kg	74 U	4.2 UJ	3.2 U	6.6 U	17 U	34 U	16 U	NA	NA	NA	7 U	3.6 UT	5.1 UJ	NA	NA	5.4 UJ	--	--	--
4-Methylphenol	ug/kg	110 U	22 J	4.4 U	9 U	35 J	81 J	29 J	NA	NA	20 U	9.6 U	4.9 UT	15 J	14	NA	13 J	--	--	680
4-Nitrophenol	ug/kg	1100 U	59 UJ	46 U	94 U	250 U	490 U	230 U	NA	NA	NA	1.32 U	1.18 UT	72 UJ	NA	NA	76 UJ	--	--	--
Pentachlorophenol	ug/kg	34 U	11 U	0.59 U	4.1 J	5.9 J	18 J	3 U	NA	NA	61 U	2.46 U	2.2 UT	5.5 U	15 U	NA	5 U	1000	250	97
Phenol	ug/kg	79 J	20 UJ	4.1 J	5.9 U	16 U	31 U	15 U	NA	NA	20 U	7.4 J	3.2 UT	10 J	3.2 U	NA	14 J	50	--	20

Table 12 Summary of Chemical Analytical Results In-river Sediment Samples Outfall Basin 16																			
Location	Outfall 16	Outfall 17		Center of Cove				Adjacent to T2 Dock on Upstream Side of Cove					Upstream				JSCS ⁽¹⁾ Screening Level Value (Toxicity) (Bioaccumulation)	DEQ Inriver Baseline ²	
													At upstream corner of Balch Creek Cove	50' upstream of Balch Creek Cove	130' upstream of Balch Creek Cove	500' upstream of Balch Creek Cove			
	60' offshore	200' from OF 17	200' from OF 17	375' offshore from OF 16 - center of cove				580' from OF 16		620' from OF16	685' from OF 16 near nav channel		LWG Round 2	Will. R. O&M Sed Char	T2/T5 '01 Dredge Char Study	LWG Round 2			
	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	LWG Round 2	T2/T5 '01 Dredge Char Study	T2/T5 '01 Dredge Char Study	T2/T4 Sed Study	LWG Round 2	LWG Round 2	LWG Round 2	Will. R. O&M Sed Char	T2/T5 '01 Dredge Char Study	LWG Round 2			
	surface	surface	beach	subsurface	subsurface	subsurface	subsurface	subsurface	subsurface	core	surface	surface	surface	core	subsurface	surface			
	Sample ID	LW2-G497	LW2-G494	LW2-B026	LW2-C494b	LW2-C494c	LW2-C494d	LW2-C494e	44001-4402	44001-4401	15012-1501	LW2-G492-2	LW2-G492-1	LW2-G489	94071-9419	44002-4402			LW2-G493
Sample Date	8/24/2004	10/3/2004	7/26/2004	10/28/2004	10/28/2004	10/28/2004	10/28/2004	6/28/2001	6/28/2001	9/15/1998	8/24/2004	8/24/2004	10/31/2004	9/18/2004	6/28/2001	10/31/2004			
Depth	0-27 cm	0-26 cm	0-15 cm	30-118 cm	118-221 cm	221-338 cm	338-382 cm	121-152 cm	152-182 cm	0-91 cm	0-28 cm	0-27 cm	0-27 cm	0-91.4	152-182 cm	0-27 cm			
Organonitrogen SVOCs																			
Nitrobenzene	ug/kg	70 U	4 UJ	3.1 U	6.3 U	17 U	33 U	16 U	NA	NA	NA	6.6 U	3.4 UT	4.8 UJ	NA	NA	5.1 UJ	--	--
Aniline	ug/kg	53 U	3 UJ	2.3 U	4.7 U	13 U	25 U	12 U	NA	NA	NA	5 U	2.6 UT	3.6 UJ	NA	NA	3.8 UJ	--	--
2-Nitroaniline	ug/kg	95 U	5.3 UJ	4.1 U	8.4 U	22 U	44 U	21 U	NA	NA	NA	8.9 U	4.6 UT	6.5 UJ	NA	NA	6.9 UJ	--	--
3-Nitroaniline	ug/kg	91 U	5.1 UJ	4 U	8.1 U	21 U	42 U	20 U	NA	NA	NA	8.6 U	4.4 UT	6.3 UJ	NA	NA	6.6 UJ	--	--
4-Nitroaniline	ug/kg	120 U	6.7 UJ	5.2 U	11 U	28 U	55 U	26 U	NA	NA	NA	12 U	5.7 UT	8.2 UJ	NA	NA	8.6 UJ	--	--
2,4-Dinitrotoluene	ug/kg	98 U	5.5 UJ	4.3 U	8.7 U	23 U	45 U	22 U	NA	NA	NA	9.3 U	4.7 UT	6.7 UJ	NA	NA	7.1 UJ	--	--
2,6-Dinitrotoluene	ug/kg	98 U	5.5 UJ	4.3 U	8.7 U	23 U	45 U	22 U	NA	NA	NA	9.3 U	4.7 UT	6.7 UJ	NA	NA	7.1 UJ	--	--
4-Chloroaniline	ug/kg	74 U	4.2 UJ	3.2 U	6.6 U	17 U	34 U	16 U	NA	NA	NA	7 U	3.6 UT	5.1 UJ	NA	NA	5.4 UJ	--	--
Carbazole	ug/kg	54 J	14 J	5.9 J	7 J	12 J	41 J	14 J	NA	NA	NA	5.7 J	4.2 JT	3.2 UJ	NA	NA	3.3 UJ	1600	100
N-Nitrosodimethylamine	ug/kg	220 U	12 UJ	9.2 U	19 U	50 U	98 U	47 U	NA	NA	NA	21 U	11 UT	15 UJ	NA	NA	16 UJ	--	--
N-Nitrosodiphenylamine	ug/kg	77 U	4.4 UJ	3.4 U	6.9 U	18 U	36 U	17 U	NA	NA	12 U	7.3 U	3.7 UT	5.3 UJ	3.7 U	NA	5.6 UJ	--	--
N-Nitrosodipropylamine	ug/kg	120 U	6.3 UJ	4.9 U	10 U	26 U	52 U	25 U	NA	NA	NA	11 U	5.4 UT	7.7 UJ	NA	NA	8.1 UJ	--	--
Halogenated SVOCs																			
1,2,4-Trichlorobenzene	ug/kg	53 U	5.3 J	2.3 U	4.7 U	13 U	25 U	12 U	NA	NA	NA	5 U	2.6 UT	3.6 UJ	2.6 U	NA	3.8 UJ	9200	--
1,2-Dichlorobenzene	ug/kg	46 U	2.6 UJ	2 U	4.1 U	11 U	21 U	9.9 U	NA	NA	5 U	4.3 U	2.2 UT	3.2 UJ	2.2 U	NA	3.3 UJ	1700	--
1,3-Dichlorobenzene	ug/kg	56 U	3.2 UJ	2.5 U	5 U	13 U	26 U	13 U	NA	NA	5 U	5.3 U	2.7 UT	3.9 UJ	2.7 U	NA	4.1 UJ	300	--
1,4-Dichlorobenzene	ug/kg	67 U	8 J	5 J	6.8 J	24 J	32 J	15 U	NA	NA	5 U	6.3 U	3.2 UT	4.6 UJ	3.2 U	NA	4.8 UJ	300	--
2-Chloronaphthalene	ug/kg	130 U	7.1 UJ	5.5 U	12 U	30 U	58 U	28 U	NA	NA	NA	12 U	6.1 UT	8.6 UJ	NA	NA	9.1 UJ	--	--
3,3'-Dichlorobenzidine	ug/kg	130 U	7.3 UJ	5.6 U	12 U	30 U	60 U	28 U	NA	NA	NA	13 U	6.2 UT	8.9 UJ	NA	NA	9.4 UJ	--	--
4-Bromophenyl phenyl ether	ug/kg	49 U	2.8 UJ	2.2 U	4.4 U	12 U	23 U	11 U	NA	NA	NA	4.7 U	2.4 UT	3.4 UJ	NA	NA	3.6 UJ	--	--
4-Chlorophenyl phenyl ether	ug/kg	70 U	4 UJ	3.1 U	6.3 U	17 U	33 U	16 U	NA	NA	NA	6.6 U	3.4 UT	4.8 UJ	NA	NA	5.1 UJ	--	--
Azobenzene	ug/kg	84 U	4.8 UJ	3.7 U	7.5 U	20 U	39 U	19 U	NA	NA	NA	8 U	4.1 UT	5.8 UJ	NA	NA	6.1 UJ	--	--
Bis(2-chloroethoxy) methane	ug/kg	46 U	2.6 UJ	2 U	4.1 U	11 U	21 U	9.9 U	NA	NA	NA	4.3 U	2.2 UT	3.2 UJ	NA	NA	3.3 UJ	--	--
Bis(2-chloroethyl) ether	ug/kg	84 U	4.8 UJ	3.7 U	7.5 U	20 U	39 U	19 U	NA	NA	NA	8 U	4.1 UT	5.8 UJ	NA	NA	6.1 UJ	--	--
Bis(2-chloroisopropyl) ether	ug/kg	42 U	2.4 UJ	1.9 U	3.8 U	9.7 U	20 U	9.1 U	NA	NA	NA	4 U	2.1 UT	2.9 UJ	NA	NA	3.1 UJ	--	--
Hexachlorobenzene	ug/kg	1.13 J	4.2 UJ	3.2 UT	0.736 J	17 U	34 U	16 U	NA	NA	20 U	1.67 J	2.01 JT	0.928 U	3.6 U	NA	5.4 UJ	100	19
Hexachlorocyclopentadiene	ug/kg	530 U	30 UJ	23 U	47 U	130 U	250 U	120 U	NA	NA	NA	50 U	26 UT	36 UJ	NA	NA	0.176 UJ	400	--
Hexachlorobutadiene	ug/kg	0.151 UJ	0.0532 U	0.0421 UT	0.0398 U	0.0416 U	0.223 U	0.214 U	NA	NA	20 U	0.147 UJ	0.146 UJT	0.0604 U	2.4 U	NA	38 UJ	600	--
Hexachloroethane	ug/kg	0.151 UJ	0.0787 UJ	0.0622 UJT	0.0588 U	0.0615 U	0.329 U	0.317 U	NA	NA	NA	0.147 UJ	0.146 UJT	0.0893 UJ	3.7 U	NA	0.176 UJ	--	--
Oxygen-Containing SVOCs																			
Benzoic acid	ug/kg	3400 U	220 J	150 U	300 U	780 U	1600 U	730 U	NA	NA	100 U	320 U	170 UT	230 UJ	170 U	NA	250 UJ	--	200
Benzyl alcohol	ug/kg	130 U	7.3 UJ	5.6 U	12 U	30 U	60 U	28 U	NA	NA	6 U	13 U	6.2 UT	8.9 UJ	6.3 U	NA	9.4 UJ	--	20
Dibenzofuran	ug/kg	19	5.4	1.5 J	2.5	11	22	8.6 J	NA	NA	20 U	1.8 J	1.45 JT	1.5 J	2.2 U	NA	1.3 J	--	100
Isophorone	ug/kg	56 U	3.2 UJ	2.5 U	5 U	13 U	26 U	13 U	NA	NA	NA	5.3 U	2.7 UT	3.9 UJ	NA	NA	4.1 UJ	--	--
TPH																			
Diesel Range Hydrocarbons	mg/kg	460 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--
Gasoline Range Hydrocarbons	mg/kg	1.9 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--
Residual Range Hydrocarbons	mg/kg	2500 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--
Notes:																			
¹ JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, as amended July 2007).																			
² DEQ baseline values are used for metals for comparison to sediment sample results where the baseline is greater than the JSCS SLV. DEQ baseline values for non-metal constituents are shown for informational purposes only.																			
³ BHC = Hexachlorocyclohexane																			
⁴ The chlordane SLV is based on the sum of chlordane isomers.																			
-- No JSCS SLV.																			
NA = Not analyzed																			
■ = concentration exceeds JSCS Toxicity Screening Level Value																			
bold = concentration exceeds JSCS Bioaccumulation Screening Level Value																			
Qualifiers:																			
J = Estimate.																			
N = Presumptive evidence of a compound.																			
T = Value is an average or selected result.																			
U = Not detected at value shown.																			
UJ - Not detected, and the detection limit is an estimate.																			

Table 13
Summary of Chemical Analytical Results
Dry-Weather Flow
Outfall Basin 16

		Manhole just upstream from the outfall. Represents flow to the outfall.		Manhole connecting Front Avenue main with line from the western portion of the basin. Represents flow from the western basin.	Downstream, just up from the connection to the NW Front Avenue line ----->						Upstream on NW Yeon Avenue		JSCS ⁽¹⁾	
		AAX405	AAX405	AAX408-W	AMZ116-NE	AMZ116	AMZ117-SE	AMZ117-SW	AMZ120	AMZ121	AMZ125	Screening Level Value (SLV)		
		IDEP Sample	IL-16-AAX405-0805	IL-16-AAX408-0805	IL-16-AMZ116-1105-NE	IL-16-AMZ116-1105	IL-16-AMZ117-1105-SE	IL-16-AMZ117-1105_SW	IL-16-AMZ120-1105	IL-16-AMZ121-1105	IL-16-AMZ125-1105	EPA's 2004	DEQ's 2004	
Class	Analyte	Units	9/19/2002	8/7/2005	8/7/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	NRWQC (chronic)	AWQC (chronic)	
Total Metals (EPA 200.8)														
	Arsenic	µg/L	57.9	62.5	66.2	24.9	51.6	3.32	2.49	0.72	3.38	1.23	150	--
	Cadmium	µg/L	0.11	NA	NA	0.10 U	0.10 U	0.24	0.83	0.81	1.70	0.50	0.094	0.38
	Chromium	µg/L	0.40 U	NA	NA	0.35	0.22	0.54	1.54	2.43	11.4	3.26	--	--
	Copper	µg/L	3.85	NA	NA	1.58	1.59	19.6	40.9	51.2	78.3	13.9	2.7	3.6
	Lead	µg/L	0.32	NA	NA	0.40	0.31	2.33	9.84	18.4	42.9	10.2	0.54	0.54
	Mercury	µg/L	0.010 U	NA	NA	0.0020 U	0.0020 U	0.0047	0.010	0.016	0.036	0.0051	0.77	0.012
	Nickel	µg/L	0.84	NA	NA	0.90	2.27	3.97	4.09	4.58	10.1	4.09	16	49
	Zinc	µg/L	18.0	NA	NA	18.3	9.94	176	166	158	428	101	36	33

Notes:

⁽¹⁾JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA, Final December 2005, as amended July 2007)

J = The analyte was detected and has been qualified as an estimated quantity.

U = The analyte was not detected above the reported sample quantification limit.

NA = Not analyzed.

-- No JSCS screening level available.

The analyte was detected at concentrations exceeding the JSCS EPA NRWQC Chronic SLV

bold The analyte was detected at concentrations exceeding the JSCS DEQ AWQC Chronic SLV

All units in micrograms per liter (µg/L).

Table 14
Summary of Chemical Analytical Results
Inline Solids
Outfall Basin 16

Downstream															Upstream		
<-----NW Front Avenue Branches ----->						<----- NW 26th Avenue Main Line ----->					<----- NW Yeon Avenue Lines ----->						

Table 14
Summary of Chemical Analytical Results
Inline Solids
Outfall Basin 16

Downstream															Upstream		
<-----NW Front Avenue Branches ----->						<----- NW 26th Avenue Main Line ----->					<----- NW Yeon Avenue Lines ----->						

Notes:

⁽¹⁾JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, as amended July 2007).

⁽²⁾ DEQ October 28, 2002 default background soil concentrations for metals.

⁽³⁾ The chlordane SLV is based on the sum of chlordane isomers.

J = The analyte was detected and has been qualified as an estimated quantity.

U = The analyte was not detected above the reported sample quantification limit.

UJ = The analyte was not detected above the the reported sample quantification limit; the quantitation limit is estimated.

NA = Not analyzed.

ND = Not detected.

-- No JSCS screening level available.

The analyte was detected at concentrations exceeding the JSCS Toxicity SLV

bold

The analyte was detected at concentrations exceeding the JSCS Bioaccumulation SLV. (Metals exceeding the Bio SLV are compared to DEQ Background Concentrations.)

All units in micrograms per kilogram (ug/Kg) or milligrams per kilogram (mg/Kg) dry weight.

APPENDIX A

DEQ ECSI File Summaries

FRONT AVENUE MP (#4008)

3445 NW Front Avenue, Portland, Oregon 97210

Location

Review of documents in DEQ's files indicates conflicting descriptions of the Front Avenue MP site in terms of the site boundary and associated tax lots. A Phase I Environmental Site Assessment report (Creekside, 2003a, 2003b) describes the site as Tax Lots 1N1E29AA #700, #800, and #900 and "the overpass forms the northwest boundary of the property". The report refers to a north parcel that is vacant and unpaved which matches the location of tax lot #900. DEQ documents refer to the site with the same three tax lots but indicate that "the site is bordered to the north by vacant land" (DEQ 2004a, 2004b). As clarified by the DEQ project manager for the site, Mr. Dan Hafley, Tax Lot #900 was inadvertently included in the site description in the DEQ documents (DEQ, 2007). Tax Lot #900 (3551 NW Front Avenue) is also discussed in this site summary since contaminants originating on this property have potentially affected the City's Outfall 16 conveyance system. The attached figure shows the location of the Front Avenue MP site and Tax Lot #900.

Site Usage History

Based on limited information, the following companies have occupied the property (Tax Lots #700 and #800):

- Willamette Haul Company from 1949 to the late 1950s
- Gadd Truck and Cargo Service (also known as Manitou Equipment Company) from 1959 to the mid 1970s
- Gray's Crane and Rigging, Inc. from 1978 to 1982
- NES Trench Shoring from 1999 to 2002

The Port of Portland owned the property from 1989 to 1996, who sold it to ELI, LLC. Most recently, the site was owned by Front Avenue MP, LLC before being sold in 2004 to Peanut Butter Properties, LLC. Sanborn Fire Insurance Maps indicate that Miesen Fuel Company may have occupied the southern portion of the property during the 1950s. Gray's Crane is listed on both the underground storage tank (UST) and leaking underground storage tank (LUST) lists. Hazardous materials (primarily oxygen and acetylene) were stored at the site during NES Trench Shoring's operations. Historic operations at the site include vehicle and equipment repair, office space and material warehousing. Improper storage of containerized wastes, scrap metal and debris has been documented at the site, and petroleum-impacted sludge was present in the storm drain (Creekside, 2003a, 2003b). Historic connections to the City's stormwater conveyance system are unknown. Until recently, most of the site was unpaved.

There is little information available for Tax Lot #900. This property has recently been developed and was historically used as a storage site for materials and equipment including occupation by the Schnitzer Steel Products Company in the 1980s (Creekside, 2004a). A scrap metal yard was at this site in the past (CH2M HILL/Bridgewater, 2001).

Current Conditions

Currently Tax Lots #700 and #800 are paved and occupied by one building. Based on a BES Industrial Stormwater field visit in May 2004, stormwater runoff in the northern portion of the site is primarily sheet flow towards Tax Lot #900, with some draining to the west, and a minor amount draining to NW Front Avenue and the City's stormwater system. In the southern portion of the site, runoff is collected in one on-site catch basin and diverted to the City's stormwater conveyance system on NW Front Avenue. A former garage was located near the catch basin. The facility does not have an NPDES permit and is not listed as a hazardous waste generator. In October 2005, a video survey of the stormwater line located along the western edge of the site noted groundwater seeps into the City's stormwater pipe.

As part of site investigations, it was discovered that the site had diverted stormwater to the sanitary system without City approval and in violation of Oregon State plumbing code. In May 2004, the DEQ issued a No Further Action (NFA) for the site contingent upon the responsible party cleaning out the onsite storm pipes downstream from the site catch basin to remove any legacy contaminated solids and requiring the site to reconnect to the storm system pursuant to State code (DEQ, 2004b). This work was completed in June 2004 (Creekside, 2004b).

Site Investigations

Multiple investigations have been conducted at this site. The focus of these investigations was primarily shallow soil and groundwater; samples were analyzed for total petroleum hydrocarbons (TPH), metals, polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and PCBs. Some metals (copper, zinc) and phthalates were not analyzed in samples collected at the site. Elevated concentrations of arsenic, TPH, VOCs, and PCBs were identified at the site.

In addition, soil and groundwater sampling was conducted at the site and Tax Lot #900, as part of the Willamette River Westside CSO project, to assess the feasibility of constructing the Northwest Pump Station in this location (CH2M HILL/Bridgewater, 2001). Ultimately, the alignment of the CSO was constructed at an alternate location.

Discussions of select results at the Front Ave MP facility and Tax Lot #900 are provided below; Table 1 (see below) includes a summary of the metals and PCB data discussed.

Front Ave MP

Work conducted in support of the DEQ Cleanup project (Creekside, 2003c, 2003d) and as part of the CSO project (at four borings labeled B-1, B-7, GP-2, and GP-3) provides analytical results for shallow soil. Shallow soil at the site at concentrations exceeded the JSCS SLVs for metals (arsenic, cadmium, lead and mercury) and PCBs (Aroclors 1254 and 1260).

In 2004, catch basin solids were analyzed for metals, PAHs, VOCs, and TPH (copper, zinc, PCBs, and phthalates were not included). Lead and mercury exceeded the JSCS SLVs. Additionally, PAH concentrations in the solids exceeded the JSCS SLVs (Creekside, 2004c). The catch basin was cleaned out and replaced in 2004.

As a result of the site investigations, 300 cubic yards of soil related to leaky underground storage tanks (LUST) were removed in 1992, 17 tons of petroleum-impacted soil were removed from the property in 2003, and 10 cubic yards of contaminated soil were removed from a decommissioned sump in 2004.

Tax Lot #900

There are no available records indicating that a stormwater investigation has been performed on this property. Soil and groundwater sampling conducted on Tax Lot #900 as part of the Willamette River Westside CSO project included six borings (B-2 through B-6, and GP-1) and five test pits (TP-1 through TP-5) (CH2M HILL/Bridgewater, 2001). The samples were analyzed for arsenic, cadmium, chromium, lead, and mercury, PCBs, and VOCs. COIs identified from the sampling were lead, TPH, and VOCs. Significant concentrations of lead were detected in the shallow soil samples (total lead at 10,000 mg/Kg and TCLP at 76.5 mg/L); arsenic, cadmium, and mercury were also elevated.

Arsenic in the two shallow groundwater samples ranged from 0.04 to 0.05 mg/L.

Table 1
Front Avenue MP Site and Tax Lot #900
Shallow Soil and Stormwater Solids Results

Analyte	Units	Front Ave MP Facility			Tax Lot #900 ³	JSCS SLV
		Site-wide ^{1,2}	Catch Basin ³	Sump Area ³		
Arsenic	mg/Kg	ND - 22.8	3.77	1.79 - 10.9	2.13 - 33.3	7
Cadmium	mg/Kg	0.065 - 1.52	ND	ND	0.088 - 12.4	1
Chromium	mg/Kg	ND - 36	27.2	10.7 - 14.3	18 - 100	111
Lead	mg/Kg	4.9 - 240	64	3.04 - 58.6	18 - 10,000	17
Mercury	mg/Kg	ND - 0.147	0.428	ND	0.037 - 5.91	0.07
PCB 1254	µg/Kg	ND - 2,680	-	-	ND	300
PCB 1260	µg/Kg	ND - 712	-	-	ND	200
Total PCBs	µg/Kg	ND - 2,680	-	-	ND	676

Notes:

JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA, December 2005, as amended in 2007).

- Sample not analyzed for this compound.

.ND = not detected

Bold font indicates concentration exceeds JSCS SLV

¹Creekside, 2003c, 2003d

²CH2M HILL/Bridgewater, 2001

³Creekside, 2004b

References

Creekside. 2003a. *Phase I Environmental Site Assessment, Property located at 3445 NW Front Avenue, Portland, Oregon*; prepared by Creekside Environmental for ELI, LLC, January 2003.

Creekside. 2003b. Letter from Creekside Environmental to Lane Powell Spears Luberski LLP regarding Addendum to Phase I Environmental Site Assessment, Property located at 3445 NW Front Avenue, Portland, Oregon. April 9, 2003.

Creekside. 2003c. *Environmental Investigation Report, Risk-Based Closure Evaluation*; prepared by Creekside Environmental for Eli, LLC May 2003.

- Creekside. 2003d. Letter from Creekside Environmental to Lane Powell Spears Luberski LLP regarding Addendum Letter Report: PCB and PAH Results – Risk Based Closure Project ELI LLC Facility, 3445 NW Front Avenue, Portland, Oregon. June 3, 2003.
- Creekside. 2004a. Letter from Creekside Environmental to the DEQ regarding 3445 NW Front Avenue, Portland, Oregon - Response to DEQ Document Review Comments. January 21, 2004.
- Creekside. 2004b. *Environmental Investigation Report, Storm Water Reconnection*; prepared by Creekside Environmental, June 2004.
- Creekside. 2004c. *Environmental Investigation Report, Catch Basin Cleanout & Sump Decommissioning*, prepared by Creekside Environmental. April 6, 2004.
- CH2M HILL/Bridgewater Group. 2001. Draft Memorandum regarding *Summary of Environmental Sampling Results, Former Northwest Pump Station Site*. Willamette River Westside CSO Environmental Oversight Consultant (EOC) for City of Portland BES. May 1, 2001.
- DEQ. 2004a. Letter to Front Avenue MP, LLC regarding No Further Action recommendation, dated March 15, 2004.
- DEQ. 2004b. Letter to Front Avenue MP, LLC regarding NFA Determination, dated May 7, 2004.
- DEQ. 2007. Communication from Dan Hafley of the DEQ to Eric Collins of GSI, dated June 22, 2007.

THIS 1
ASSESSMENT
PREPARED FOR
PURPOSE ONLY

NE1/4 NE1/4 SEC. 29 T.1N. R.1E. W.M.
MULTNOMAH COUNTY

IN IE 29AA
PORTLAND

20 21
APPROX.
29 28

SEE MAP IN IE 2000

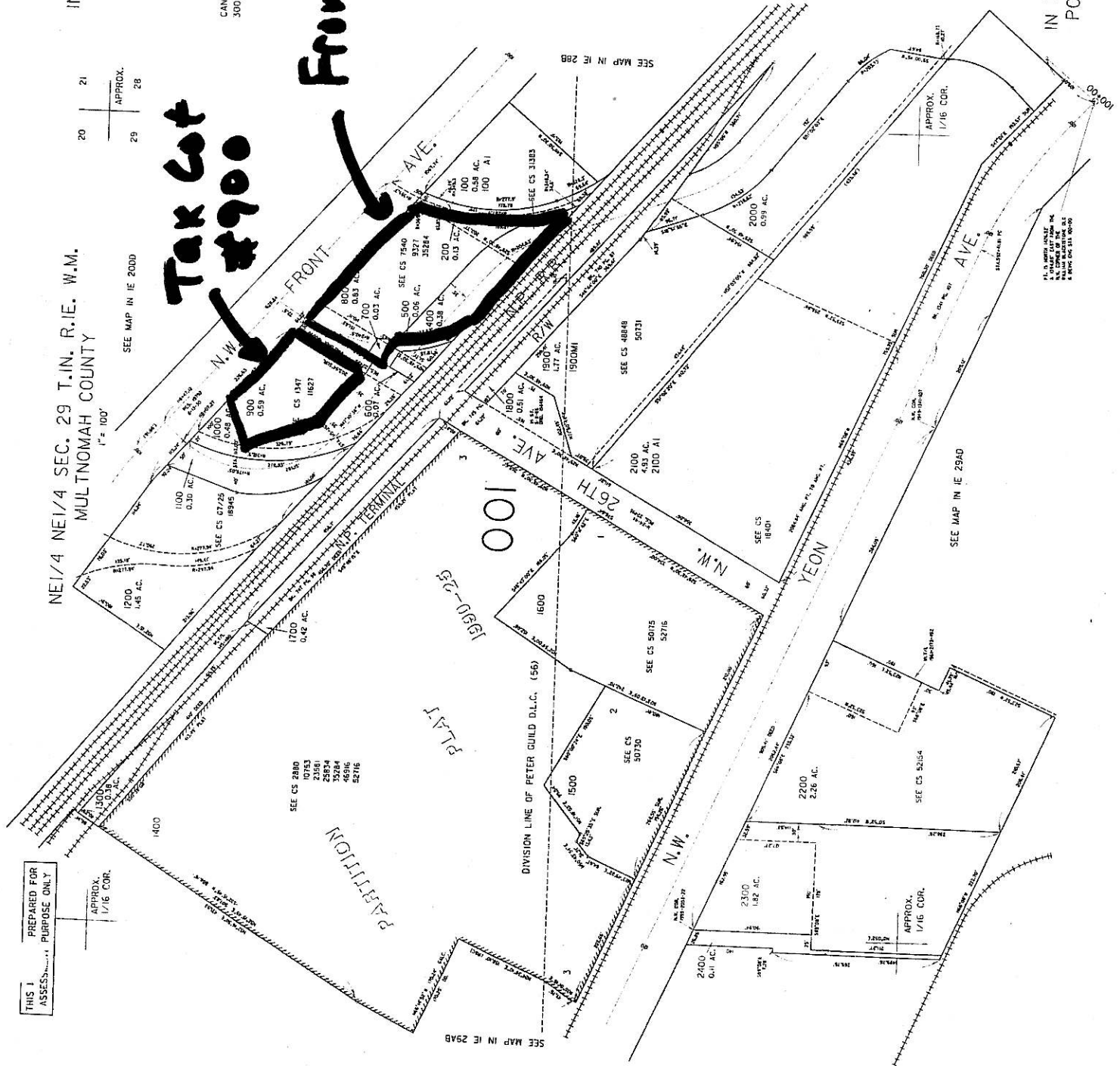
1" = 100'

APPROX.
1/16 COR.

CANCELLED NO.
300

**Tax Lot
#900**

Front Ave HP site



IN IE 29AA
PORTLAND

GUILDS LAKE (EC SI #404)

2615-2619 NW Industrial Street, Portland, Oregon 97210

The Guilds Lake site is a 12-acre portion of the former Guilds Lake incinerator and landfill site that operated from 1927 to circa 1948. Incineration and landfilling of municipal garbage occurred during this time period. From 1950 to 1978, a truck terminal occupied the site. Under the ownership of Marathon Realities, the truck terminal was razed and the two current warehouse buildings were constructed. The attached figure shows the location of the former Guilds Lake site. The City has owned the site since 1990 and is used by the BES Revegetation program, Culver Glass and the Calbag Metals metal recycling storage yard.

From 1980 to 1995, the stormwater system at the site consisted of a series of catch basins and interconnected dry wells. During heavy precipitation events, overflow from the stormwater system discharged to a stormwater line connected to the City combined system associated with Outfall 17 (SJO, 1995).

A remedial investigation of the site was conducted in 1989. During the remedial investigation, the incinerator ash was characterized and observed to contain elevated levels of petroleum hydrocarbons, arsenic, cadmium, chromium, and lead (Sweet-Edwards/EMCON, 1990). Initial monitoring at the site identified elevated levels of arsenic, chromium, lead, and manganese in groundwater; however, current results as part of the long-term monitoring program indicate relatively low levels of metals (COP, 2005). Long-term methane gas monitoring is also required at the site.

Following completion of the remedial investigation and feasibility study, a record of decision was signed in 1991 requiring construction of an asphalt-concrete cap, dry well decommissioning, and site improvements to control surface water drainage (DEQ, 1991; SJO, 1995). By 1995, these remedial actions were completed and the DEQ issued a certificate of completion in 1998 (DEQ, 1999). The majority of stormwater at the site now drains to the Basin 16 stormwater conveyance system at NW Yeon Avenue. A small portion of stormwater continues to drain to the City's combined system. Other improvement included construction of a storm line in the vicinity of the Lincoln & Allen building and a storm line serving the City property.

The Calbag Metals facility leases a portion of the City property. The facility has a NPDES permit and is a hazardous waste generator.

References

COP. 2005. *Letter from City of Portland BES to the DEQ regarding Guilds Lake IMMP, Annual Report No. 9*, dated December 5, 2005.

DEQ. 1991. *Guild Lake Site - Record of Decision*. Prepared by the Oregon Department of Environmental Quality, dated 1991.

DEQ. 1999. *Site Summary Report – Details for Site ID 404*. Environmental Cleanup Site Information Database. <http://www.deq.state.or.us/wmc/ecsi/ecsidetail.asp?seqnbr=404>

SJO. 1995. *Guilds Lake Remedial Action Report*. Prepared by SJO Consulting Engineers, Inc., Portland, Oregon. Prepared for City of Portland BES, dated October 16, 1995.

Sweet-Edwards. 1990. *Draft Focused Feasibility Study, Guilds Lake Site*. Prepared by Sweet-Edwards/EMCON, Bothell, Washington. Prepared for Marathon U.S. Realities, Inc., dated September 25, 1990.

131281.CP 131281.DLV
PORTLAND AREA

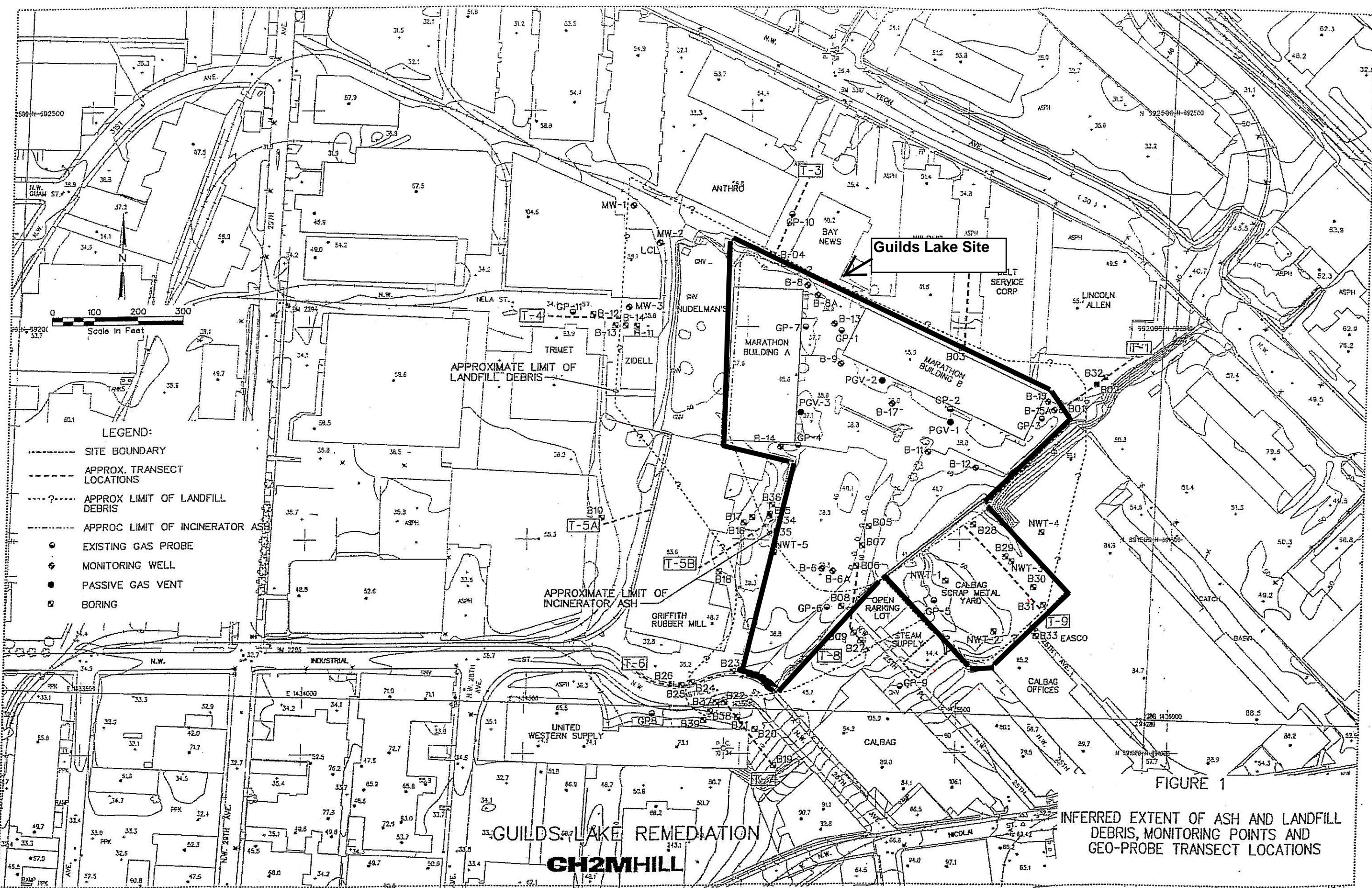


FIGURE 1

INFERRED EXTENT OF ASH AND LANDFILL
DEBRIS, MONITORING POINTS AND
GEO-PROBE TRANSECT LOCATIONS

NUDELMAN & SON, INC. (#966)

2707 NW Nela Street, Portland, Oregon 97210

Historically, this property was part of the Guilds Lake incinerator and landfill. Beginning in about 1965, S.J. Nudelman & Son operated a scrap metal yard at this location (DEQ, 1989). The site is currently occupied by ABC & J Recycling.

The 1.5 acre site is covered with old scrap metal and overgrown vegetation. The site is not directly connected to either the City of Portland's stormwater or sanitary sewer conveyance systems, but sheet flow from the front material loading area enters a catch basin on the adjacent property. This catch basin drains to the Outfall 16 conveyance system. Available documents indicate that a stormwater investigation has not been completed at the site. The facility does not have an NPDES permit and is not listed as a hazardous waste generator.

EPA conducted a site inspection in 1988 and noted several transformers, electrical units and leaking tanks. PCBs were detected in oil (14.3 ppm), soil (1.83 ppm) and wipe (8.85 ppm) samples collected by EPA at the time of the inspection (EPA, 1988). DEQ conducted a preliminary assessment of the site in 1989 (DEQ, 1989). Based on the assessment results, DEQ recommended possible "follow up by the state of Oregon to address the low level contamination of PCBs..." DEQ's ECSI database indicates that site screening is recommended (DEQ, 2004).

References

EPA. 1988. Certified letter to Stanford J. Nudelman from EPA regarding the results of the 1988 inspection. September 27, 1988.

DEQ. 1989. *Preliminary Assessment*; prepared by the Oregon Department of Environmental Quality, dated March 30, 1989.

DEQ. 2004. *Site Summary Report – Details for Site ID 966*. Environmental Cleanup Site Information Database. <http://www.deq.state.or.us/wmc/ecsi/ecsidetail.asp?seqnbr=966>

PORT OF PORTLAND - TERMINAL 2 (#2769)

3556 NW Front Avenue, Portland, Oregon 97210

Industrial operations have been ongoing at this property since the late 1800s. At that time, the low water line at the terminal was located on NW Front Avenue; subsequent filling activities (late 1800s to 1926) shifted this low water line 200 to 800 feet north of NW Front Avenue (Port of Portland, 2000). The terminal became public after World War II, when the Commission of Public Docks acquired the land, and became part of the Port of Portland in 1971. The Commission of Public Docks acquired the shipyard property in two large parcels at separate times. In 1949, the 37-acre southern portion of the facility was acquired from the Willamette Iron and Steel Company. In 1953, the 21-acre northern portion of the facility was acquired from West Coast Terminal Company. This property was known as Oceanic Terminal and consisted of a massive U-shaped warehouse and cold storage facility and three ship berths. The Oceanic Terminal was constructed in 1927 and built on fill hydraulically moved from adjacent slips.

Historic and current operations at the site include cargo handling, storage, and equipment maintenance (work on passenger vehicles, forklifts, yard vehicles, top-loaders, miscellaneous equipment and motors related to facility operations and fueling of the equipment). Products currently handled at the site include (treated) lumber, plywood, pulp and steel. Currently, Stevedoring Services of America (SSA) manages the cargo/container facility.

The 49-acre facility is paved. Stormwater collects in a series of catch basins and is discharged to the Willamette River through two outfalls (WR-235 and WR-236). Outfall WR-235 is located approximately 750 feet northeast of Outfall 16 within the Balch Creek Cove; outfall WR-236 is located upstream from the cove. Discharges from the site's stormwater system are permitted under both the Port's Municipal Storm Sewer System (MS4) Discharge Permit and SSA's NPDES 1200-Z permit. The northwest portion of the facility borders the cove located adjacent to Outfall 16. Aerial photographs indicate that this border is a sloping riverbank with partial vegetation and possible riprap.

An environmental site assessment (Hart Crowser, 1991) and preliminary assessment (Port of Portland, 2000) have been completed at this site. The focus of these assessments was waste material that had accumulated near underground storage tanks and near electrical equipment. During the preliminary assessment, diesel was identified in soil beneath a concrete fueling pad. Subsequently, 15 tons of contaminated soil were removed from the fueling area. By 1999, all transformers containing PCBs were removed from the site for disposal. The preliminary assessment does not include information on the PCB concentrations or Aroclor types in the transformer contents or whether any investigation was conducted to evaluate potential releases from the PCB transformers.

In 1994, facility drains were cleaned out and sampled for petroleum hydrocarbons and PCBs. Concentration data from the sampling were not available for review but the preliminary assessment indicates contaminant levels below hazardous wastes limits. No records were available indicating that groundwater or the riverbank material along the northwest border of the site was investigated.

References

Hart Crowser. 1991. *Environmental Site Assessment*; prepared by Hart Crowser, dated 1991.

Port of Portland. 2000. *Preliminary Assessment*; prepared by the Port of Portland, dated August 29, 2000.

APPENDIX B

Outfall Basin 16 – 2005 Dry-Weather Flow and Inline Solids Investigation

Appendix B

Outfall Basin 16

2005 Dry-Weather Flow and Inline Solids Sampling Data Summary Report June 2008

Introduction

This report summarizes the results of the BES source control investigation of dry-weather flow and inline solids in the Outfall Basin 16 stormwater conveyance system. The Basin 16 conveyance system collects stormwater runoff from a portion of the Guilds Lake industrial area and discharges to the Portland Harbor Study Area at Balch Creek Cove.

The objectives of this investigation were to evaluate whether dry-weather flow and inline solids in the Basin 16 stormwater conveyance system contain contaminants at concentrations that could impact the Willamette River and to determine whether spatial distributions of contaminants indicate potential source locations within the basin.

The investigation results indicate that metals, polynuclear aromatic hydrocarbons (PAHs) and phthalates are being discharged to the Basin 16 stormwater conveyance system. Relatively high arsenic concentrations were detected in solids and dry-weather flow in the downstream end of the basin. The source of dry-weather flow in the downstream end of the conveyance system was determined to be groundwater infiltration. A review of field observations and available data indicates that high arsenic is associated with iron oxide precipitating out of the infiltrating groundwater and coating the storm lines and solids.

In general, higher concentrations of other metals were detected in solids samples collected downstream and in the vicinity of the Front Avenue MP site. The spatial distribution of PAHs indicates a potential source in the vicinity of the NW 26th Drive overpass, while distributions of phthalates do not present a clear spatial pattern.

This investigation, conducted between July and November 2005, is part of the City's ongoing source control program associated with the Portland Harbor City of Portland Outfalls Project. Investigation results are summarized below and submitted pursuant to the August 13, 2003, Intergovernmental Agreement between the DEQ and the City.

Basin 16 Configuration and Background

Basin Physical System. Figure 1 provides an overview of the Basin 16 stormwater conveyance system. Outfall 16 discharges to Balch Creek Cove and is approximately 300 feet southeast of City Outfall 17. Land use in Basin 16 is primarily industrial.

From the outfall, a 48-inch-diameter pipe goes southeast on NW Front Avenue to manhole AAX408. At this location, two storm lines continue southeast on NW Front Avenue – an 8-inch-diameter line along the west side of the road and a 24-inch-diameter line in the center of the right-of-way. The center storm line receives stormwater from the right-of-way and several industrial properties while the west storm line receives stormwater from only industrial properties on the west side of NW Front Avenue.

Also at manhole AAX408, a 42-inch-diameter storm line connects from the southwest and serves the bulk of the stormwater drainage in the basin. This line continues southwest, under the NW 26th Drive overpass, under the railroad right-of-way and up NW 26th Avenue to the intersection with NW Yeon Avenue. At this location, one 30-inch-diameter branch extends southeast along NW Yeon Avenue and another 30-inch branch continues southwest into the adjacent industrial area, which includes the remediated Guilds Lake area.

Identified Cleanup Sites. There are several documented DEQ cleanup sites located either within or partially within Basin 16, according to the DEQ Environmental Cleanup Site Information (ECSI) database: Front Avenue MP (ECSI #4008), Guilds Lake (ECSI #404), and Nudelman & Son Inc. (ECSI #966). The Front Avenue MP site contaminants of interest (COI) include arsenic, lead, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and total petroleum hydrocarbons (TPH). The Guilds Lake site COI include arsenic, cadmium, chromium, lead and TPH. Little information is available for the Nudelman site; however, PCBs have been detected at the site (refer to the Nudelman site summary in Appendix A). The Nudelman site has been recommended for site screening by DEQ.

Outfall and In-river Sampling. The City's Illicit Discharge Elimination Program (IDEP) collected a dry-weather flow sample in September 2002 from Outfall 16 in support of the MS4 stormwater permit. Arsenic was detected at a concentration of 57.9 micrograms per liter (ug/L), which exceeded the DEQ Freshwater Chronic Ambient Water Quality Criteria (AWQC) for penta-arsenic of 48 ug/L. These criteria preceded the Joint Source Control Strategy (JSCS) Screening Level Values (SLVs) for ecological receptors currently used for Portland Harbor (DEQ/EPA, 2005). Table 1 summarizes the chemical analytical results for this sample.

In December 2004, the Lower Willamette Group (LWG) collected a surface water sample in the middle of Balch Creek Cove, as part of Round 2 sampling for the Portland Harbor Superfund remedial investigation/ feasibility study (Integral, 2005a). Arsenic was detected at a concentration of 0.67 ug/L, whereas most of the other river-wide surface water samples ranged from 0.3 to 0.4 ug/L.

Additionally, the LWG collected a sediment sample in the vicinity of Outfall 16, as part of Round 2 sampling (Integral, 2005b). Concentrations of bis(2-ethylhexyl) phthalate (BEHP), several PAHs, and phenol exceeded the draft JSCS SLVs in development by DEQ and EPA.

Based on the City dry-weather flow and LWG in-river sediment and surface water results, the City collected dry-weather flow and inline solids samples from Basin 16 in 2005 to determine whether various portions or subbasins of the City system contained elevated levels of contaminants and to identify potential contaminant sources.

Field Activities

The City coordinated with DEQ regarding the source control investigation before conducting this work. Sample collection for dry-weather flow and inline solids occurred in two phases. During the first phase (July-August, 2005) the City initiated basin screening by targeting the three main branch lines flowing into manhole AAX408. Inline solids were analyzed for a broad suite of contaminants and dry-weather flow was analyzed for arsenic.

After reviewing these results, the City conducted a video survey of the 42-inch main line along NW 26th Ave. in October 2005 to determine the locations of inline solids and to evaluate potential locations of dry-weather inflow observed during the previous sampling event. In November 2005, the City conducted a second phase of dry-weather flow and inline solids sampling to focus the investigation on the southwestern subbasin and to fill data gaps from the first phase of sampling.

The following sections summarize field observations and sampling locations. Sample locations are displayed on Figure 1.

Dry-Weather Flow Sampling Summary

In August 2005, the City attempted to collect dry-weather flow samples from the three main branches discharging to manhole AAX408. Flow was observed only in the 42-inch line entering from the southwest (NW 26th Ave.); an additional sample was collected just upstream of the outfall to represent any additional inflow downstream of manhole AAX408. The City collected samples from these two locations in the stormwater conveyance system on August 7, 2005. No measurable precipitation occurred in the basin on the sampling day. The last recorded rainfall at a nearby rain gage was approximately 0.05 inch of precipitation 16 days before the sampling event.

In October 2005, the City conducted a video survey of the Basin 16 conveyance system. The survey results indicate that groundwater infiltration is the source of dry-weather flow in the portion of the conveyance system downstream from manhole AMZ117. The survey results are discussed in detail in the following section entitled Video Survey.

Arsenic was elevated in dry-weather flow samples collected in August, so the City collected seven additional dry-weather flow samples from the stormwater conveyance system on November 10, 2005 and submitted the samples for a full suite of metals analyses. Approximately 0.5 inch of rain was recorded this day, though all precipitation occurred after the samples had been collected. A precipitation total of 0.06 inch was recorded during the previous afternoon and no precipitation was recorded on November 7 or 8, 2005.

Descriptions of dry-weather flow sample locations are summarized below. Table 1 provides the chemical analytical data. Figure 1 shows the sampling locations. Photographs of the November 2005 sample locations are provided in Attachment A, and field notes describing the locations are provided in Attachment B. Photographs and field notes for the August 2005 sampling event are not available.

Dry-Weather Flow Samples

Sample Number	Sample Date	Sample Location Description
AAX405	August 7, 2005	Water sample obtained from main line just upstream of Outfall 16 at manhole AAX405. This sample represents all dry-weather flow into the conveyance system because there are no known connections to the system downstream of this manhole and groundwater infiltration was not observed between this manhole and the outfall.
AAX408-W	August 7, 2005	Water sample from the 42-inch-diameter main line just upstream of manhole AAX408. Based on field observations, this sample primarily represents groundwater infiltration occurring downstream of manhole AMZ117.
AMZ116-NE	November 10, 2005	Water sampled from the 42-inch main line approximately 3 feet downstream of manhole AMZ116 at a location where the sampling team observed groundwater entering the line through a seam in the pipe. The sample from this location represents a composite of dry-weather flow at manhole AMZ116 and groundwater infiltration in the pipe.
AMZ116	November 10, 2005	Water sample represents dry-weather flow entering manhole AMZ116 from the 36-inch-diameter main line. Two small branches draining areas to the southeast and northwest also discharge into this manhole at this location; however, dry-weather flow was not observed discharging from these branches. The main line exiting this manhole is a 42-inch-diameter pipe draining toward NW Front Avenue (manhole AAX408).
AMZ117-SW	November 10, 2005	Sample from the main line (36-inch-diameter) entering manhole AMZ117. Manhole AMZ117 is upstream of the Front Avenue MP site, on the upstream (southeast) side of the railroad right-of-way. The field team observed flowing water in the main line but no flow estimate was made.
AMZ117-SE	November 10, 2005	Sample of dry-weather flow from the inlet of a lateral line that drains facilities on the east side of a cul-de-sac (NW 26 th Avenue) and discharges to the main line at manhole AMZ117. The field team observed flowing water in the lateral at an estimated rate of 0.25 gallons per minute (gpm).
AMZ120	November 10, 2005	Sample from the main line (30-inch-diameter) on NW 26 th Avenue, at manhole AMZ120. Low flow was observed in the main line (estimated 0.1 gpm). Sampled water was slightly turbid.
AMZ121	November 10, 2005	Sample from the main line (30-inch-diameter) on NW 26 th Avenue, at manhole AMZ121 near the intersection of NW 26 th Avenue and NW Yeon Avenue. Flow in the line estimated to be 0.1 gpm.
AMZ125	November 10, 2005	Sample of standing water present within the manhole where several branches draining nearby properties enter the main line (30-inch-diameter) on NW Yeon Avenue. Sample may represent either dry or wet-weather flow captured in a low spot of the pipe. Drainage areas upstream of manhole AMZ125 include the right-of-way and nearby industrial areas in the southeastern portion of Basin 16 along NW Yeon Avenue.

Inline Solids Sampling Summary

On July 26 2005, the City obtained inline solids samples from three locations in NW Front Avenue: the main line and two of the three primary branches discharging to manhole AAX408. Solids were not observed in the 24-inch branch discharging to this manhole from NW Front Ave.

Samples were analyzed for metals, PAHs, phthalates, pesticides, PCBs, total organic carbon, and total petroleum hydrocarbons (TPH).

Based on a review of these results, the City collected inline solids from eight additional locations on November 10, 2005. All samples were analyzed for metals, PAHs, and phthalates. Samples collected from the two branches on NW Front Avenue upstream of manhole AAX408 were also analyzed for PCBs. Because PCBs were not detected in the July 2005 inline solids sample (sample AAX408-W) from the 42-inch line, the six inline solids samples collected upstream of sample location AAX408-W were not analyzed for PCBs. Table 2 provides the chemical analytical data. The sample locations are shown on Figure 1. Descriptions of inline solids sample locations are summarized below. Photographs of the sampling locations are provided in Attachment A and field reports are provided in Attachment B.

Inline Solids Samples

Sample Number	Sample Date	Sample Location Description
AAX408-N ¹	July 26, 2005	Sample collected from the 48-inch-diameter main line downstream of the manhole. Sample represents material collected from the branches along NW Front Ave. and the majority of the basin. Significant reddish-brown iron-oxide staining is shown in the sample photograph.
AAX408-W ¹	July 26, 2005	Sample collected from the incoming 42-inch-diameter main line upstream of the manhole. Solids at this location represent material being transported from NW 26 th Ave. and the southern part of the basin (excluding drainage from NW Front Ave.). There is an overhead lateral of unknown origin just upstream of this sample location. Significant reddish-brown iron-oxide staining is shown in the sample photograph.
AAX506	July 26, 2005	Sample obtained from manhole AAX506, located on the 8-inch line on the west side of NW Front Ave. adjacent to the Front Avenue MP property.
AAX411	November 10, 2005	Sample collected from the downstream of manhole AAX411, in the 24-inch branch located on NW Front Ave. Branch receives runoff from catch basins in NW Front Avenue right-of-way, including inlets adjacent to the Front Avenue MP and Port of Portland Terminal 2 sites. Metal and plastic debris were noted in the sample.
AAX413	November 10, 2005	Sample collected from manhole located on the 8-inch line on the west side of NW Front Ave., adjacent to the Front Avenue MP property. This sample is upstream of the Front Avenue MP lateral connection.
AMZ116-NE ¹	November 10, 2005	Sample collected from main line downstream of manhole AMZ116. This sample had significant iron-oxide staining and was scraped from the pipe wall (see photograph 11, Attachment A).
AMZ116-SE	November 10, 2005	Sample of solids from 12-inch southeast lateral that enters the main line at manhole AMZ116. The line drains the area bordering the western portion of the Front Avenue MP site, an area under the NW 26 th Drive overpass, and a portion of the overpass right-of-way.
AMZ116-S	November 10, 2005	Sample from line draining a catch basin under the NW 26 th Drive overpass, in area between the railroad right-of-way and Front Avenue MP site.

¹ Sample appears to be influenced by materials affiliated with iron-oxide precipitate.

Sample Number	Sample Date	Sample Location Description
AMZ125	November 10, 2005	Sample from main line on NW Yeon Ave. This sample represents solids from branch lines and catch basins draining the upper (southeastern) portion of Basin 16 along NW Yeon Avenue, including a portion of the remediated Guilds Lake site.
AMZ132-NE	November 10, 2005	Sample of solids from lateral entering the upper portion of the main line at manhole AMZ132. The sampled lateral drains a portion of the northeast side of NW Yeon Ave. and the ESCO Corp. Plant #3 site.
AMZ132-SW	November 10, 2005	Sample of solids from lateral entering the upper portion of the main line at manhole AMZ132. The sampled lateral drains runoff from the southwest side of NW Yeon Ave.

The City attempted to collect inline solids samples from additional manholes on NW Front, NW 26th, and NW Yeon Avenues, but sufficient solids were not available for sampling at all locations.

Video Survey

A video survey was conducted in October 2005 to identify potential locations for inline solids sampling in November 2005, locations of infiltration, or other potential sources of dry-weather flow in the main line that extends down NW 26th Avenue and along NW Yeon Avenue. Light rainfall (0.05 inches) occurred on the morning of the survey, approximately two hours before camera work was initiated. Precipitation continued during the taping of the first segment (manholes AMZ117 to AMZ120) but rainfall volume was not sufficient to be detected on City rain gages. The four days preceding the video survey had been dry.

The table below provides a summary of the survey, including observations on flow, pipe conditions, and laterals. Laterals at manholes are not typically noted in these video surveys so any mapped lateral information for manholes is also included in the table. Based on the field observations, there is dry-weather flow in several laterals and in one pipe joint. Infiltrating groundwater is the apparent source of dry-weather flow downstream of manhole AMZ117 where the highest flows were observed. Observed flow volumes were very low for locations upstream of this manhole. The complete survey report is included in Attachment D.

Outfall Basin 16 Video Survey Summary

Video Survey Date: October 13, 2005

Node #	Distance from Upstream Manhole (feet)	Survey Observations
AMZ122	0	Laterals from north (damp, no flow) and south (damp, no flow). Pipe elevation drop after pipe invert.
AMZ121	0	Concrete in good condition. Laterals from north (no flow) and south (flow).
	128	Lateral from south (flow).
AMZ120	0	Concrete in good condition. Lateral from north (flow)
	82	Lateral from south (dry).
	167	Lateral from north (flow)
AMZ117	0	Concrete in good condition. Laterals from north (flow) and south (flow).
	116	Deposit at pipe joint impeding camera. I/I* light (0-1 gpm)
	177	Deposit at pipe bottom. I/I medium (0-5 gpm)
AMZ116	0	Concrete in good condition. Laterals at manhole from north, south, and southwest.
	17	Lateral from north (HDPE material, dry, some mineral build up.)
	107	Overhead lateral (no flow but some leaking around pipe).
AAX408	0	Concrete in good condition. Multiple connections at manhole.
AMZ486	0	Concrete in good condition. Lateral at manhole.
AMZ405	0	Concrete in good condition. Lateral connections at manhole.
ANC077	0	No observations.

*I/I = infiltration/inflow

Summary of Results

Tables 1 and 2 summarize the chemical analytical results for dry-weather flow and inline solids samples. The laboratory analytical results and data validation reports for the samples are provided in Attachment C. Analytical results from this investigation are summarized on Figures 5a, 5b and 6 in the main text of the Phase I report.

The chemical data for the dry-weather flow/groundwater infiltration samples are compared to the JSCS SLVs for Ecological Receptors [EPA's National Recommended Water Quality Criteria (NRWQC) and DEQ's AWQC]. Use of these SLVs provides a conservative screening of sample results because it is unlikely that receptors would be living in the conveyance system and therefore be directly exposed to the concentrations of contaminants detected in the dry-weather flow samples. An ecological receptor in the river system near the outfall potentially would be exposed to a mixture of dry-weather flow and river water. The chemical data for the inline solids samples are compared to the JSCS SLVs for bioaccumulation and toxicity. The results of the comparisons are summarized as follows.

Dry-Weather Flow Samples. Cadmium, copper, lead, and zinc concentrations are greater than SLVs in five of the seven November 2005 samples. Mercury concentrations are greater than DEQ's AWQC in two of the samples. Although not detected at concentrations greater than the EPA 2004 NRWQC SLV, arsenic was detected at slightly elevated concentrations in the 2002 IDEP

and both August 2005 dry-weather samples. These three samples were collected at the downstream end of the conveyance system where groundwater infiltration and reddish-brown iron-oxide precipitate were observed during the video survey and sample collection activities.

Inline Solids Samples. Metals are elevated above SLVs in most of the samples collected from the NW Front Avenue stormwater branches and in some samples from the other portions of the basin. Arsenic was detected at concentrations greater than JSCS SLVs in the four samples collected at the furthest downstream end of the conveyance system, and was higher in the 42-inch line compared to the other branches. Of these four samples, reddish-brown iron-oxide precipitate was observed in the three samples with the highest arsenic concentrations [194 to 391 milligrams per kilogram (mg/Kg)]. With the exception of arsenic, the highest metal concentrations generally were detected in samples collected downstream and in the vicinity of the Front Avenue MP site.

PAHs [benzo(g,h,i)perylene and/or indeno(1,2,3-cd)pyrene] were detected at concentrations greater than JSCS toxicity SLVs in two samples collected from laterals that drain areas under the NW 26th Drive overpass. The lateral with the highest PAH concentrations collects runoff via a catch basin in a City Bureau of Maintenance (BOM) storage yard. This catch basin is located beneath the NW 26th Drive overpass and receives little stormwater runoff. BOM reports that a company adjacent to this catch basin would routinely wash hydraulic and other equipment resulting in wash water discharging to the catch basin. The company no longer operates in this area and therefore does not represent a current source of PAHs. Regardless, in early 2008, BOM implemented best management practices (BMPs) in this area including cleaning out and installing filter fabric in the catch basin to prevent solids from entering the drain line in the future.

Phthalates (BEHP and di-n-butyl phthalate) were detected in several samples at concentrations greater than SLVs, but a spatial pattern is not apparent.

Pesticides were not detected in the July 2005 samples and were not analyzed in the November 2005 samples.

PCB Aroclor 1260 was detected in two samples: one from the 8-inch NW Front Avenue branch downstream of the Front Avenue MP site, and the other from the main line, downstream of manhole AAX408. The concentrations are below the JSCS Toxicity SLV for this Aroclor. At the conclusion of the source investigation, the City cleaned out the 8-inch line in NW Front Avenue.

Conclusions

The source control investigation results indicate that metals (cadmium, copper, lead, mercury and zinc) were present in dry-weather flow in the Basin 16 stormwater conveyance system at concentrations that exceed JSCS SLVs for ecological receptors. The investigation results also indicate that metals (arsenic, cadmium, copper, lead, nickel and zinc), PAHs, and phthalates were present in inline solids at concentrations greater than JSCS toxicity and/or bioaccumulation SLVs. PCB Aroclor 1260 was detected in two solids samples but at concentrations less than the respective JSCS Toxicity SLV. With the exception of arsenic, metal concentrations were generally higher in the NW Front Avenue branch lines and downstream of the Front Avenue MP site.

Arsenic was detected at relatively high concentrations at the downstream end of the Basin 16 stormwater conveyance system, in the vicinity of the NW 26th Drive overpass and NW Front

Avenues. Analytical data and field observations in this downstream portion of Basin 16 indicate that the high arsenic concentrations in dry-weather flow and inline solids correlate with observed groundwater infiltration and reddish-brown precipitate in the lines downstream of manhole AMZ117.

The reddish-brown precipitate is interpreted to be iron oxide. Iron is relatively soluble in groundwater in a neutral to reducing environment with a pH range between 6 and 8. Arsenic strongly bonds with iron in reducing groundwater environments. Where groundwater enters the stormwater line and is exposed to air, the solubility of iron (and the strongly bonded arsenic) decreases; as a result, they precipitate out of solution. This is reflected in the presence of high arsenic in samples collected where groundwater infiltration was observed.

In an effort to identify either a natural or artificial source of the reduced groundwater conditions, the City reviewed available environmental reports and subsurface information in this area of Basin 16. The presence of significant amounts of wood debris buried between approximately 2 to 11 feet below ground surface is shown on some logs for borings completed in this general area (CH2M Hill/Bridgewater, 2001). Decomposing wood debris will create reduced groundwater conditions. Therefore, it is inferred that decomposing wood debris in the downstream portion of the basin likely creates reduced groundwater conditions resulting in the mobilization and transport of arsenic from surrounding subsurface soils.

Subsequent to this investigation, the City implemented two source control measures (SCM) in the basin. The first SCM consisted of cleaning the 8-inch-diameter line resulting in the removal of legacy solids containing PCBs and metals in the vicinity of the Front Avenue MP site. The second SCM included implementing BMPs in the catch basin in BOM's storage yard thereby eliminating a potential source of PAHs to the conveyance system.

References

CH2M HILL/Bridgewater. 2001. Draft Memorandum regarding *Summary of Environmental Sampling Results, Former Northwest Pump Station Site*. Willamette River Westside CSO Environmental Oversight Consultant (EOC) for City of Portland BES. May 1, 2001.

DEQ/EPA. 2005. Portland Harbor Joint Source Control Strategy, Final, dated December 2005, as amended July 2007.

Integral. 2005a. Round 2A Surface Water Data Report For November 2004 and March 2005 Sampling Events. Prepared for the Lower Willamette Group. September 2007.

Integral. 2005b. Portland Harbor RI/FS, Round 2A Sediment Site Characterization Report. Prepared for the Lower Willamette Group. June 2005.

Figure

Figure 1: Basin 16, Inline Sample Locations

Tables

Table 1: Summary of Chemical Analytical Results, Dry-Weather Flow, Outfall Basin 16

Table 2: Summary of Chemical Analytical Results, Inline Solids, Outfall Basin 16

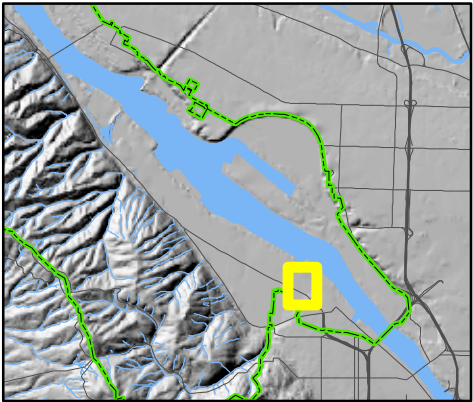
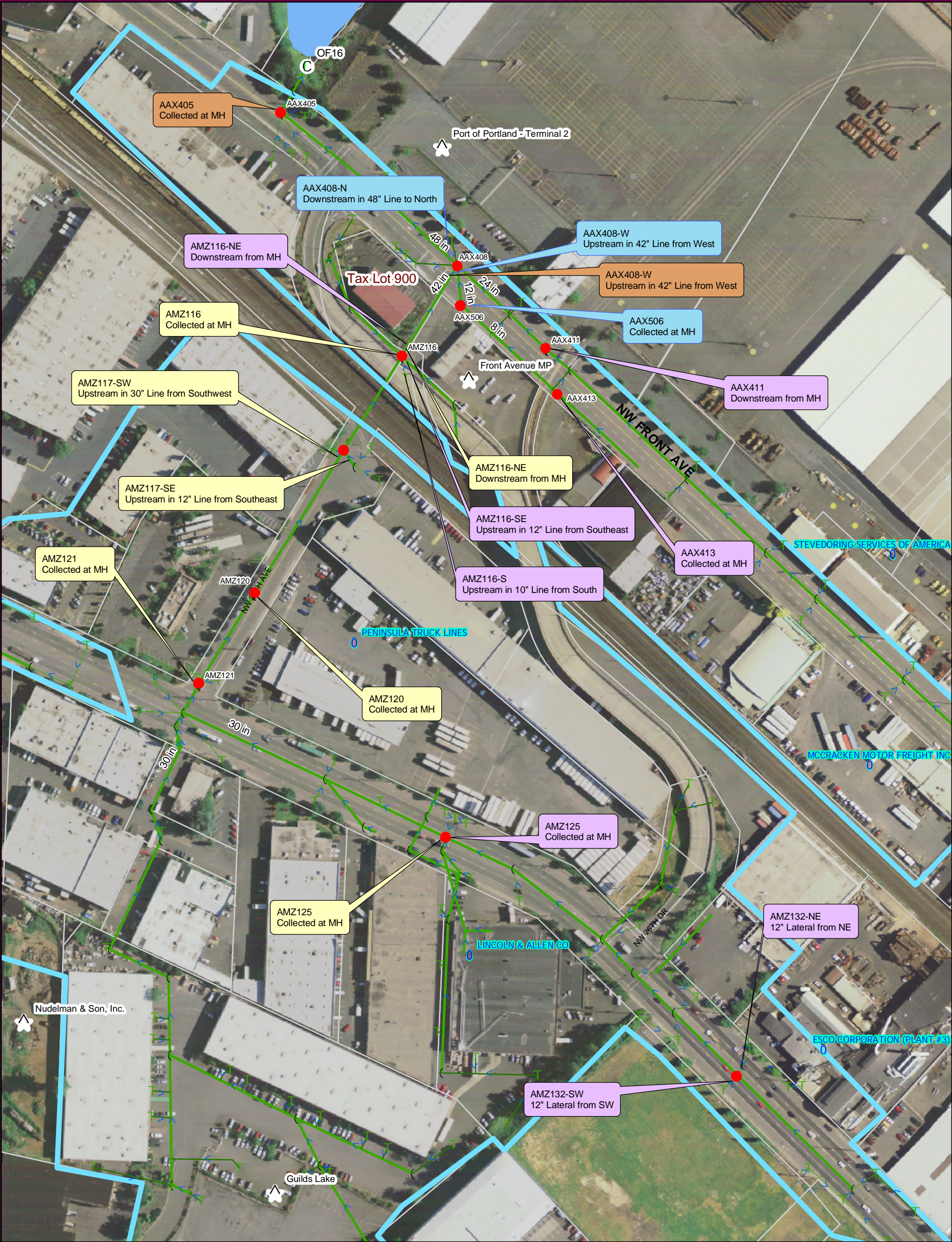
Attachments

Attachment A – *Field Photographs*

Attachment B – *Field Notes*

Attachment C – *Laboratory Results*

Attachment D – *Video Survey Report*



Legend















- | | |
|---|---|
|  Basin 16 Boundary |  DEQ Environmental Cleanup Sites |
|  City Outfalls |  Industrial Stormwater Permits |
|  Storm Inlets |  Inline Solids 7/26/2005 |
|  Storm Pipe |  Inline Solids 11/10/2005 |
|  Manhole |  Dry-Weather Flow 8/7/2005 |
|  Manhole Accessed |  Dry-Weather Flow 11/10/2005 |
|  Taxlots |  Hydrologic Boundary |

Figure 1
Basin 16
Inline Sample Locations

0 55 110 220 Feet



ENVIRONMENTAL SERVICES
CITY OF PORTLAND
1120 SW Fifth Avenue, Room 1000
Portland, Oregon, 97204-1912

File Name: s:\gis\outfalls\outfalls_16
technmemo\of16_figure1_final.mxd
Aerial Photo 2006

Program Manager: Dawn Sanders
Portland Harbor Superfund

Date Printed: 02/05/2008
Prepared by: Sara Gardner

Table 1
Summary of Chemical Analytical Results
Dry-Weather Flow
Outfall Basin 16

Dry-Weather Flow			Manhole just upstream from the outfall. Represents flow to the outfall.		Manhole connecting Front Avenue main with line from the southern portion of the basin.		Downstream, just up from the connection to the NW Front Avenue line -----> Upstream on NW Yeon Avenue						JSCS ⁽¹⁾ Screening Level Value (SLV) EPA's 2004 NRWQC (chronic) DEQ's 2004 AWQC (chronic)		
			AAX405	AAX405	AAX408-W	AMZ116-NE	AMZ116	AMZ117-SE	AMZ117-SW	AMZ120	AMZ121	AMZ125			
			IDEP Sample	IL-16-AAX405-0805	IL-16-AAX408-0805	IL-16-AMZ116-1105-NE	IL-16-AMZ116-1105	IL-16-AMZ117-1105-SE	IL-16-AMZ117-1105_SW	IL-16-AMZ120-1105	IL-16-AMZ121-1105	IL-16-AMZ125-1105			
			9/19/2002	8/7/2005	8/7/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005			11/10/2005
Class	Analyte	Units	9/19/2002	8/7/2005	8/7/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005
Total Metals (EPA 200.8)															
	Arsenic	µg/L	57.9	62.5	66.2	24.9	51.6	3.32	2.49	0.72	3.38	1.23	150	--	
	Cadmium	µg/L	0.11	NA	NA	0.10 U	0.10 U	0.24	0.83	0.81	1.70	0.50	0.094	0.38	
	Chromium	µg/L	0.40 U	NA	NA	0.35	0.22	0.54	1.54	2.43	11.4	3.26	--	--	
	Copper	µg/L	3.85	NA	NA	1.58	1.59	19.6	40.9	51.2	78.3	13.9	2.7	3.6	
	Lead	µg/L	0.32	NA	NA	0.40	0.31	2.33	9.84	18.4	42.9	10.2	0.54	0.54	
	Mercury	µg/L	0.010 U	NA	NA	0.0020 U	0.0020 U	0.0047	0.010	0.016	0.036	0.0051	0.77	0.012	
	Nickel	µg/L	0.84	NA	NA	0.90	2.27	3.97	4.09	4.58	10.1	4.09	16	49	
	Zinc	µg/L	18.0	NA	NA	18.3	9.94	176	166	158	428	101	36	33	

Notes:

J = The analyte was detected and has been qualified as an estimated quantity.
U = The analyte was not detected above the reported sample quantification limit.
NA = Not analyzed.
All units in micrograms per liter (µg/L).

⁽¹⁾JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended 2007)


 The analyte was detected at concentrations exceeding the JSCS EPA NRWQC Chronic SLV
bold The analyte was detected at concentrations exceeding the JSCS DEQ AWQC Chronic SLV
-- No JSCS screening level available.

Table 2
Summary of Chemical Analytical Results
Inline Solids
Outfall Basin 16

Downstream -----> Upstream												

Downstream													Upstream												
<-----NW Front Avenue Branches----->													<----- NW 26th Avenue Main Line ----->				<----- NW Yeon Avenue Lines ----->								
Main on downstream end of manhole													Last manhole of branch on west side of NW Front Avenue - discharges to AAX408	Upstream of AAX506 on branch on west side of NW Front Avenue - discharges to AAX408	Branch in center of NW Front Avenue - discharges to AAX408	Main line upstream of manhole AAX408 draining portion of basin south of NW Front Avenue	Main line on downstream side of manhole AMZ116, upstream of AAX408	Outlet of SE branch line to AMZ116	Lateral line from catch basin under NW 26th Drive overpass	Main line on NW Yeon Avenue	Branch connected to catch basins on NE side of NW Yeon	Branch connected to catch basins on SW side of NW Yeon	JSCS ⁽¹⁾	DEQ Background Metals	
AAX408-N													AAX506	AAX413	AAX411	AAX408-W	AMZ116-NE	AMZ116-SE	AMZ116-S	AMZ125	AMZ132-NE	AMZ132-SW	Screening Level Value		Concentrations ⁽²⁾
IL-16-AAX408-0705-N													IL-16-AAX506-0705	IL-16-AAX413-1105	IL-16-AAX411-1105	IL-16-AAX405-0705-W	IL-16-AMZ116-1105-NE	IL-16-AMZ116-1105-SE	IL-16-AMZ116-1105-S	IL-16-AMZ125-1105	IL-16-AMZ132-1105-NE	IL-16-AMZ132-1105-SW	(Toxicity)	(Bioaccumulation)	Soil
Class	Analyte	Units	7/26/2005	7/26/2005	11/10/2005	11/10/2005	7/26/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005	11/10/2005						
Pesticides (EPA 8081)																									
	4,4'-DDD	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	0.33					
	4,4'-DDE	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.3	0.33					
	4,4'-DDT	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62.9	0.33					
	Estimated Total DDT	µg/Kg	ND	ND U	NA	NA	ND U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	0.33					
	alpha-BHC	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	beta-BHC	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	delta-BHC	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	gamma-BHC (Lindane)	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.99	--					
	Aldrin	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40	--					
	Alpha-Chlordane	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Gamma-Chlordane	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Chlordane ⁽³⁾	µg/Kg	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.6	0.37					
	Dieldrin	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61.8	0.0081					
	alpha-Endosulfan	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	beta-Endosulfan	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Endosulfan sulfate	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Endrin	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	207	--					
	Endrin aldehyde	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Endrin ketone	µg/Kg	10.2 U	15.6 U	NA	NA	21.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Heptachlor	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	--					
	Heptachlor epoxide	µg/Kg	5.08 U	7.8 U	NA	NA	10.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	--					
	Methoxychlor	µg/Kg	50.8 U	78 U	NA	NA	106 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Toxaphene	µg/Kg	508 U	780 U	NA	NA	1060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
PCBs (EPA 8081 for July samples; EPA 8082 for November samples)																									
	PCB 1016	µg/Kg	26.2 U	40.4 U	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530	--					
	PCB 1221	µg/Kg	26.2 U	40.4 U	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	PCB 1232	µg/Kg	26.2 U	40.4 U	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	PCB 1242	µg/Kg	26.2 U	40.4 U	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	PCB 1248	µg/Kg	26.2 U	40.4 U	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1500	--					
	PCB 1254	µg/Kg	26.2 U	40.4 U	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	300	--					
	PCB 1260	µg/Kg	30.7	54.4	65 U	59 U	50.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200	--					
	Total PCBs	µg/Kg	30.7	54.4	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	676	0.39					
Total Petroleum Hydrocarbons (Identification Method)																									
	Diesel	mg/Kg	50 U	50 U	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Gasoline	mg/Kg	20 U	20 U	NA	NA	20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Heavy Fuel Oil	mg/Kg	100 U	100 U	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Lube Oil	mg/Kg	100 U	100 U	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					
	Other	mg/Kg	100 U	100 U	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--					

Notes:

⁽¹⁾JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Updated 2007).

⁽²⁾ DEQ October 28, 2002 default background soil concentrations for metals.

⁽³⁾ The chlordane SLV is based on the sum of chlordane isomers.

J = The analyte was detected and has been qualified as an estimated quantity.

U = The analyte was not detected above the reported sample quantification limit.

UJ = The analyte was not detected above the the reported sample quantification limit; the quantitation limit is estimated.

NA = Not analyzed.

ND = Not detected.

-- No JSCS screening level available.

The analyte was detected at concentrations exceeding the JSCS Toxicity SLV

bold The analyte was detected at concentrations exceeding the JSCS Bioaccumulation SLV. (Metals exceeding the Bio SLV are compared to DEQ Background Concentrations.)

All units in micrograms per kilogram ($\mu\text{g/Kg}$) or milligrams per kilogram (mg/Kg) dry weight.

Attachment A
Field Photographs

July 2005 Inline Solids Sampling



Photo 1 (July, 2005). Inline solids were collected from this location, which is the 48-inch-diameter line discharging from manhole AAX408.

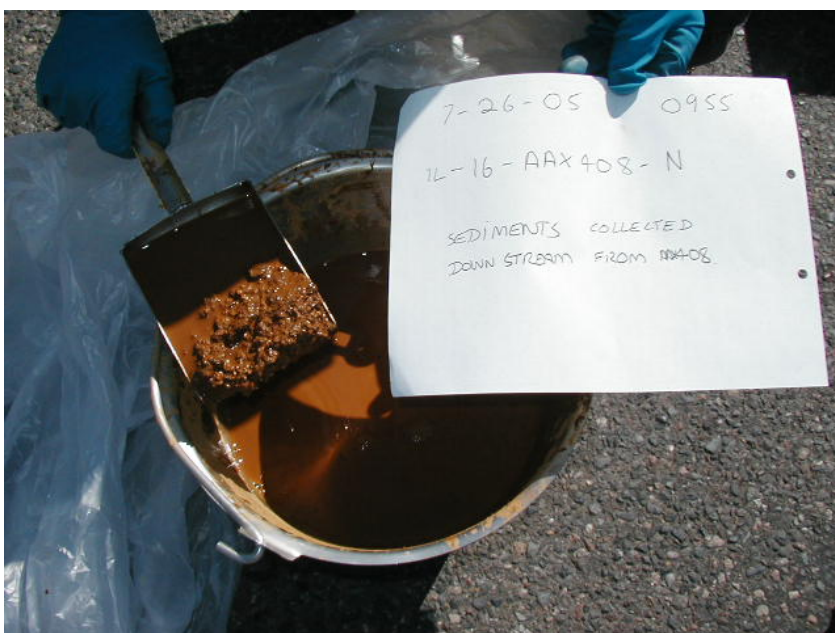


Photo 2 (July, 2005). Inline solids collected downstream of manhole AAX408. Note the color of the sample indicating the presence of iron-oxide precipitate.



Photo 3 (July, 2005). Inline solids were collected from this 42-inch-diameter line that enters manhole AAX408 from the west.

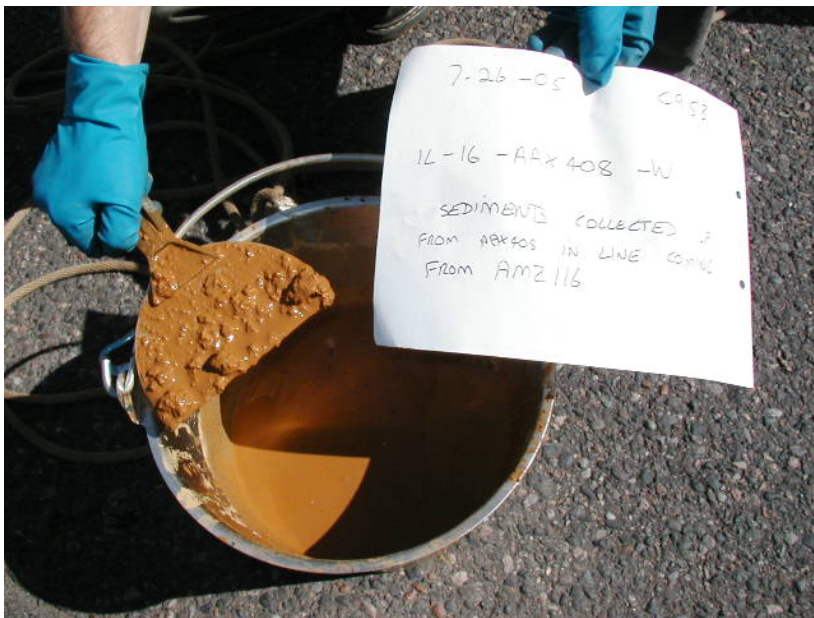


Photo 4 (July, 2005). Inline solids collected at manhole AAX408 from 42-inch line. Note the color of the sample indicating the presence of iron-oxide precipitate.

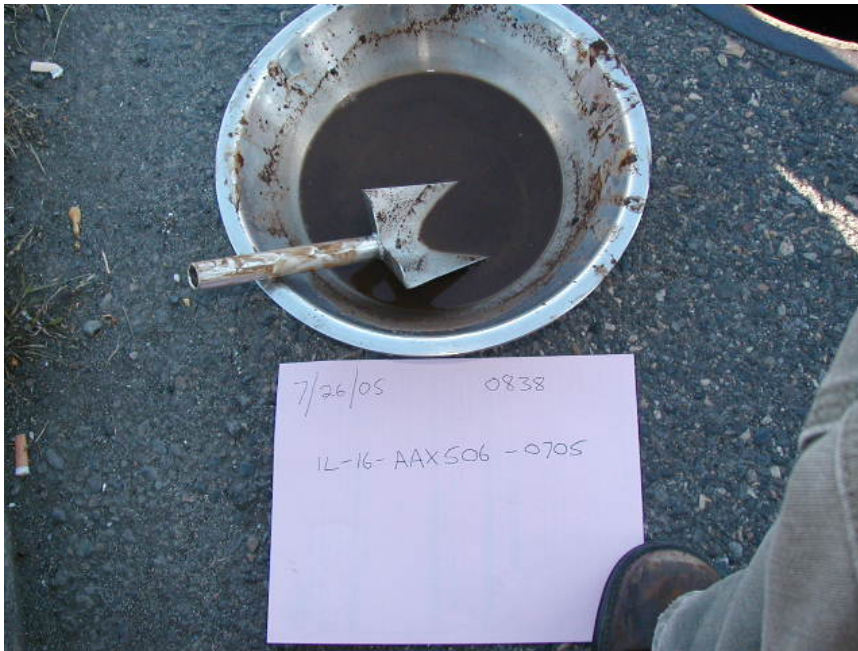


Photo 5 (July, 2005). Inline solids collected at manhole AAX506.

November 2005 Inline Solids and Dry-Weather Flow Sampling



Photo 6 (November, 2005). Samples were collected from the 24-inch-diameter line in NW Front Avenue, downstream from manhole AAX411.

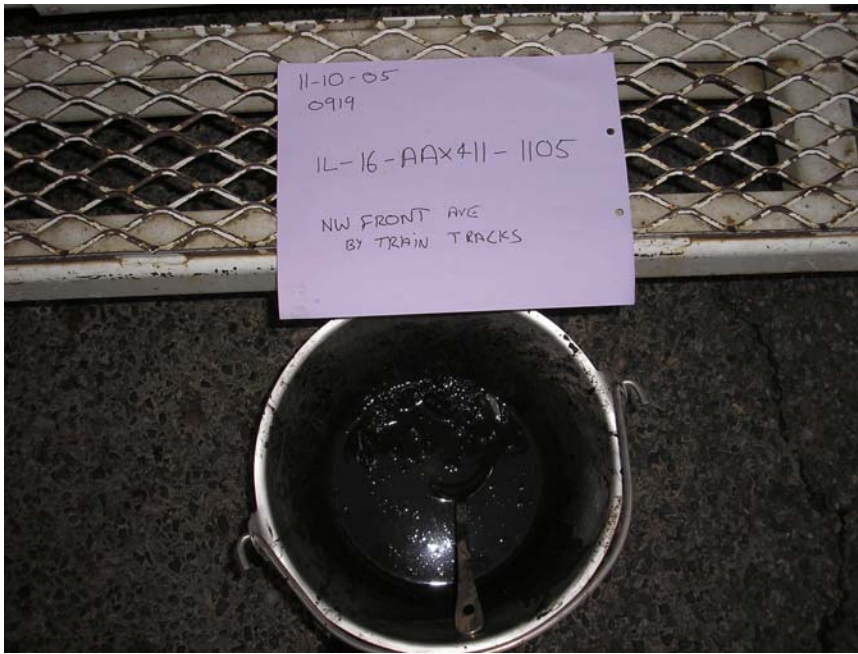


Photo 7 (November, 2005). Inline solids collected from manhole AAX411.



Photo 8 (November, 2005). Aboveground location of manhole AAX413.



Photo 9 (November, 2005). Inline solids were collected at manhole AAX413 from this 8-inch-diameter line that runs parallel to the main line on Front Avenue. This line is adjacent to the Front Avenue MP property.

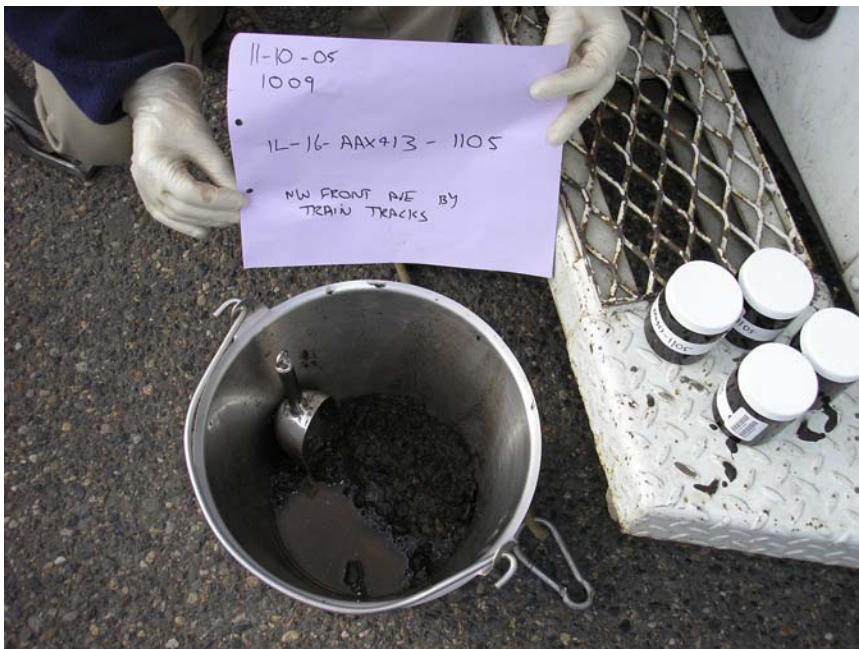


Photo 10 (November, 2005). Inline solids collected at manhole AAX413.



Photo 11 (November, 2005). Solids had to be scraped from the main line through manhole AMZ116. Note the color of the sample indicating iron-oxide precipitate.

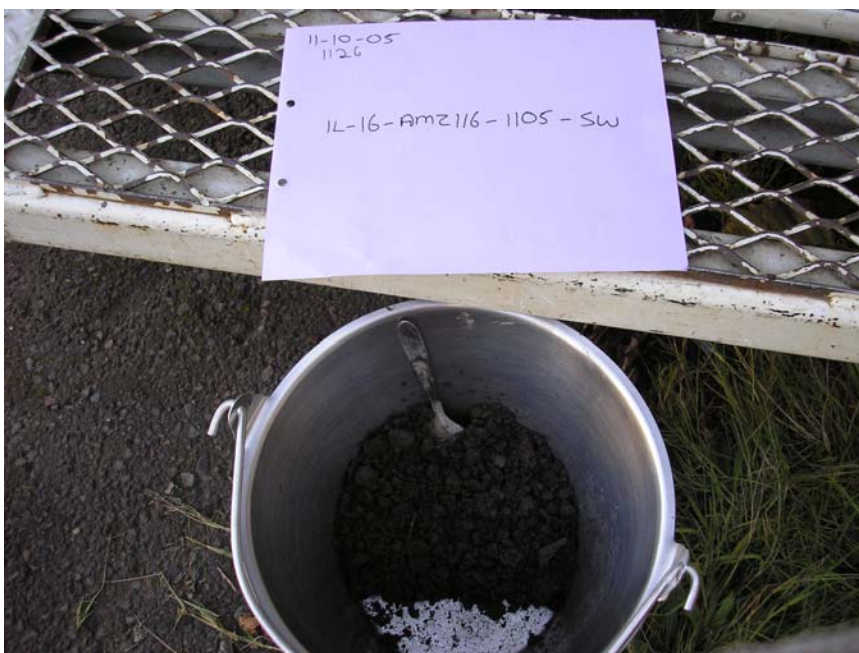


Photo 12 (November, 2005). Inline solids collected from the line entering manhole AMZ116 from the south (note: the sampling nomenclature was changed once the sampling team returned to the lab; the new names are shown on a diagram in Attachment B as well as on the chain of custody).



Photo 13 (November, 2005). View looking into manhole AMZ117. Dry-weather flow samples were collected from the main line and the incoming lateral to the left.



Photo 14 (November, 2005). Inline solids present in the line at manhole AMZ125.

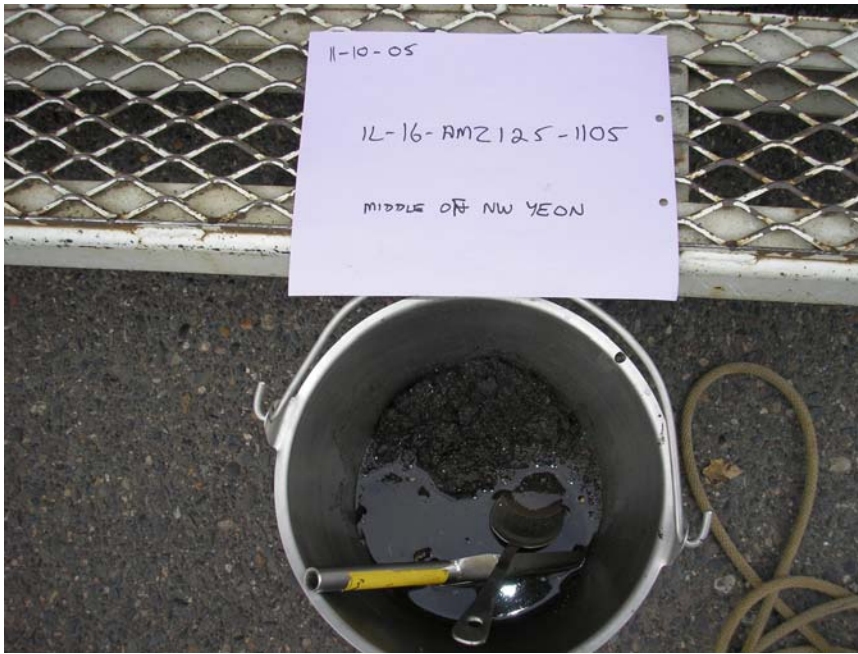


Photo 15 (November, 2005). Inline solids collected from manhole AMZ125.



Photo 16 (November, 2005). Inline solids present in one of the lateral lines that enters the main line at manhole AMZ132. Inline solids were collected from both laterals that discharge to the main line and originate at catch basins on either side of Yeon Avenue.



Photo 17 (November, 2005). Inline solids present in the second lateral line that enters the main line at manhole AMZ132.

Attachment B

Field Notes



Page 1 of 1

Project PORTLAND HARBOR SED SAMP
Location BASIN S-5 + BASIN 16
Subject FIELD NOTES

Project No. 1020.001
Date 7/26/05
By MTN

0730 PREPARE EQUIPMENT FOR TODAY'S ACTIVITIES. SPUNS, BOWLS + BUCKETS HAVE BEEN DECONNED PER SOP 7.01a.

Assembled coolers, ice, garbage bags, and paper work.
Am meeting Linda S @ 800 AT BASIN 16

830 Meet Linda Schegler. Look at map and decide to start at

0840 ENTER + COLLECT SAMPLE FROM AAX506 ONLY GOT 3 JARS FROM THIS LOCATION.

0900 PROCEED TO AAX407 IN MIDDLE OF FRONT AVE. NO SEDS, 1/4" OF STANDING WATER.

0923 Proceed to AAX408. LOTS GOING ON HERE. COLLECTED TWO SAMPLES FROM THIS LOCATION. ONE sample collected downstream of node and called IL-16-AAX408-0705-N. COLLECTED ANOTHER sample from 42" line coming into the node from AMZ116. WE CALLED THIS SAMPLE IL-16-AAX408-0705-W.

THERE IS COMPLEX LINE CONFIGURATION HERE
SEE OVER FOR DRAWING.

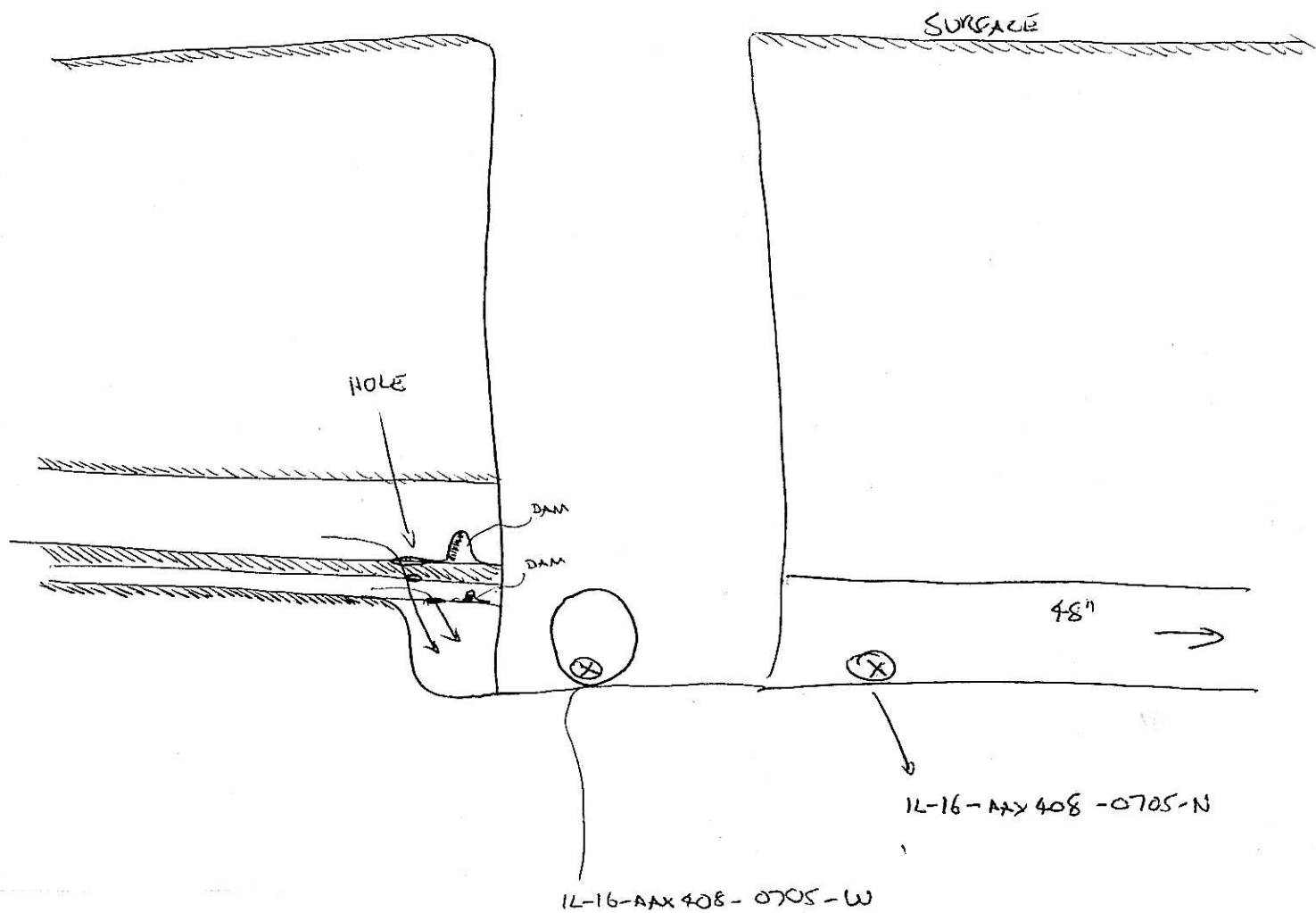
1015 FINISHED BASIN 16 PROCEED TO S-5

Attachments

7/26/05

AAX 408

LINE CONFIGURATION DRAWING





Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Date: 7/26/05
Page: 1 of 1
Collected By: MJH/JJM/pw

[illegible]

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CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001

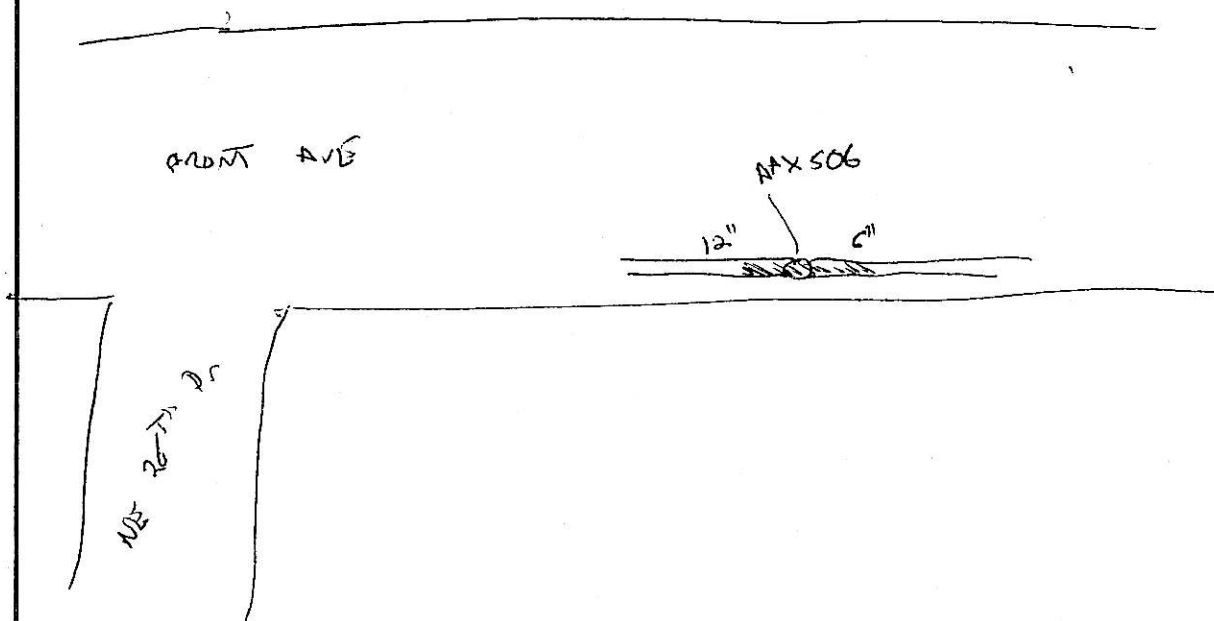
FIELD DATA SHEET

Date: 7/26/05	Time: 0831	Current Weather conditions: SUNNY 70's
Sampling Team Present: MSP/JJM/PJA		
Basin: 16	Node: AAX 506	Subbasin:
Address: 3455 NW FRONT		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	VERY SLOW FLOWING WATER 0.3" DEEP
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES
Is there enough sediment in the line to collect a sample?	YES
Describe lateral extent and depth of sample-able sediments present in the line:	SEDS EXTEND FROM MP TO BOTH DIRECTIONS

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT		Node: <u>APX 506</u>
Sampling Equipment:	<u>SS SPOON + BOWL</u>	
Equipment Decontamination process:	<u>Per FOps SOP 70.1a</u> Other (Describe)	
Sample date: <u>7/26/05</u>	Sample time: <u>0838</u>	
Sample Identification: (IL-XX-NNNNNN-mmyy) <u>1L-16-APX 506-0705</u>		
Sample location: (number of feet from node of entry)	<u>AT MH</u>	
Sample collection technique:	<u>SS SPOON USED TO COLLECT SEDS INTO BOWL SEDS COMPOSITED + TRANSFERRED TO SAMP. CONTAINERS</u>	
Color of sample:	<u>BROWN</u>	
Texture/Particle size:	<u>CLAYS, SANDS + GRAVEL</u>	
Visual or olfactory evidence of contamination:	<u>NO</u>	
Depth of solids in area where sample collected:	<u>1"</u>	
Amount and type of debris:	<u>-</u>	
Compositing notes:	<u>-</u>	
Sample Jars Collected <u>3 JARS Filled</u>		
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	
	PAHs/SVOCs	
	PCBs	
	TPH (two jars)	
	TOC	
Duplicate sample collected?	<u>NO</u>	
Duplicate sample fictitious identification # on COC:	<u>-</u>	
Samples placed in chilled cooler? <u>Y/N</u>		
Samples delivered to lab? <u>Y/N</u>	Lab ID Number: <u>FO 050775</u>	
Describe any deviations from standard procedures:		

SECTION 3 - PHOTOGRAPH LOG		
Photograph Log	In-Pipe sample location	
	Homogenized sample	



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Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



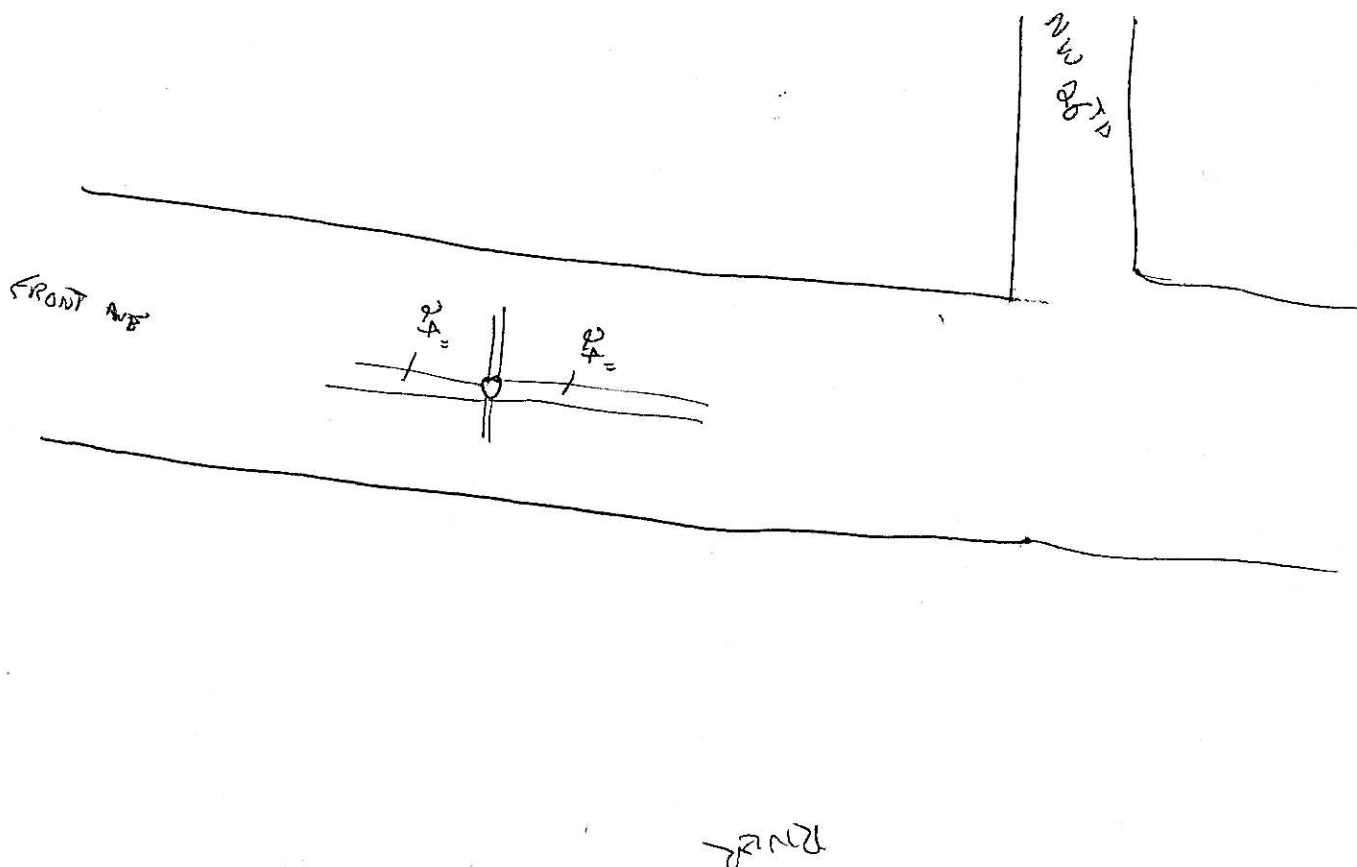
PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001
FIELD DATA SHEET

Date: 7/26/05	Time: 0904	Current Weather conditions: SUNNY 70's
Sampling Team Present: MSP / JSM / PJA		
Basin: 16	Node: DAX 407	Subbasin:
Address:		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	STANDING WATER 0.25"
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	MINOR NO
Is there enough sediment in the line to collect a sample?	NO PROCEED TO ALTERNATE
Describe lateral extent and depth of sampleable sediments present in the line:	—

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation





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ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6549 N. Burlington Ave.
Portland, OR 97203-5452



PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020:001
FIELD DATA SHEET

Date: 7/26/05 Time: 0923 Current Weather conditions: SUNNY

Sampling Team Present: MSP/JJM/PHA

Basin: 7 16 Node: AAX 408 Subbasin:

Address: NW from A-E

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line? FLOWING WATER FROM AM2116 INTO NODE AND GOING OUT

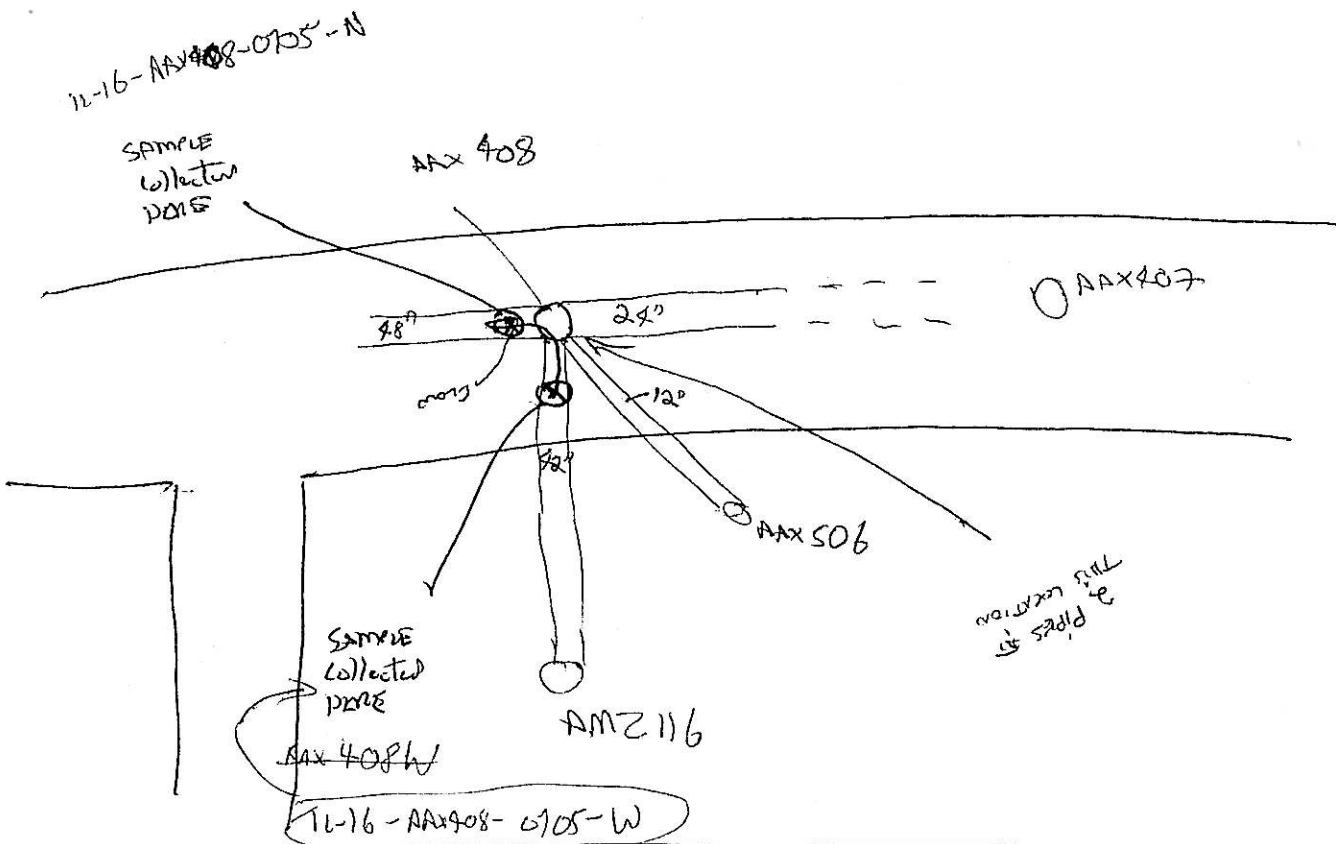
Does river appear to back up to this location? Describe rate/color/odor of flow: NO

Are sediments observed in the line? YES IN LINE FROM AM2116 AND DOWNSTREAM

Is there enough sediment in the line to collect a sample? YES - WE WILL COLLECT TWO MORE

Describe lateral extent and depth of sampleable sediments present in the line: SEDS IN OUR GOWIE LINE AND IN LINE FROM AM2116

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT		Node: AA408
Sampling Equipment:	SS SPOON INTO SS BUCKET	
Equipment Decontamination process:	Per FOPS SOP 70.1a Other (Describe)	
Sample date: 7-26-08	Sample time: N - 0938 W - 0950	
Sample Identification: (IL-XX-NNNNNN-mmyy) IL-16-AA408-0705-N IL-16-AA408-0705-W		
Sample location: (number of feet from node of entry)	DOWNSTREAM OF NODE AA408	UPSTREAM IN LINE COMING FROM PM2116
Sample collection technique:	SS SPOON INTO SS BUCKET, COMPOSITED AND PUT INTO SAMPLE CONTAINERS DIBO	
Color of sample:	BROWN	BROWN
Texture/Particle size:	CLAY	CLAY
Visual or olfactory evidence of contamination:	NO	NO
Depth of solids in area where sample collected:	2"	2"
Amount and type of debris:	—	—
Compositing notes:	—	—
Sample Jars Collected		
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	
	PAHs/SVOCs	
	PCBs	
	TPH (two jars)	
	TOC	
Duplicate sample collected?	NO	
Duplicate sample fictitious identification # on COC:		
Samples placed in chilled cooler? (Y)N		
Samples delivered to lab? Y/N	Lab ID Number: FO 050774	IL-16-AA408-0705-N
Describe any deviations from standard procedures:	FO 050776	IL-16-AA408-0705-W

SECTION 3 - PHOTOGRAPH LOG		
Photograph Log	In-Pipe sample location	
	Homogenized sample	



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



MEMORANDUM

Date: November 14, 2005
To: File
From: Mike Hauser
Environmental Technician
Subject: In-line sed samp Basin 16 - **File Correction Explanation** 1020.001

On November 10, 2005, a Field Ops crew, accompanied by Linda Scheffler and Robin Cook (outside consultant), collected in-line sediment samples from storm sewer lines in Basin 16, northwest Portland.

The field work was documented assuming that north/south was parallel to NW Front Ave. In fact, north is about 45 degrees to the east of what was originally called north in the documentation. This was expedient, in that it greatly simplified how to field document where samples were collected, however it was not accurate.

In order to be as accurate as possible I am making changes to both the field data sheets and the field notes to indicate north as it really occurs. All changes to my field notes and field data sheets will be initialed and dated.

The effect of this change is that it has changed the name of some of the samples that were collected.

The samples submitted to WPCL under the original chain-of-custody on Nov 10 contain incorrect sample name information. A corrected chain-of-custody has been made and is attached to this original chain. The WPCL lab has been given this corrected information and should be entering in the correct information into the database.



**City of Portland
Chain-of-Custody
Bureau of Environmental Services**

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Date: 11-10-05
Page: 1 of 2
Collected By: MTN/MTS/JJM

Project Name: PORTLAND HARBOR INLINE SAMP		Matrix:	SEDIMENT & OTHER		
File Number: 1020.001					
OUTFALL 16					
* STL will perform PCB's and Mercury (EPA 7471)					
STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford					
WPLC Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type
FO 051277	IL-16-AXX411-1105	16_6	10-Nov-05	0919	G
FO 051278	IL-16-AXX413-1105	16_7	10-Nov-05	1009	G
FO 051279	IL-16-AMZ116-1105-water at node	16_8W	10-Nov-05	1042	G
FO 051280	IL-16-AMZ116-1105-water 3' down from node	16_9W	10-Nov-05	1048	G
FO 051281	IL-16-AMZ116-1105-sed 3' down from node	16_10	10-Nov-05	1107	G
FO 051282	IL-16-AMZ116-1105-S	16_11	10-Nov-05	1120	G
FO 051283	IL-16-AMZ116-1105-SW	16_12	10-Nov-05	1126	G
FO 051284	IL-16-AMZ117-1105-W	16_13W	10-Nov-05	1252	G
FO 051285	IL-16-AMZ117-1105-S	16_14W	10-Nov-05	1257	G
Relinquished By: 1.		Time: 1630		Signature:	
Printed Name: M. CHAVEZ		Date: 11-10-05		Signature:	
Received By: 1.		Time: 1630		Signature:	
Printed Name: M. CHAVEZ		Date: 11/10/05		Signature:	
Relinquished By: 2.		Time: 1630		Signature:	
Printed Name: M. CHAVEZ		Date: 11-10-05		Signature:	
Received By: 2.		Time: 1630		Signature:	
Printed Name: M. CHAVEZ		Date: 11/10/05		Signature:	

s:\eid\1000\1020.001\Sampdoc\Portland Harbor Inline Samp COC - OF 16 (10-20-05).xls



Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Date: 11-10-05
Page: 2 of 2
Collected By: MSH/MSJ/JH

Project Name:	PORTLAND HARBOR INLINE SAMP				
File Number:	1020.001	MATRIX: SEDIMENT & <u>OTHER</u>			
OUTFALL 16					
* STL will perform PCB's and Mercury (EPA 7471)					
STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford					
WPCCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type
FO 051286	IL-16-AMZ120-110S	16_15 ^N	10-Nov-05	1315	G
FO 051287	IL-16-AMZ121-110S	16_16 ^N	10-Nov-05	1329	G
FO 051288	IL-16-AMZ125-110S-water	16_17 ^N	10-Nov-05	1355	G
FO 051289	IL-16-AMZ125-110S-sed	16_18 ^N	10-Nov-05	1402	G
FO 051290	IL-16-AMZ132-110S-E	16_19 ^N	10-Nov-05	1430	G
FO 051291	IL-16-AMZ132-110S-W	16_20 ^N	10-Nov-05	1440	G

Relinquished By:	[Signature]	Time:	630
Printed Name:	MCDONALD	Date:	11-10-05
Received By:	[Signature]	Time:	1630
Printed Name:	KRISTEN BARNES	Date:	11/10/05

Relinquished By:	[Signature]	Time:	
Printed Name:		Date:	
Received By:	[Signature]	Time:	
Printed Name:		Date:	

Date: _____

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City of Portland
Chain-of-Custody
Bureau of Environmental Services

Date: _____
Page: _____ of _____
Collected By: _____

Water Pollution Control Laboratory
5543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT &
OTHER

OUTFALL 16

* STL will perform SVOC's, PCB's, and Mercury on solids (EPA 7471)

STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General						Metals - liquid		Metals - solid		Field Comments
						PCB's	SVOC LHS CUSTOM LIST					Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)	Total Mercury	Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)	Total Mercury (EPA 7471)	
	IL-16-AA411-1105 3556 NW Front Ave	16_6	10-Nov-05	0919	G	●	●							●	●	
	IL-16-AA413-1105 3345 NW Front Ave	16_7	10-Nov-05	1009	G	●	●							●	●	
	IL-16-AMZ116-1105 3551 NW Front Ave	16_8W	10-Nov-05	1042	G							●	●			
	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_9W	10-Nov-05	1048	G							●	●			
	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_10	10-Nov-05	1107	G		●							●	●	
	IL-16-AMZ116-1105-SE 3551 NW Front Ave	16_11	10-Nov-05	1120	G		●							●	●	
	IL-16-AMZ116-1105-S 3551 NW Front Ave	16_12	10-Nov-05	1126	G		●							●	●	
	IL-16-AMZ117-1105-SW 3340 NW 26th Ave	16_13W	10-Nov-05	1252	G							●	●			
	IL-16-AMZ117-1105-SE 3340 NW 26th Ave	16_14W	10-Nov-05	1257	G							●	●			

CORRECTIONS TO
ORIGINAL
MSP 11-14-05

Relinquished By: 1.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Received By: 1.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Relinquished By: 2.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Received By: 2.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Relinquished By: 3.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Received By: 3.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Relinquished By: 4.

Signature: _____
Printed Name: _____
Time: _____
Date: _____

Received By: 4.

Signature: _____
Printed Name: _____
Time: _____
Date: _____



Page 1 of 1

Project IN-LINE SED SAMP
Location BASIN 16 NW PORTLAND
Subject FIELD NOTES

Project No. 1020.00
Date 11-10-05
By MSH

0700 PREPARE EQUIPMENT & MATERIALS TO TOMORROW AND IN-LINE SED SAMPLING AT BASIN 16. ALL SPONS & BOWS & BUCKERS HAVE BEEN DECONTAMINATED FOR SEP 2016 FOR THE ANALYSIS FOR THIS PROJECT.

830 MEET LINDA SUPERIOR AND ROBIN COOK AT NW 20TH. DISCUSS TODAY'S WORK AND PLANNED.

0900 ARRIVE AM 410. NO SEDS. MOVE TO NEXT SITE.

0915 ARRIVE AM 411. SEDS PRESENT. SHOULD COLLECT SEDS.

0955 ARRIVE AT AM 413. GOOD SEDS HERE.

1031 ARRIVE AT AM 2116.

1040 ① WATER IN BOTTOM OF THE PIPE. COLLECTED THIS AS A SAMPLE - "11-16-AM2116-1105 WATER AT NODE"

1048 ② MATT DESCRIBES SEAM UP PIPE 3' DOWN FROM NODE. THIS IS LETTING IN A LOT OF WATER. MATT COLLECTS A SAMPLE OF THIS. "11-16-AM2116-1105 WATER 3' DOWN FROM NODE"

1107 ③ MATT SEES SEDS AT 3' DOWN FROM NODE. HE COLLECTS SAMPLE OF THIS. "11-16-AM2116-1105 SED 3' DOWN FROM NODE"

1120 ④ MATT COLLECTS SAMPLES FROM SOUTH LINE. "11-16-AM2116-1105 - S"

Attachments



Page 2 of 3

Project IN-LINE SED SAMP

Project No. 1020-001

Location BPSIN 16

Date 11-10-05

Subject FIELD NOTES

By MTJH

1126 (5) SEDS COLLECTED FROM LINE PROX 813 UNDER BRIDGE
11-10-AM 2116-1105-SW

1200-1230 LUNCH

1240 MET AT AMZ 117 ENTER TO INSPECT

1252 COLLECT WATER SAMPLE, UPSTREAM OF NODE IN MAINLINE TO THE WEST

1257 COLLECT WATER SAMPLE FROM LATERAL TO THE SOUTH

FLOW APPROX 1/4 GPM/MIN. IN LATERAL MAINLINE WAS LESS FLOW

1300 ARRIVE AT AMZ 120 ENTER TO INSPECT

NO SEDS. COLLECT WATER SAMPLE

1323 ARRIVE AT AMZ 121 ENTER TO INSPECT

1326 NO SEDS COLLECT WATER SAMPLE

1336 ARRIVE AMZ 123 TOOK PHOTO. NO FLOW. DID NOT ENTER.

1348 ARRIVE AT AMZ 125 SEE SEDS & WATER. ENTER TO SAMPLE.

SEDS WERE FROM UP & DOWN AT NODE. NOT FROM LATERAL.

WATER TAKEN FROM POOLED AREAS. NO FLOW.

Attachments



Page 3 of 3

Project INLINE SEDIMENT SAMPLING
Location Basin 16
Subject FIELD NOTES

Project No. 1020-001
Date 11-10-05
By MTJ

ARRIVE AT ANB503 - NO GO.

1030 ARRIVE AT ANB NMZ 132

1430 SAMPLE FROM EAST LATERAL

1440 SAMPLE FROM WEST LATERAL

1450 ON TD DAY AND RETURN TO THE LAB
ALL SAMPLES PUT IN SOLID COOLER.

1630 SAMPLES SUBMITTED TO WPCO LAB FOR ANALYSIS
UNDER COC.

Attachments



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05 Time: 0857 Current Weather conditions: SUNNY, COLD

Sampling Team Present: MSW | JTM | MSS | LS

Basin: 16 Node: AAX 407 Subbasin:

Sampling Location Description/Address: NW FRONT 3445 NW FRONT

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	MINOR STANDING WATER
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	MINOR - DOWNSTREAM AND ON SIDES
Are sample-able quantities of sediments present in the line?	NO
Describe lateral extent of sample-able sediments present in the line:	-

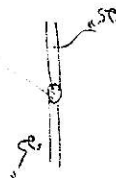
SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation

N
X
MH
11-4-05

NW 36TH

AAX 407

NW FRONT





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Portland, OR 97203-5452



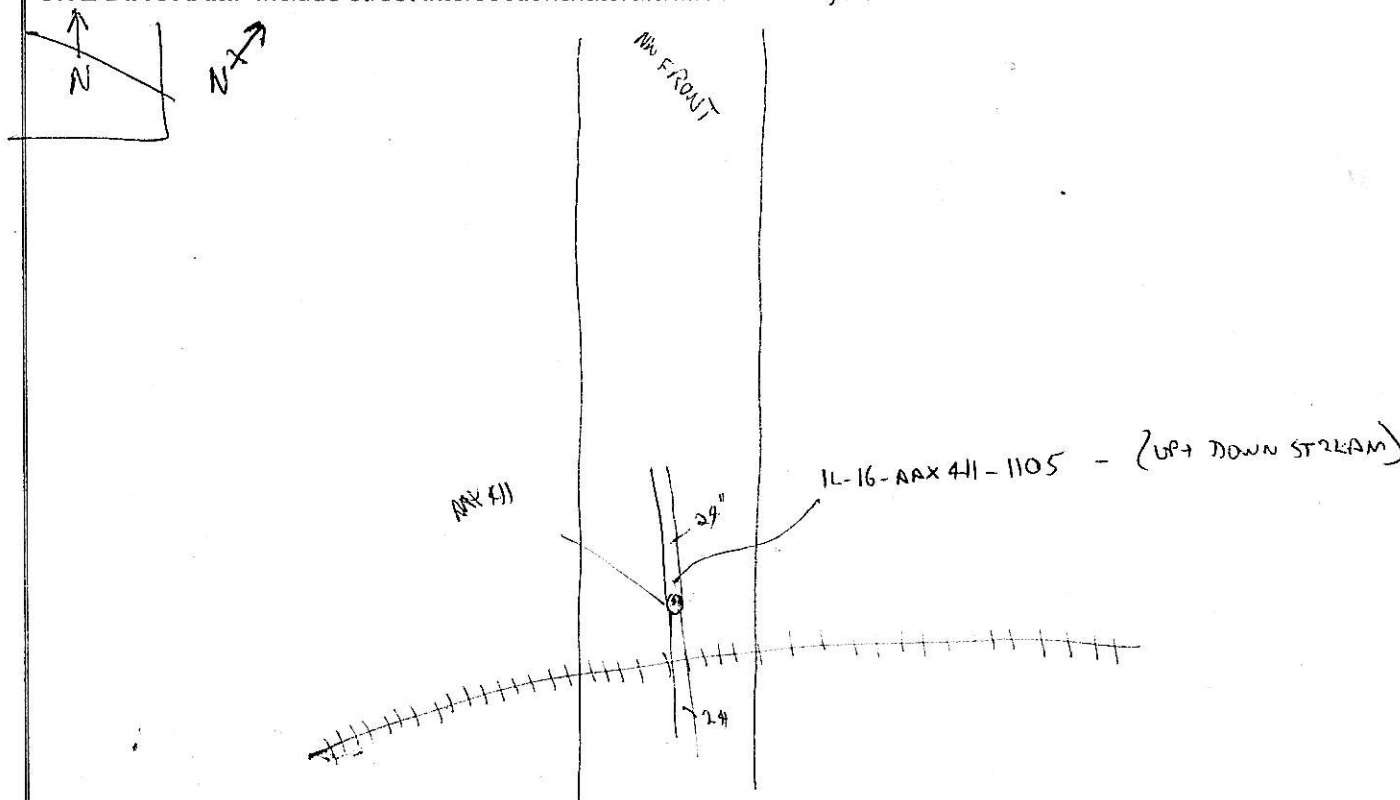
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05	Time: 0912	Current Weather conditions: SUNNY COLD
Sampling Team Present: MTH MJS JIM		
Basin: BASIN 16.	Node: AAX 411	Subbasin:
Sampling Location Description/Address: AT TRAIN TRACKS BY CATE 10 ON NW FRONT ST		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	NO
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES
Are sample-able quantities of sediments present in the line?	YE - REALLY
Describe lateral extent of sample-able sediments present in the line:	1' BEYOND MH.

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT

Node: RAX 411

Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 11-10-05	Sample time: 0919			
Sample Identification: (IL-XX-NNNNNN-mmyy) 1L-16-RAX411-1105				
Sample location description: (number of feet from node of entry)	DIRECTLY DOWNSTREAM OF RAX 411			
Sample collection technique:	SPOON COLLECTED SETS INTO BUCKET			
Describe Color of sample:	DARK GRAY			
Describe Texture/Particle size:	SLITS + CLAYS → GRAVELS w/ CHUNKS OF METAL			
Describe visual or olfactory evidence of contamination:	NO			
Describe depth of solids in area where sample collected:	1/2" - 1"			
Describe amount and type of debris in sample:	PLASTIC + METAL CHUNKS			
Compositing notes:	—			
Sample Jars Collected				
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar		
	PAHs/SVOCs	One 4oz glass jar		
	PCBs	One 4oz glass jar		
	TPH (two jars)	Two 4oz glass jars		
	TOC	One 4oz glass jar		
Duplicate sample collected?	NO			
Duplicate sample fictitious identification # on COC:				
Samples placed in chilled cooler? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N				
Samples delivered to lab? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Lab ID Number: FO 051277			
Describe any deviations from standard procedures:	—			



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

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Portland, OR 97203-5452



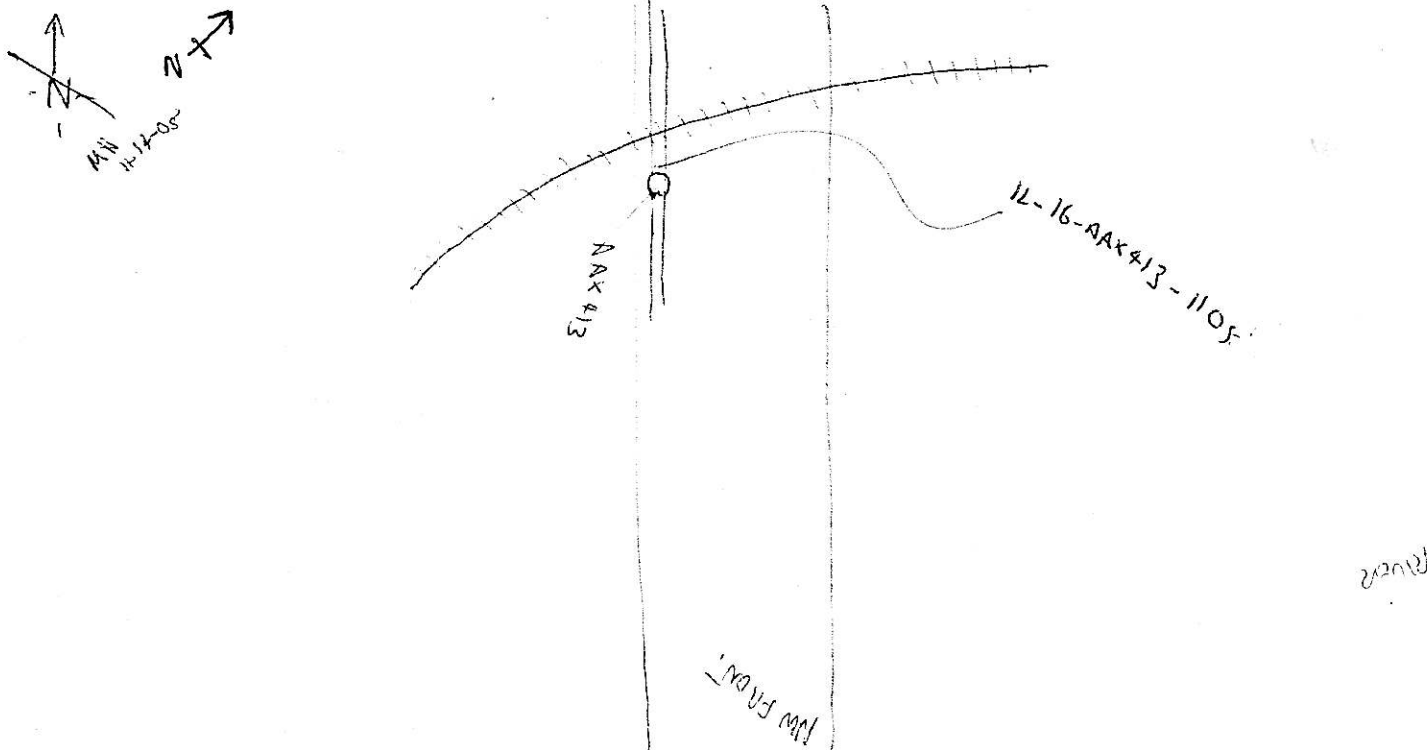
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05 Time: 0958 Current Weather conditions: SUNNY COLD
Sampling Team Present: MSH | MSB | JSM | LS. ROBIN WOLF
Basin: 16 Node: AAX 413 Subbasin:
Sampling Location Description/Address: WEST SIDE OF NW FRONT S. OF TRAIN TRACKS

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	MINOR STANDING WATER
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES
Are sample-able quantities of sediments present in the line?	YES DOWNSTREAM. NONE UPSTREAM.
Describe lateral extent of sample-able sediments present in the line:	1-1 1/2" DOWNSTREAM AND AT NODE

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT

Node: **APX 413**

Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 11-10-05	Sample time: 1009			
Sample Identification: (IL-XX-NNNNNN-mmyy) IL-16-APX 413-1105				
Sample location description: (number of feet from node of entry)	SEDS COLLECTED AT NODE			
Sample collection technique:	SS SPOON INTO BUCKET. BUCKET HOISTED TO SURFACE. HOMOGENIZED			
Describe Color of sample:	Dr GREY			
Describe Texture/Particle size:	GRAVELS - SANDS - SILTS			
Describe visual or olfactory evidence of contamination:	NO			
Describe depth of solids in area where sample collected:	1/2"			
Describe amount and type of debris in sample:	—			
Compositing notes:	—			
Sample Jars Collected				
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar		
	PAHs/SVOCs	One 4oz glass jar		
	PCBs	One 4oz glass jar		
	TPH (two jars)	Two 4oz glass jars		
	TOC	One 4oz glass jar		
Duplicate sample collected?	NO			
Duplicate sample fictitious identification # on COC:				
Samples placed in chilled cooler?	(Y/N)			
Samples delivered to lab?	(Y/N)			
Describe any deviations from standard procedures:	Lab ID Number: FO 051278 NO			



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



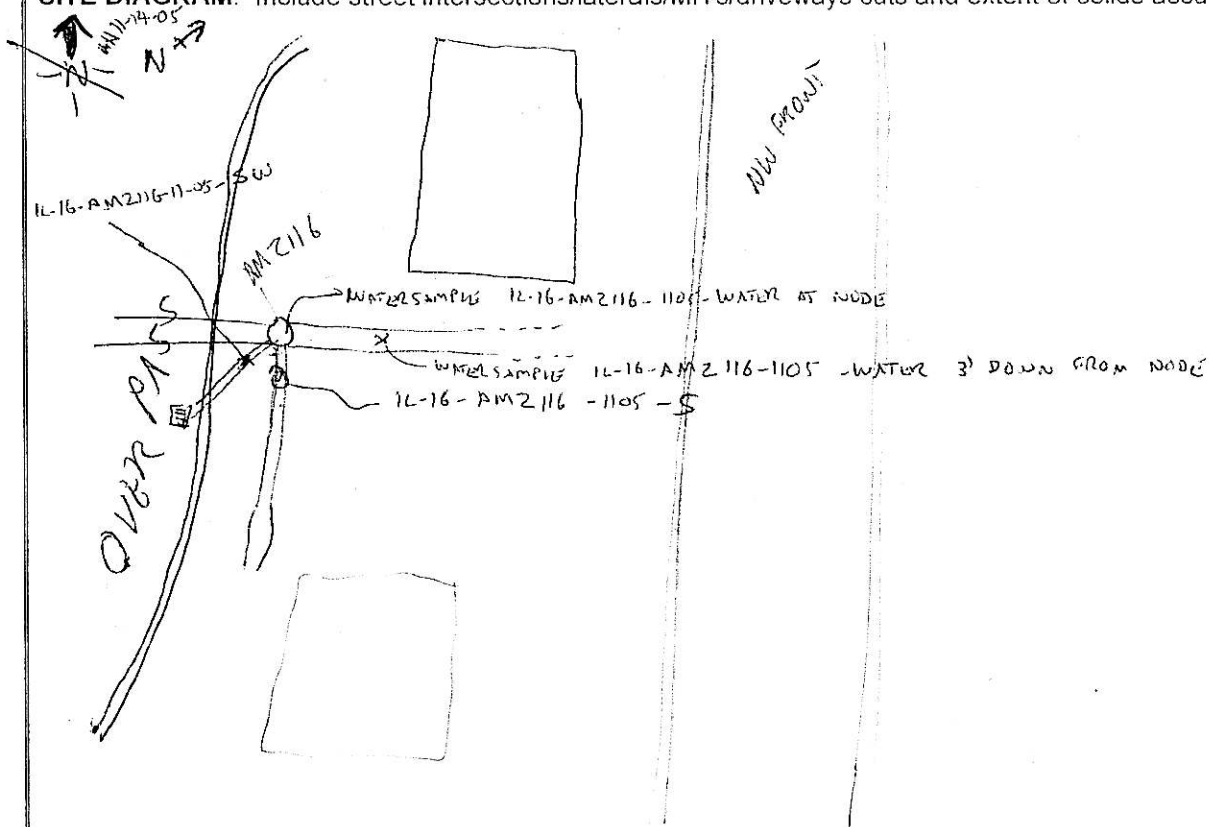
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05	Time: 1032	Current Weather conditions: overcast - cold
Sampling Team Present: MJH / MSS / JIM / LS / RC		
Basin: 16	Node: AMZ 116	Subbasin:
Sampling Location Description/Address: PARKING LOT WEST OF NW FRONT		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	1/8" BUT ENOUGH TO COLLECT. MATT SAYS THAT WATER INCREASES ABOUT
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES - SEE NOTES
Are sample-able quantities of sediments present in the line?	YES
Describe lateral extent of sample-able sediments present in the line:	

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AMZ 116

Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input checked="" type="checkbox"/> Other (Describe) WATER SAMPLE COLLECTED USING STAINLESS STEEL BUCKET		
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 11-10-05	Sample time: SEE BELOW		
Sample Identification: (IL-XX-NNNNNN-mmyy)	IL-16-AMZ116-1105-WATER AT NODE 1042 IL-16-AMZ116-1105-WATER 3' DOWN FROM NODE 1048 IL-16-AMZ116-1105-SED 3' DOWN FROM NODE 1107 SEE CHANGES ON FIELD NOTES MU 11-14-05		
Sample location description: (number of feet from node of entry)	IL-16-AMZ116-1105-S 1120 IL-16-AMZ116-1105-SW 1126 SEE ATTACHED MAPS		
Sample collection technique:	ALL ALL SEDS COLLECTED BY SS SPOON INTO BUCKET, OR SAMPLE CONTAINERS FILLED DIRECTLY. WATER COLLECTED BY FILLING SS BUCKET THEN DECANTING INTO CONTAINERS		
Describe Color of sample:	VARIOUS. SEDS ARE DARK GREY		
Describe Texture/Particle size:	SANDS / GRAVEL		
Describe visual or olfactory evidence of contamination:	-		
Describe depth of solids in area where sample collected:	SW - 2-3" DEEP S - 1"		
Describe amount and type of debris in sample:	-		
Compositing notes:	-		
Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar	
	PAHs/SVOCs	One 4oz glass jar	
	PCBs	One 4oz glass jar	
	TPH (two jars)	Two 4oz glass jars	
	TOC	One 4oz glass jar	
Duplicate sample collected?	NO		
Duplicate sample fictitious identification # on COC:	FO 051279		
Samples placed in chilled cooler?	YN		
Samples delivered to lab?	YN		
Lab ID Number:	FO 051280 FO 051281 FO 051282 FO 051283		
Describe any deviations from standard procedures:	SAMPLE COLLECTED AT LOCATIONS SPECIFIED BY LINDA S.		

11-10-05

AMZ116



CB UNDER BRIDGE

SURFACES

SOUTH WEST LINE

12-16-AMZ116-1105-SW

11-14-05

SOUTH LINE

12-16-AMZ116-1105-SE

11-14-05

NW FRONT

DRAM

12-16-AMZ116-1105-WATER AT NODE

11-14-05

12-16-AMZ116-1105-NE

WATER 2' above ground

12-16-AMZ116-1105-SED

11-14-05

11-10-05

Port AMZ 116

N
11-14-05

SW
11-14-05

11-16-AMZ 116-1105-SW
11-14-05

AMZ 116

WATER SAMPLE
11-16-AMZ 116-1105-WATER AS NODE

WATER SAMPLE - NE
11-16-AMZ 116-1105-WATER 3' DOWN FROM NODE

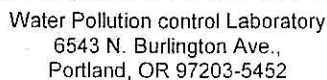
11-16-AMZ 116-1105-SED 3' DOWN FROM NODE
- NE

11-16-AMZ 116-1105-SE
11-14-05

PARKING LOT

OVER PASS

NW
11-14-05



SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-08	Time: 1240	Current Weather conditions: SUNNY CLOUD
----------------	------------	---

Sampling Team Present: MSP / MSG / JSM

Basin: BASIN 16	Node: AmZ.117	Subbasin:
-----------------	---------------	-----------

Sampling Location Description/Address: PT END OF CULDESAC ON NW 26TH

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?

WATER FLOWING IN MAIN LINE AND IN LATERAL

Does river appear to back up to this location?
Describe rate/color/odor of flow:

NO

Are sediments observed in the line?

NO

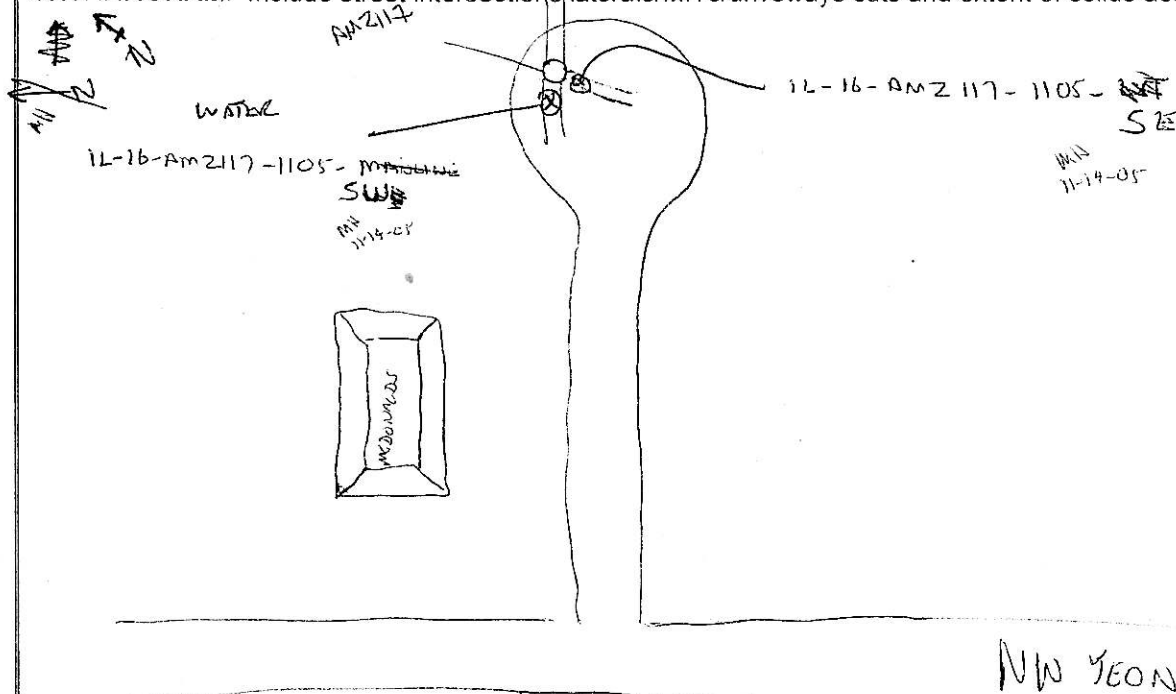
Are sample-able quantities of sediments present in the line?

NO

Describe lateral extent of sample-able sediments present in the line:

Abstract

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation.



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AMZ 117

Sampling Equipment:	<input type="checkbox"/> Stainless steel spoon & stainless steel bucket <input checked="" type="checkbox"/> Other (Describe) SS BAKER		
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 11-10-05	Sample time: SEE BELOW		
Sample Identification: (IL-XX-NNNNNN-mmyy)	12-16-AMZ117-1105 - MAIN LINE 1252 12-16-AMZ117-1105 - SE 1257 12-16-AMZ117-1105 - EXTERNAL		
Sample location description: (number of feet from node of entry)	MAIN LINE WATER SAMPLE COLLECTED UPSTREAM FROM NODE		
Sample collection technique:	BOTTLES FILLED FROM STAINLESS STEEL BAKER		
Describe Color of sample:	—		
Describe Texture/Particle size:	—		
Describe visual or olfactory evidence of contamination:	—		
Describe depth of solids in area where sample collected:	—		
Describe amount and type of debris in sample:	—		
Compositing notes:	—		
Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar	
	PAHs/SVOCs	One 4oz glass jar	
	PCBs	One 4oz glass jar	
	TPH (two jars)	Two 4oz glass jars	
	TOC	One 4oz glass jar	
Duplicate sample collected?			
Duplicate sample fictitious identification # on COC:			
Samples placed in chilled cooler? <input checked="" type="checkbox"/> YN	SO 051284		
Samples delivered to lab? <input checked="" type="checkbox"/> YN	Lab ID Number: SO 051285		
Describe any deviations from standard procedures:	NO		



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05 Time: 1309 Current Weather conditions: OVERCAST

Sampling Team Present: MSP/MSS JTM/LS, RC

Basin: 16 Node: AM2 120 Subbasin:

Sampling Location Description/Address: MIDBLOCK NW 26TH

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line? YES BUT NOT MUCH 1/2 gal/min

Does river appear to back up to this location?
Describe rate/color/odor of flow:

NO

Are sediments observed in the line?

NO

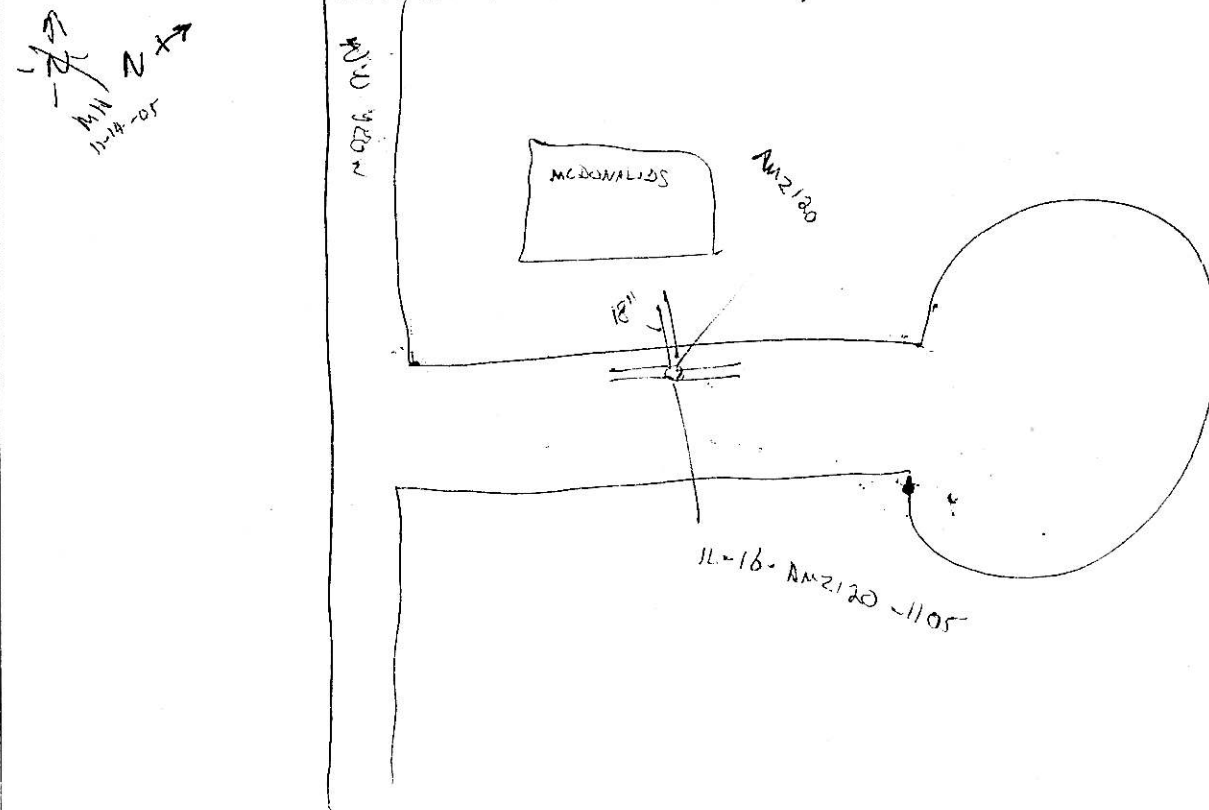
Are sample-able quantities of sediments present in the line?

NO

Describe lateral extent of sample-able sediments present in the line:

—

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT

Node: DM2120

Sampling Equipment:	<input type="checkbox"/> Stainless steel spoon & stainless steel bucket <input checked="" type="checkbox"/> Other (Describe) SS BEAKER		
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 11-10-03	Sample time: 1315		
Sample Identification: (IL-XX-NNNNNN-mmyy) 11-10-DM2120-1105			
Sample location description: (number of feet from node of entry)	UPSTREAM SAMPLE AT NODE		
Sample collection technique:	BEAKER USED TO COLLECT SAMPLE INTO SAMPLE CONTAINER		
Describe Color of sample:	SLIGHTLY TURBID		
Describe Texture/Particle size:	—		
Describe visual or olfactory evidence of contamination:	NO		
Describe depth of solids in area where sample collected:	—		
Describe amount and type of debris in sample:	—		
Compositing notes:	—		
Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar	
	PAHs/SVOCs	One 4oz glass jar	
	PCBs	One 4oz glass jar	
	TPH (two jars)	Two 4oz glass jars	
	TOC	One 4oz glass jar	
Duplicate sample collected?			
Duplicate sample fictitious identification # on COC:			
Samples placed in chilled cooler?	Y/N		
Samples delivered to lab?	Y/N		
Describe any deviations from standard procedures:	Lab ID Number: FO 051286		
	NONE		



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SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05

Time: 1321

Current Weather conditions: OVERCAST

Sampling Team Present: MJP / MJS / JIM / LS / RC

Basin: 16

Node: RM2121

Subbasin:

Sampling Location Description/Address: AT INTERSECTION OF NW 16TH + NW 26TH

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?

$\frac{1}{10}$ gal/min

Does river appear to back up to this location?
Describe rate/color/odor of flow:

NO

Are sediments observed in the line?

NO

Are sample-able quantities of sediments present in the line?

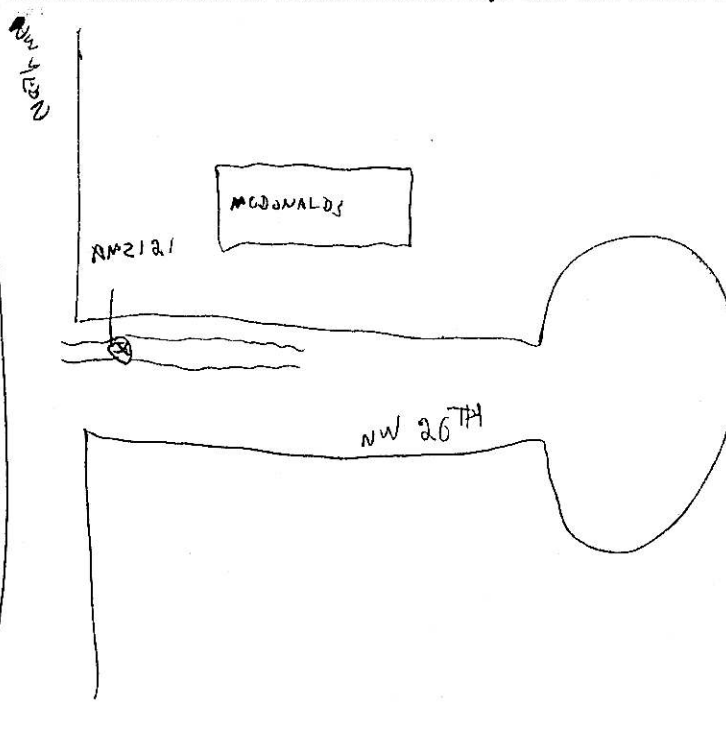
NO

Describe lateral extent of sample-able sediments present in the line:

—

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation

MJP
11-14-05
N +



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AMZ121

Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)		
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 13 11-10-05	Sample time: 1329		
Sample Identification: (IL-XX-NNNNNN-mmyy) 12-16-AMZ121-1105			
Sample location description: (number of feet from node of entry)	PT NODE		
Sample collection technique:	SS SPOON USED TO COLLECT SAMPLE INTO BUCKET - SAMPLE HOMOGENIZED + THEN PUT INTO SAMPLE CONTAINERS		
Describe Color of sample:	DR GREY		
Describe Texture/Particle size:	SANDY / GRAVEL		
Describe visual or olfactory evidence of contamination:	—		
Describe depth of solids in area where sample collected:	1"		
Describe amount and type of debris in sample:	—		
Compositing notes:	—		
Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar	
	PAHs/SVOCs	One 4oz glass jar	
	PCBs	One 4oz glass jar	
	TPH (two jars)	Two 4oz glass jars	
	TOC	One 4oz glass jar	
Duplicate sample collected?			
Duplicate sample fictitious identification # on COC:			
Samples placed in chilled cooler? <input checked="" type="checkbox"/> YN			
Samples delivered to lab? <input checked="" type="checkbox"/> YN	Lab ID Number: FO 051287		
Describe any deviations from standard procedures:	NONE		



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ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05 Time: 1348 Current Weather conditions: warm overcast.

Sampling Team Present: MSP, MSS, JSM

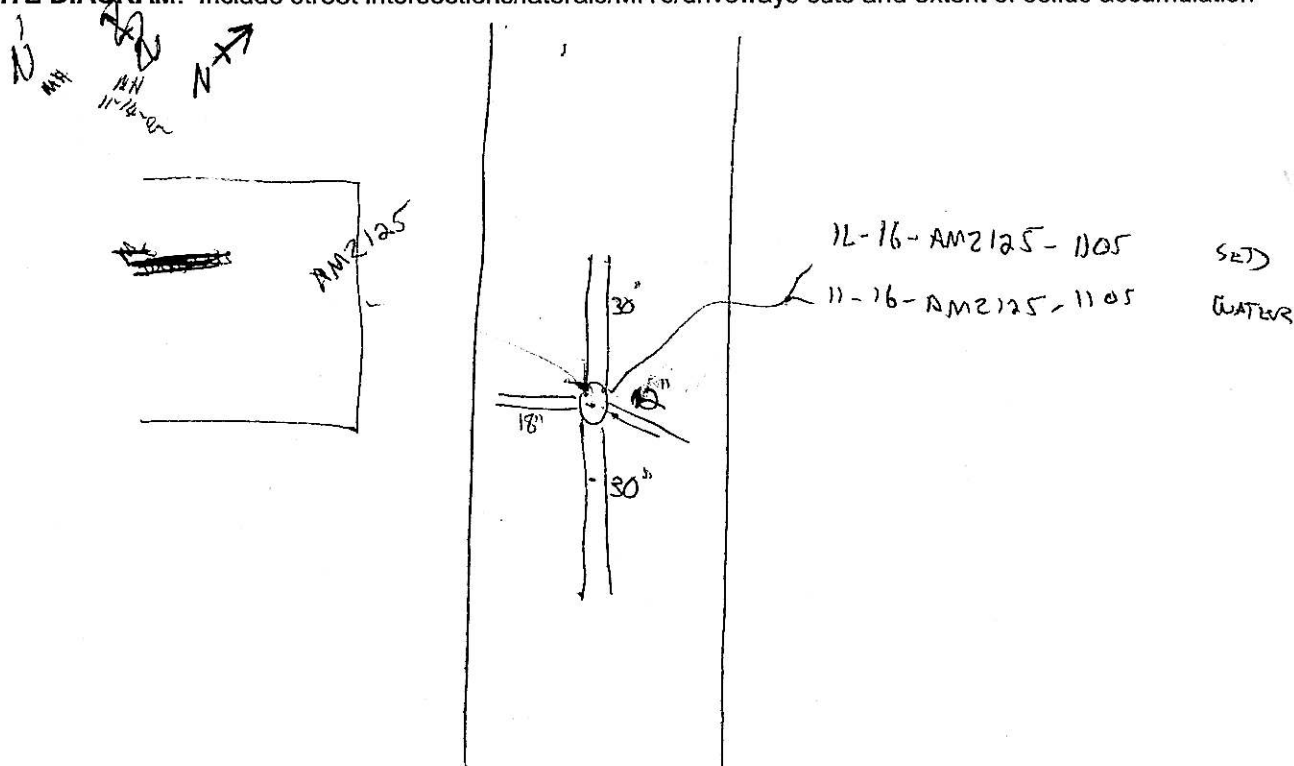
Basin: 16 Node: AM2125 Subbasin:

Sampling Location Description/Address: NW 460N

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	STANDING WATER
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES
Are sample-able quantities of sediments present in the line?	YES
Describe lateral extent of sample-able sediments present in the line:	UP & DOWN FROM NODE.

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AMZ 125

Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input checked="" type="checkbox"/> Other (Describe) SS BEAKER		
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 11-10-05	Sample time: SEE BELOW		
Sample Identification: (IL-XX-NNNNNN-mmyy) 1L-16-AMZ125-1105 WATER 1355 1L-16-AMZ125-1105 SEEDS 1402			
Sample location description: (number of feet from node of entry)	AT NODE		
Sample collection technique:	SS SPOON USED TO COLLECT SEEDS IN BUCKET. BUCKET BROUGHT TO SURFACE. SAMPLE IDENTIFIED.		
Describe Color of sample:	SEEDS - DK GREY		
Describe Texture/Particle size:	SANDS / GRAVELS		
Describe visual or olfactory evidence of contamination:	+		
Describe depth of solids in area where sample collected:	—		
Describe amount and type of debris in sample:			
Compositing notes:	—		
Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar	
	PAHs/SVOCs	One 4oz glass jar	
	PCBs	One 4oz glass jar	
	TPH (two jars)	Two 4oz glass jars	
	TOC	One 4oz glass jar	
Duplicate sample collected?	NO		
Duplicate sample fictitious identification # on COC:			
Samples placed in chilled cooler? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	WATER FO 051288		
Samples delivered to lab? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Lab ID Number: SEEDS FO 051289		
Describe any deviations from standard procedures:	NONE		



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ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



SEDIMENT SAMPLING FIELD DATA SHEET

Date: 11-10-05

Time: 1920

Current Weather conditions:

Sampling Team Present:

Basin: # 16

Node: AM2132

Subbasin:

Sampling Location Description/Address:

NW YEON

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?

NONE

Does river appear to back up to this location?
Describe rate/color/odor of flow:

NO

Are sediments observed in the line?

YES - ON EAST & WEST LATERALS

Are sample-able quantities of sediments present in the line?

YES - SAMPLED BOTH

Describe lateral extent of sample-able sediments present in the line:

AS FAR AS VISIBLE

SITE DIAGRAM: Include street intersections/laterals/MH's/driveways cuts and extent of solids accumulation

N
MH
11-14-05

NW YEON

NW 26TH

OVERPASS

11-14-05
MH

IL-16-AM2132-1105 SW

AM2132

11-14-05
MH

IL-16-AM2132-HQS-AE

SECTION 2 - SAMPLE COLLECTION REPORT

Node: AMZ 132

Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)		
Equipment Decontamination process:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 11-10-05	Sample time: SEE BELOW	✓ MN 11-17-05	
Sample Identification: (IL-XX-NNNNNN-mmyy)	1L-16-AMZ132-1105-NE 1430 1L-16-AMZ132-1105-SW 1440		
Sample location description: (number of feet from node of entry)	SAMPLES COLLECTED FROM LATERALS ON EITHER SIDE OF NODE		
Sample collection technique:			
Describe Color of sample:	Dr. GREY		
Describe Texture/Particle size:	—		
Describe visual or olfactory evidence of contamination:	—		
Describe depth of solids in area where sample collected:	—		
Describe amount and type of debris in sample:	—		
Compositing notes:			
Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals	One 4oz glass jar	
	PAHs/SVOCs	One 4oz glass jar	
	PCBs	One 4oz glass jar	
	TPH (two jars)	Two 4oz glass jars	
	TOC	One 4oz glass jar	
Duplicate sample collected?			
Duplicate sample fictitious identification # on COC:			
Samples placed in chilled cooler? <input checked="" type="checkbox"/> YN	NE FO 051290		
Samples delivered to lab? <input checked="" type="checkbox"/> YN	Lab ID Number: SW FO 051291		
Describe any deviations from standard procedures:	—		



Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Date _____
Page _____
Collected By _____

PA 62

Project Name: PORTLAND HARBOR INLINE SAMP	Matrix:	SEDIMENT & OTHER
File Number: 1020.001		

OUTFALL 16

* STL will perform PCB's and Mercury (EPA 7471)

STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackleford

[illegible]



Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5596

City of Portland
Chain-of-Custody
Bureau of Environmental Services



Date: _____
Page: _____ of _____
Collected By: _____

PAGE 1

Project Name: PORTLAND HARBOR INLINE SAMP			
File Number: 1020.001		Matrix: SEDIMENT & OTHER	
OUTFALL 16 * STL will perform PCB's and Mercury (EPA 7471) STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford			
WPCL Sample I.D.	Location	Point Code	Sample Date Time
	1216 APR 4/1 -1105		SLD
	APR423		SLD
	AMZ116		LIQUIDS AT NODE
	PMZ116		LIQUID DOWNSTREAM
	PMZ116		SLD
	PMZ116		SLD
	PMZ116		SLD
	PMZ117		LIQUIDS
	PMZ117		11 "

Requested Analyses	
General	Metals - liquid
	Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)
	Total Mercury
	Cr, Cu, Ni, Pb, Zn
	Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)
	Total Mercury (EPA 7471)*
	Field Comments

TO SIGNATURE OUT WEST ANALYSIS TO ORDER FOR WHICH SAMPLE

Relinquished By: 1.	
Signature:	Time:
Printed Name:	
Received By: 1.	
Signature:	Time:
Printed Name:	

Relinquished By: 2.	
Signature:	Time:
Printed Name:	
Received By: 2.	
Signature:	Time:
Printed Name:	

Relinquished By: 3.	
Signature:	Time:
Printed Name:	
Received By: 3.	
Signature:	Time:
Printed Name:	

Relinquished By: 4.	
Signature:	Time:
Printed Name:	
Received By: 4.	
Signature:	Time:
Printed Name:	

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail

Report Date 10/24/2005 09:52 AM

Submitted By Bret Davison

Page 1

Inspection # 217046

Work Order #

Activity STMNTV NOT FOR WO'S - STORM MAIN TV

From ID STMH AAX408

To STMH AMZ486

Length 224.00

Address 3636 NW FRONT AVE
PORTLAND ORUpstream Address 3636 NW FRONT AVE
PORTLAND ORDownstream Address 3636 NW FRONT AVE
PORTLAND OR

Started 10/13/2005 10:46

Crew Leader

Reverse Setup ☐Prior History ☐

Completed 10/13/2005 10:46

Operator TSR2

Sketch ☐

Comp By TSR2

Weather RAIN

Project 638200 BES TV CONTRACT. GAIL LUTHY

Media

Format VHS

Media #

BSP101

Crew

Flow Depth 0.00

Index 4545

To 5200

Pipe Det

Condition Ratings

Structural	0	Root	0	I/I	0	Overall	0
------------	---	------	---	-----	---	---------	---

Comments

2218 END US AAX408 CONCRETE GOOD CONDITION

Readings

Setup	From	To	Index	Clock	Grouted	Defect	Code	Description
-------	------	----	-------	-------	---------	--------	------	-------------

Comments



AAX408

D 0.00 0.00 4602 0 N
START DS AMZ486 CONCRETE GOOD CONDITION
LAGE DIAMATER MH
3636 NW FRONT AVE

End of Readings



AMZ486

TV
direction

no laterals

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 09:52 AM**Submitted By** Bret Davison

Page 2

Custom

Field Measurements:**Job #** 175294

Top Distance	228.00	ft	Pipe Diameter	48.00	in
Joint Length	12.00	ft	Pipe Height	0.00	in
Length TV'd	228.00	ft			

Summary:

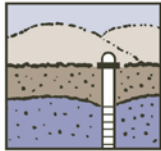
GOOD CONDITION

Recommendations:

End of Report

Attachment C

Laboratory Results



Groundwater Solutions, Inc.

55 SW Yamhill Street, Suite 400 Portland, Oregon 97204
ph: 503.239.8799 fx: 503.239.8940 e: groundwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation City Outfall Basin 16

To: File
From: Walter Burt, RG – GSI
Robyn Cook, GSI
Date: January 20, 2006

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses recently conducted by the City of Portland (City) in Outfall Basin 16. This includes two sampling rounds, one during the summer and one in the fall. The results of the sampling and analysis are presented in the Technical Memorandum No. OF 16-1.

The laboratory analysis for these source control program samples were completed by the City's BES laboratory and two subcontracted laboratories. The following analyses were conducted each laboratory for the summer sampling round:

- BES Laboratory
 - Metals (EPA Method 6020)
 - Total Petroleum Hydrocarbons – Identification (NWTPH-HCID Method)
- North Creek Analytical
 - Total Organic Carbon (EPA Method 9060MOD)
- STL Laboratory
 - Semivolatile Organics (EPA Method 8270-SIM)
 - Pesticides and Polychlorinated Biphenyls (EPA Method 8081)
 - Mercury by CVAA (EPA Method 7471)

The following analyses were conducted each laboratory for the fall sampling round:

- BES Laboratory
 - Metals (EPA Methods 200.8 and 6020)

- STL Laboratory
 - Semivolatile Organics (EPA Method 8270-SIM)
 - Polychlorinated Biphenyls (EPA Method 8082)
 - Mercury by CVAA (EPA Method 7471)

Attachment C of the Technical Memorandum No. OF 16-1 presents the BES laboratory LIMS summary report for all analyses associated with this Outfall Basin investigation and the subcontracted laboratory's data reports. Subcontracted laboratories frequently receive batches of samples related to several BES sampling projects. In this case, only those analytical results (and QA/QC pages) pertinent to this Outfall Basin investigation memorandum are provided with the subcontractor's reports.

This QA/QC review is based upon the available documentation supplied from each laboratory. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report:

- Chain-of-custody complete and correct
- Analysis within holding times
- Chemicals of interest in method blanks
- Surrogate recoveries within accuracy control limits
- Laboratory duplicates within analytical accuracy control limits
- Laboratory blank spike recoveries within accuracy control limits
- Laboratory blank spike duplicate results within analytical precision control limits
- Matrix spike recoveries within accuracy control limits
- Matrix spike duplicate results within analytical precision control limits

The results of the laboratory report QA/QC review are presented for each sampling round below.

Summer Sampling

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained through the sample collection and delivery process.

Analysis Holding Times

Semi-Volatile Organic Analyses

All samples were extracted and analyzed within the required holding times.

Pesticide Analyses

All samples were extracted and analyzed within the required holding times.

Polychlorinated Biphenyls (PCBs) Analyses

All samples were extracted and analyzed within the required holding times.

Mercury Analyses

All samples were extracted and analyzed within the required holding times.

Metal Analyses

All samples were extracted and analyzed within the required holding times.

Method Blanks

Method blanks were processed during the laboratory analysis of SVOCs, pesticides, PCBs, metals and mercury. No chemicals were detected in the method blanks associated with metals, pesticides, PCBs or mercury. Three analytes (bis(2-Ethylhexyl)phthalate, butylbenzylphthalate and Di-n-butylphthalate) were detected in method blank associated with the SVOC analysis. These analytes were therefore qualified as estimates by flagging the detected compounds with a “J.”

Surrogate Recoveries

Surrogate recoveries were completed during the laboratory analysis of SVOCs (including phthalate analyses) pesticides and PCBs. All surrogate recoveries were within laboratory control limits for the analysis of pesticides and PCBs. One of the surrogates analyzed with SVOCs (2-fluorobiphenyl) was outside laboratory control limits due to matrix interference. Only one surrogate was outside laboratory control limits; therefore no data are qualified.

Laboratory Duplicate

A laboratory duplicate was processed during the laboratory analyses of mercury. Relative percent differences (RPDs) were within analytical accuracy control limits.

Laboratory Control Sample Recoveries

Laboratory control samples were processed during the laboratory analyses of SVOCs, pesticides, PCBs, metals and mercury. All laboratory blank spike recoveries were within laboratory control limits. A laboratory control sample was not processed during the analysis of phthalates, because these compounds were re-run after the SVOC analysis. Therefore, all phthalate results have been qualified as estimates by flagging the detected compounds with a “J.” Reporting limits are also qualified as estimates and are flagged with a “UJ.”

Laboratory Control Sample Duplicates

Laboratory blank spike duplicates were processed during the laboratory analysis of PCBs, mercury and SVOCs (but not during phthalate analyses). The relative percent difference (RPD) between the laboratory blank and the laboratory blank spike duplicates were within quality control limits for all three analyses.

Matrix Spike Recoveries

A matrix spike was processed during the laboratory analyses of mercury. The matrix spike recovery was outside of the laboratory control limits, but because the concentration of mercury

in the sample was high, no data is qualified. Laboratory matrix spikes and matrix spike duplicates were processed during the laboratory analysis of SVOCs, pesticides, PCBs and mercury. The RPDs between the matrix spike and the matrix spike duplicates for four of the compounds associated with SVOC analysis and one of the compounds associated with the analysis of PCBs exceeded quality control limits. Matrix interference was indicated based on acceptable blank spike recoveries for all five of these compounds.

Fall Sampling

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained through the sample collection and delivery process.

Analysis Holding Times

Semi-Volatile Organic Analyses

All samples were extracted and analyzed within the required holding times.

Polychlorinated Biphenyls (PCBs) Analyses

All samples were extracted and analyzed within the required holding times.

Mercury Analyses

All samples were extracted and analyzed within the required holding times.

Metal Analyses

All samples were extracted and analyzed within the required holding times.

Method Blanks

Method blanks were processed during the laboratory analysis of SVOCs, PCBs, metals and mercury. No chemicals were detected in the method blanks.

Surrogate Recoveries

Surrogate recoveries were completed during the laboratory analysis of SVOCs and PCBs. All surrogate recoveries were within laboratory control limits.

Laboratory Duplicate

A laboratory duplicate was processed during the laboratory analyses of mercury. Relative percent differences (RPDs) were within analytical accuracy control limits.

Laboratory Control Sample Recoveries

Laboratory control samples were processed during the laboratory analyses of SVOCs, PCBs and mercury. All laboratory blank spike recoveries were within laboratory control limits. A laboratory control sample was not processed during the analysis of phthalates; therefore, all

phthalate results have been qualified as estimates by flagging the detected compounds with a “J.” Reporting limits are also qualified as estimates and are flagged with a “UJ.”

Laboratory Control Sample Duplicates

Laboratory blank spike duplicates were processed during the laboratory analysis of PCBs, mercury and SVOCs (but not during phthalate analyses). The relative percent difference (RPD) between the laboratory blank and the laboratory blank spike duplicates were within quality control limits for the analysis of SVOCs and PCBs. Because no laboratory control duplicates were processed during the laboratory analysis of phthalates, all phthalate results have been qualified as estimates by flagging the detected compounds with a “J.” Reporting limits are also qualified as estimates and are flagged with a “UJ.”

Matrix Spike Recoveries

Laboratory matrix spikes and matrix spike duplicates were processed during the laboratory analysis of SVOCs, PCBs and mercury. The RPDs between the matrix spike and the matrix spike duplicates associated with SVOC and PCB analysis were within quality control limits. The RPD for the matrix spike and matrix spike duplicate associated with the analysis of mercury exceeded quality control limits. Matrix interference was indicated based on acceptable blank spike recovery.



Date: 7/26/05
Page: 1 of 1
Collected By: MJM/JJM

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

[illegible]

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City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 9:38 **System ID** AJ07143 **Sample ID** FO050774

Proj./Company Name: PORTLAND HARBOR INLINE SAMP	Page: 1
Address/Location: IL-16-AAX408-0705-N	Date Received: 7/26/2005
3556 NW FRONT AVE	Sample Status: COMPLETE AND VALIDATED
Proj Subcategory: REGULATORY PLAN & EVAL	Sample Type: COMPOSITE
Sample Point Code: 16_1	Sample Matrix: SEDIMENT
IMS File/Invoice #: 1020.001	Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	391	mg/Kg dry wt	0.50	EPA 6020
BARIUM	382	mg/Kg dry wt	0.10	EPA 6020
CADMIUM	7.38	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	33.4	mg/Kg dry wt	0.50	EPA 6020
COPPER	130	mg/Kg dry wt	0.25	EPA 6020
LEAD	55.6	mg/Kg dry wt	0.10	EPA 6020
MERCURY	0.078	mg/Kg dry wt	0.010	EPA 6020
NICKEL	26.0	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.11	mg/Kg dry wt	0.10	EPA 6020
ZINC	605	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	<0.0538	mg/Kg dry wt	0.0538	EPA 7471
TOTAL ORGANIC CARBON	46900	mg/Kg dry wt	1590	EPA 9060 MOD
PESTICIDES/PCB'S BY EPA 8081				
4,4'-DDD	<10.2	µg/Kg dry wt	10.2	EPA 8081
4,4'-DDE	<10.2	µg/Kg dry wt	10.2	EPA 8081
4,4'-DDT	<10.2	µg/Kg dry wt	10.2	EPA 8081
Aldrin	<5.08	µg/Kg dry wt	5.08	EPA 8081
Alpha-BHC	<5.08	µg/Kg dry wt	5.08	EPA 8081
Alpha-Chlordane	<5.08	µg/Kg dry wt	5.08	EPA 8081
Beta-BHC	<5.08	µg/Kg dry wt	5.08	EPA 8081
Delta-BHC	<5.08	µg/Kg dry wt	5.08	EPA 8081
Dieldrin	<10.2	µg/Kg dry wt	10.2	EPA 8081
Endosulfan I	<5.08	µg/Kg dry wt	5.08	EPA 8081
Endosulfan II	<10.2	µg/Kg dry wt	10.2	EPA 8081
Endosulfan Sulfate	<10.2	µg/Kg dry wt	10.2	EPA 8081



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 9:38 **System ID** AJ07143 **Sample ID** FO050774

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX408-0705-N
3556 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_1
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
Endrin	<10.2	µg/Kg dry wt	10.2	EPA 8081
Endrin Aldehyde	<10.2	µg/Kg dry wt	10.2	EPA 8081
Endrin Ketone	<10.2	µg/Kg dry wt	10.2	EPA 8081
Gamma-BHC(Lindane)	<5.08	µg/Kg dry wt	5.08	EPA 8081
Gamma-Chlordane	<5.08	µg/Kg dry wt	5.08	EPA 8081
Heptachlor	<5.08	µg/Kg dry wt	5.08	EPA 8081
Heptachlor Epoxide	<5.08	µg/Kg dry wt	5.08	EPA 8081
Methoxychlor	<50.8	µg/Kg dry wt	50.8	EPA 8081
PCB 1016	<26.2	µg/Kg dry wt	26.2	EPA 8081
PCB 1221	<26.2	µg/Kg dry wt	26.2	EPA 8081
PCB 1232	<26.2	µg/Kg dry wt	26.2	EPA 8081
PCB 1242	<26.2	µg/Kg dry wt	26.2	EPA 8081
PCB 1248	<26.2	µg/Kg dry wt	26.2	EPA 8081
PCB 1254	<26.2	µg/Kg dry wt	26.2	EPA 8081
PCB 1260	30.7	µg/Kg dry wt	26.2	EPA 8081
Toxaphene	<508	µg/Kg dry wt	508	EPA 8081
SEMI-VOLATILE ORGANICS - CUSTOM				
1-Methylnaphthalene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
2-Methylnaphthalene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Acenaphthene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Acenaphthylene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Anthracene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Benzo(a)anthracene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Benzo(a)pyrene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Benzo(g,h,i)perylene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Benzofluoranthenes	<27.4	µg/Kg dry wt	27.4	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	EST 221	µg/Kg dry wt	54.8	EPA 8270-SIM
Butylbenzylphthalate	EST 233	µg/Kg dry wt	54.8	EPA 8270-SIM
Chrysene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM

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Report Date: 9/16/2005

Validated By: Signature on File



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 9:38 **System ID** AJ07143 **Sample ID** FO050774

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX408-0705-N
3556 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_1
IMS File/Invoice #: 1020.001

Page: 3
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
Dibenzo(a,h)anthracene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Diethyl phthalate	<54.8	µg/Kg dry wt	54.8	EPA 8270-SIM
Dimethyl phthalate	<54.8	µg/Kg dry wt	54.8	EPA 8270-SIM
Di-n-butyl phthalate	EST 212	µg/Kg dry wt	54.8	EPA 8270-SIM
Di-n-octyl phthalate	227	µg/Kg dry wt	54.8	EPA 8270-SIM
Fluoranthene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Fluorene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Naphthalene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Phenanthrene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
Pyrene	<13.7	µg/Kg dry wt	13.7	EPA 8270-SIM
NWTPH-HCID				
DIESEL	<50	mg/Kg dry wt	50	NWTPH-HCID
GASOLINE	<20	mg/Kg dry wt	20	NWTPH-HCID
HEAVY FUEL OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
LUBE OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
OTHER	<100	mg/Kg dry wt	100	NWTPH-HCID
Surrogate Recovery (%)	105	mg/Kg dry wt		NWTPH-HCID

End of Report for Sample ID: FO050774



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 8:38 **System ID** AJ07144 **Sample ID** FO050775

Proj./Company Name: PORTLAND HARBOR INLINE SAMP	Page: 1
Address/Location: IL-16-AAX506-0705	Date Received: 7/26/2005
3455 NW FRONT AVE	Sample Status: COMPLETE AND VALIDATED
Proj Subcategory: REGULATORY PLAN & EVAL	Sample Type: COMPOSITE
Sample Point Code: 16_2	Sample Matrix: SEDIMENT
IMS File/Invoice #: 1020.001	Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	36.4	mg/Kg dry wt	0.50	EPA 6020
BARIUM	461	mg/Kg dry wt	0.10	EPA 6020
CADMIUM	23.2	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	87.1	mg/Kg dry wt	0.50	EPA 6020
COPPER	366	mg/Kg dry wt	0.25	EPA 6020
LEAD	103	mg/Kg dry wt	0.10	EPA 6020
MERCURY	0.21	mg/Kg dry wt	0.010	EPA 6020
NICKEL	104	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.17	mg/Kg dry wt	0.10	EPA 6020
ZINC	2200	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	0.0916	mg/Kg dry wt	0.0689	EPA 7471
PESTICIDES/PCB'S BY EPA 8081				
4,4'-DDD	<15.6	µg/Kg dry wt	15.6	EPA 8081
4,4'-DDE	<15.6	µg/Kg dry wt	15.6	EPA 8081
4,4'-DDT	<15.6	µg/Kg dry wt	15.6	EPA 8081
Aldrin	<7.80	µg/Kg dry wt	7.80	EPA 8081
Alpha-BHC	<7.80	µg/Kg dry wt	7.80	EPA 8081
Alpha-Chlordane	<7.80	µg/Kg dry wt	7.80	EPA 8081
Beta-BHC	<7.80	µg/Kg dry wt	7.80	EPA 8081
Delta-BHC	<7.80	µg/Kg dry wt	7.80	EPA 8081
Dieldrin	<15.6	µg/Kg dry wt	15.6	EPA 8081
Endosulfan I	<7.80	µg/Kg dry wt	7.80	EPA 8081
Endosulfan II	<15.6	µg/Kg dry wt	15.6	EPA 8081
Endosulfan Sulfate	<15.6	µg/Kg dry wt	15.6	EPA 8081
Endrin	<15.6	µg/Kg dry wt	15.6	EPA 8081



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 8:38 System ID AJ07144 Sample ID FO050775

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX506-0705

3455 NW FRONT AVE

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_2
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
Endrin Aldehyde	<15.6	µg/Kg dry wt	15.6	EPA 8081
Endrin Ketone	<15.6	µg/Kg dry wt	15.6	EPA 8081
Gamma-BHC(Lindane)	<7.80	µg/Kg dry wt	7.80	EPA 8081
Gamma-Chlordane	<7.80	µg/Kg dry wt	7.80	EPA 8081
Heptachlor	<7.80	µg/Kg dry wt	7.80	EPA 8081
Heptachlor Epoxide	<7.80	µg/Kg dry wt	7.80	EPA 8081
Methoxychlor	<78	µg/Kg dry wt	78	EPA 8081
PCB 1016	<40.4	µg/Kg dry wt	40.4	EPA 8081
PCB 1221	<40.4	µg/Kg dry wt	40.4	EPA 8081
PCB 1232	<40.4	µg/Kg dry wt	40.4	EPA 8081
PCB 1242	<40.4	µg/Kg dry wt	40.4	EPA 8081
PCB 1248	<40.4	µg/Kg dry wt	40.4	EPA 8081
PCB 1254	<40.4	µg/Kg dry wt	40.4	EPA 8081
PCB 1260	54.4	µg/Kg dry wt	40.4	EPA 8081
Toxaphene	<780	µg/Kg dry wt	780	EPA 8081
SEMI-VOLATILE ORGANICS - CUSTOM				
1-Methylnaphthalene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
2-Methylnaphthalene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Acenaphthene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Acenaphthylene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Anthracene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Benzo(a)anthracene	45.1	µg/Kg dry wt	20.4	EPA 8270-SIM
Benzo(a)pyrene	59	µg/Kg dry wt	20.4	EPA 8270-SIM
Benzo(g,h,i)perylene	64.1	µg/Kg dry wt	20.4	EPA 8270-SIM
Benzofluoranthenes	127	µg/Kg dry wt	40.8	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	EST 513	µg/Kg dry wt	81.7	EPA 8270-SIM
Butylbenzylphthalate	EST 284	µg/Kg dry wt	81.7	EPA 8270-SIM
Chrysene	70.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Dibenzo(a,h)anthracene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM

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Report Date: 9/16/2005

Validated By: Signature on File



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 8:38 System ID AJ07144 Sample ID FO050775

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX506-0705
3455 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_2
IMS File/Invoice #: 1020.001
Page: 3
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
Diethyl phthalate	<81.7	µg/Kg dry wt	81.7	EPA 8270-SIM
Dimethyl phthalate	<81.7	µg/Kg dry wt	81.7	EPA 8270-SIM
Di-n-butyl phthalate	EST 342	µg/Kg dry wt	81.7	EPA 8270-SIM
Di-n-octyl phthalate	364	µg/Kg dry wt	81.7	EPA 8270-SIM
Fluoranthene	109	µg/Kg dry wt	20.4	EPA 8270-SIM
Fluorene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	61	µg/Kg dry wt	20.4	EPA 8270-SIM
Naphthalene	<20.4	µg/Kg dry wt	20.4	EPA 8270-SIM
Phenanthrene	41.7	µg/Kg dry wt	20.4	EPA 8270-SIM
Pyrene	107	µg/Kg dry wt	20.4	EPA 8270-SIM
NWTPH-HCID				
DIESEL	<50	mg/Kg dry wt	50	NWTPH-HCID
GASOLINE	<20	mg/Kg dry wt	20	NWTPH-HCID
HEAVY FUEL OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
LUBE OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
OTHER	<100	mg/Kg dry wt	100	NWTPH-HCID
Surrogate Recovery (%)	113	mg/Kg dry wt		NWTPH-HCID

End of Report for Sample ID: FO050775



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 9:50 **System ID** AJ07145 **Sample ID** FO050776

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX408-0705-W
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_3
IMS File/Invoice #: 1020.001

Page: 1
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	332	mg/Kg dry wt	0.50	EPA 6020
BARIUM	363	mg/Kg dry wt	0.10	EPA 6020
CADMIUM	0.35	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	4.42	mg/Kg dry wt	0.50	EPA 6020
COPPER	39.4	mg/Kg dry wt	0.25	EPA 6020
LEAD	13.2	mg/Kg dry wt	0.10	EPA 6020
MERCURY	0.043	mg/Kg dry wt	0.010	EPA 6020
NICKEL	3.42	mg/Kg dry wt	0.25	EPA 6020
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020
ZINC	69.1	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	<0.103	mg/Kg dry wt	0.103	EPA 7471
TOTAL ORGANIC CARBON	34500	mg/Kg dry wt	3090	EPA 9060 MOD
PESTICIDES/PCB'S BY EPA 8081				
4,4'-DDD	<21.1	µg/Kg dry wt	21.1	EPA 8081
4,4'-DDE	<21.1	µg/Kg dry wt	21.1	EPA 8081
4,4'-DDT	<21.1	µg/Kg dry wt	21.1	EPA 8081
Aldrin	<10.6	µg/Kg dry wt	10.6	EPA 8081
Alpha-BHC	<10.6	µg/Kg dry wt	10.6	EPA 8081
Alpha-Chlordane	<10.6	µg/Kg dry wt	10.6	EPA 8081
Beta-BHC	<10.6	µg/Kg dry wt	10.6	EPA 8081
Delta-BHC	<10.6	µg/Kg dry wt	10.6	EPA 8081
Dieldrin	<21.1	µg/Kg dry wt	21.1	EPA 8081
Endosulfan I	<10.6	µg/Kg dry wt	10.6	EPA 8081
Endosulfan II	<21.1	µg/Kg dry wt	21.1	EPA 8081
Endosulfan Sulfate	<21.1	µg/Kg dry wt	21.1	EPA 8081



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 9:50 **System ID** AJ07145 **Sample ID** FO050776

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX408-0705-W
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_3
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
Endrin	<21.1	µg/Kg dry wt	21.1	EPA 8081
Endrin Aldehyde	<21.1	µg/Kg dry wt	21.1	EPA 8081
Endrin Ketone	<21.1	µg/Kg dry wt	21.1	EPA 8081
Gamma-BHC(Lindane)	<10.6	µg/Kg dry wt	10.6	EPA 8081
Gamma-Chlordane	<10.6	µg/Kg dry wt	10.6	EPA 8081
Heptachlor	<10.6	µg/Kg dry wt	10.6	EPA 8081
Heptachlor Epoxide	<10.6	µg/Kg dry wt	10.6	EPA 8081
Methoxychlor	<106	µg/Kg dry wt	106	EPA 8081
PCB 1016	<50.4	µg/Kg dry wt	50.4	EPA 8081
PCB 1221	<50.4	µg/Kg dry wt	50.4	EPA 8081
PCB 1232	<50.4	µg/Kg dry wt	50.4	EPA 8081
PCB 1242	<50.4	µg/Kg dry wt	50.4	EPA 8081
PCB 1248	<50.4	µg/Kg dry wt	50.4	EPA 8081
PCB 1254	<50.4	µg/Kg dry wt	50.4	EPA 8081
PCB 1260	<50.4	µg/Kg dry wt	50.4	EPA 8081
Toxaphene	<1060	µg/Kg dry wt	1060	EPA 8081
SEMI-VOLATILE ORGANICS - CUSTOM				
1-Methylnaphthalene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
2-Methylnaphthalene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Acenaphthene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Acenaphthylene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Anthracene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Benzo(a)anthracene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Benzo(a)pyrene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Benzo(g,h,i)perylene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Benzofluoranthenes	<55.6	µg/Kg dry wt	55.6	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	EST 382	µg/Kg dry wt	111	EPA 8270-SIM
Butylbenzylphthalate	EST 271	µg/Kg dry wt	111	EPA 8270-SIM
Chrysene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656

Report Date: 9/16/2005

Validated By: Signature on File



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 7/26/2005 9:50 System ID AJ07145 Sample ID FO050776

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX408-0705-W
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_3
IMS File/Invoice #: 1020.001
Page: 3
Date Received: 7/26/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT
Collected By: MJH/JJM

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for three phthalate compounds are flagged as estimates because low levels of these compounds were also detected in the method blank.

Test Parameter	Result	Units	MRL	Method
Dibenzo(a,h)anthracene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Diethyl phthalate	<111	µg/Kg dry wt	111	EPA 8270-SIM
Dimethyl phthalate	<111	µg/Kg dry wt	111	EPA 8270-SIM
Di-n-butyl phthalate	EST 471	µg/Kg dry wt	111	EPA 8270-SIM
Di-n-octyl phthalate	455	µg/Kg dry wt	111	EPA 8270-SIM
Fluoranthene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Fluorene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Naphthalene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Phenanthrene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
Pyrene	<27.8	µg/Kg dry wt	27.8	EPA 8270-SIM
NWTPH-HCID				
DIESEL	<50	mg/Kg dry wt	50	NWTPH-HCID
GASOLINE	<20	mg/Kg dry wt	20	NWTPH-HCID
HEAVY FUEL OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
LUBE OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
OTHER	<100	mg/Kg dry wt	100	NWTPH-HCID
Surrogate Recovery (%)	105	mg/Kg dry wt		NWTPH-HCID

End of Report for Sample ID: FO050776



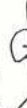
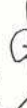
Date: 8/7/05
Page: 1 of 1
Collected By: AND

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

File Number: 1020.001	Matrix: OTHER
-----------------------	---------------

OTHER

Dry-Weather Stormwater Sampling

Relinquished By: 1.	Relinquished By: 2.
Signature: 	Signature:
Printed Name: Ali Dirks	Printed Name:
Time: 1200	Time:
Date: 8/7/05	Date:
Received By: 1.	Received By: 2.
Signature: 	Signature:
Printed Name: Ali Dirks	Printed Name:
Time: 1200	Time:
Date: 8/7/05	Date:

s:\eid\1000\1020.001\Sampdoc\Portland Harbor Inline Samp Dry Weather SW COC.xls

Requested Analyses

[illegible]



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 8/7/2005 10:30 System ID AJ07517 Sample ID LAB051147

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX408-0805
SAMPLE FROM 42 INCH-NO FLOW IN 36

Page: 1
Date Received: 8/7/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_4W
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: OTHER
Collected By: AMD

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
METALS BY ICP-MS (TOTAL) - 1				
ARSENIC	66.2	µg/L	0.1	EPA 200.8

End of Report for Sample ID: LAB051147



**City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report**



Sample Date/Time 8/7/2005 11:00	System ID AJ07518	Sample ID LAB051148
--	--------------------------	----------------------------

Proj./Company Name: PORTLAND HARBOR INLINE SAMP	Page: 1
Address/Location: IL-16-AAX405-0805	Date Received: 8/7/2005
	Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL	Sample Type: GRAB
Sample Point Code: 16_5W	Sample Matrix: OTHER
IMS File/Invoice #: 1020.001	Collected By: AMD

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
METALS BY ICP-MS (TOTAL) - 1				
ARSENIC	62.5	µg/L	0.1	EPA 200.8

End of Report for Sample ID: LAB051148



City of Portland
Chain-of-Custody
 Bureau of Environmental Services



Water Pollution Control Laboratory
 6543 N. Burlington Ave.
 Portland, Oregon 97203-4552
 (503) 823-5696

Project Name: PORTLAND HARBOR INLINE SAMP
File Number: 1020.001 Matrix: SEDIMENT & OTHER

OUTFALL 16

* STL will perform SVOC's, PCB's, and Mercury on solids (EPA 7471)

STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford

Requested Analyses

File Number: 1020.001			Matrix:	SEDIMENT & OTHER		General				Metals - liquid		Metals - solid		Field Comments
OUTFALL 16														
* STL will perform SVOC's, PCB's, and Mercury on solids (EPA 7471)														
STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford														
WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	PCBs*	SVOC LHS CUSTOM LIST				Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)	Total Mercury	Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)	Total Mercury (EPA 7471)*
16_6	IL-16-AAX411-1105 3556 NW Front Ave	16_6	10-Nov-05	0919	G	•	•				•	•	•	•
16_7	IL-16-AAX413-1105 3345 NW Front Ave	16_7	10-Nov-05	1009	G	•	•				•	•	•	•
16_8W	IL-16-AMZ116-1105 3551 NW Front Ave	16_8W	10-Nov-05	1042	G						•	•		
16_9W	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_9W	10-Nov-05	1048	G						•	•		
16_10	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_10	10-Nov-05	1107	G		•				•	•	•	•
16_11	IL-16-AMZ116-1105-SE 3551 NW Front Ave	16_11	10-Nov-05	1120	G		•				•	•	•	•
16_12	IL-16-AMZ116-1105-S 3551 NW Front Ave	16_12	10-Nov-05	1126	G		•						•	•
16_13W	IL-16-AMZ117-1105-SW 3340 NW 26th Ave	16_13W	10-Nov-05	1252	G						•	•		
16_14W	IL-16-AMZ117-1105-SE 3340 NW 26th Ave	16_14W	10-Nov-05	1257	G						•	•		
Use this COC for correct location and point codes and point codes information														

Use this COC for correct location only print & code information.

Relinquished By: 1. Signature: _____ Time: _____ Printed Name: _____ Date: _____		Relinquished By: 2. Signature: _____ Time: _____ Printed Name: _____ Date: _____		Relinquished By: 3. Signature: _____ Time: _____ Printed Name: _____ Date: _____		Relinquished By: 4. Signature: _____ Time: _____ Printed Name: _____ Date: _____	
Received By: 1. Signature: _____ Time: _____ Printed Name: _____ Date: _____		Received By: 2. Signature: _____ Time: _____ Printed Name: _____ Date: _____		Received By: 3. Signature: _____ Time: _____ Printed Name: _____ Date: _____		Received By: 4. Signature: _____ Time: _____ Printed Name: _____ Date: _____	



Project Name: PORTLAND HARBOR INLINE SAMP	
File Number: 1020.001	Matrix: SEDIMENT & OTHER

OUTFALL 16
* STL will perform SVOC's, PCB's, and Mercury on solids (EPA 7471)
STL - Please send Invoice to Howard Holmes at Northcreek and lab reports to
Renee Chauvin or Jennifer Shackelford

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type
	IL-16-AMZ120-1105 3182 NW 26th Ave	16_15W	10-Nov-05	1315	G
	IL-16-AMZ121-1105 3208 NW Yeon Ave	16_16W	10-Nov-05	1329	G
	IL-16-AMZ125-1105 3055 NW Yeon Ave	16_17W	10-Nov-05	1355	G
	IL-16-AMZ125-1105 3055 NW Yeon Ave	16_18	10-Nov-05	1402	G
	IL-16-AMZ132-1105-NE 2770 NW Yeon Ave	16_19	10-Nov-05	1430	G
	IL-16-AMZ132-1105-SW 2770 NW Yeon Ave	16_20	10-Nov-05	1440	G

[illegible][illegible]

<u>Relinquished By: 3.</u>		<u>Relinquished By: 4.</u>	
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:
<u>Received By: 3.</u>		<u>Received By: 4.</u>	
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:



STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: December 14, 2005

TO: Howard Holmes
North Creek Analytical
9405 S. W. Nimbus Ave.
Beaverton, OR 97008

PROJECT: P5G1088

REPORT NUMBER: 129140 REV3

TOTAL NUMBER OF PAGES: _____

Enclosed are the test results for five samples received at STL Seattle on August 1, 2005.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Nonconformance Narrative: For SW8270 the recovery of 1-Methylnaphthalene exceeded QC criteria in the Blank Spike. The recovery of the Blank Spike Duplicate was within the QC limits. No further corrective action was taken.

The original results for SW8270 were analyzed by SIM method but the analyst did not include the phthalates. This revised report includes the phthalate compound list using the standard SW8270 method.

The analysis was done on the existing extract because the sample was exhausted. The original QC was also used for the re-run because the spiking of compounds is done prior to extracting the sample. A Method Blank was run with the samples.

The Method Blank suffered low level hits of Di-n-Butylphthalate, Butylbenzylphthalate, and bis(2-Ethylhexyl)phthalate., probable due to plastic tubing in our water system or glassware residual.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Tom Coyner
Project Manager

STL Seattle is a part of Severn Trent Laboratories, Inc.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.



STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: December 14, 2005

TO: Howard Holmes
North Creek Analytical
9405 S. W. Nimbus Ave.
Beaverton, OR 97008

PROJECT: P5G1088

REPORT NUMBER: 129140 REV3

TOTAL NUMBER OF PAGES: _____

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The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Nonconformance Narrative: For SW8270 the recovery of 1-Methylnaphthalene exceeded QC criteria in the Blank Spike. The recovery of the Blank Spike Duplicate was within the QC limits. No further corrective action was taken.

The original results for SW8270 were analyzed by SIM method but the analyst did not include the phthalates. This revised report includes the phthalate compound list using the standard SW8270 method.

The analysis was done on the existing extract because the sample was exhausted. The original QC was also used for the re-run because the spiking of compounds is done prior to extracting the sample. A Method Blank was run with the samples.

The Method Blank suffered low level hits of Di-n-Butylphthalate, Butylbenzylphthalate, and bis(2-Ethylhexyl)phthalate., probable due to plastic tubing in our water system or glassware residual.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Tom Coyner
Project Manager

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STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: September 12, 2005

TO: Howard Holmes
North Creek Analytical
9405 S. W. Nimbus Ave.
Beaverton, OR 97008

PROJECT: P5G1088

REPORT NUMBER: 129140 REV

TOTAL NUMBER OF PAGES: _____

Enclosed are the test results for five samples received at STL Seattle on August 1, 2005.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Revision: The original results for SW8270 were analyzed by SIM method but did not include the phthalates. This revised report includes the phthalate compound list using the standard SW8270 method.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Coyner", written over a horizontal line.

Tom Coyner
Project Manager

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STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
129140-1	P5G1088-01	07-26-05 09:38	solid
129140-2	P5G1088-02	07-26-05 08:38	solid
129140-3	P5G1088-03	07-26-05 09:50	solid
129140-4	P5G1088-04	07-26-05 11:24	solid
129140-5	P5G1088-05	07-26-05 12:28	solid

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STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-01
Lab ID:	129140-01
Date Received:	8/1/2005
Date Prepared:	8/4/2005
Date Analyzed:	8/19/2005
% Solids	36.03
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	67.4		37	156
2 - Fluorobiphenyl	12.8	X9	35	144
p - Terphenyl - d14	45.3		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Naphthalene	ND	13.7	
2-Methylnaphthalene	ND	13.7	
1-Methylnaphthalene	ND	13.7	
Acenaphthylene	ND	13.7	
Acenaphthene	ND	13.7	
Fluorene	ND	13.7	
Phenanthrene	ND	13.7	
Anthracene	ND	13.7	
Fluoranthene	ND	13.7	
Pyrene	ND	13.7	
Benzo(a)anthracene	ND	13.7	
Chrysene	ND	13.7	
Benzo(a)fluoranthene	ND	27.4	
Benzo(a)pyrene	ND	13.7	
Indeno(1,2,3-cd)pyrene	ND	13.7	
Dibenz(a,h)anthracene	ND	13.7	
Benzo(g,h,i)perylene	ND	13.7	
Benzo(b)fluoranthene	ND	13.7	
Benzo(k)fluoranthene	ND	13.7	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-01
Lab ID:	129140-01
Date Received:	8/1/2005
Date Prepared:	8/4/2005
Date Analyzed:	9/2/2005
% Solids	36.03
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2 - Fluorobiphenyl	13.9	X9	42	140
p - Terphenyl - d14	44.8		42	151

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Dimethylphthalate	ND	54.8	
Diethylphthalate	ND	54.8	
Di-n-butylphthalate	212	54.8	B1
Butylbenzylphthalate	233	54.8	B1
bis(2-Ethylhexyl)phthalate	221	54.8	B1
Di-n-octylphthalate	227	54.8	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-02
Lab ID:	129140-02
Date Received:	8/1/2005
Date Prepared:	8/4/2005
Date Analyzed:	8/19/2005
% Solids	24.43
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	85.7		37	156
2 - Fluorobiphenyl	29.6	X9	35	144
p - Terphenyl - d14	61.3		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Naphthalene	ND	20.4	
2-Methylnaphthalene	ND	20.4	
1-Methylnaphthalene	ND	20.4	
Acenaphthylene	ND	20.4	
Acenaphthene	ND	20.4	
Fluorene	ND	20.4	
Phenanthrene	41.7	20.4	
Anthracene	ND	20.4	
Fluoranthene	109	20.4	
Pyrene	107	20.4	
Benzo(a)anthracene	45.1	20.4	
Chrysene	70.4	20.4	
Benzofluoranthenes	127	40.9	
Benzo(a)pyrene	59	20.4	
Indeno(1,2,3-cd)pyrene	61	20.4	
Dibenz(a,h)anthracene	ND	20.4	
Benzo(g,h,i)perylene	64.1	20.4	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-02
Lab ID:	129140-02
Date Received:	8/1/2005
Date Prepared:	8/4/2005
Date Analyzed:	9/2/2005
% Solids	24.43
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2 - Fluorobiphenyl	32.7	X9	42	140
p - Terphenyl - d14	54.5		42	151

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Dimethylphthalate	ND	81.7	
Diethylphthalate	ND	81.7	
Di-n-butylphthalate	342	81.7	B1
Butylbenzylphthalate	284	81.7	B1
bis(2-Ethylhexyl)phthalate	513	81.7	B1
Di-n-octylphthalate	364	81.7	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-03
Lab ID:	129140-03
Date Received:	8/1/2005
Date Prepared:	8/4/2005
Date Analyzed:	8/19/2005
% Solids	17.48
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	96.3		37	156
2 - Fluorobiphenyl	36		35	144
p - Terphenyl - d14	55.5		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Naphthalene	ND	27.8	
2-Methylnaphthalene	ND	27.8	
1-Methylnaphthalene	ND	27.8	
Acenaphthylene	ND	27.8	
Acenaphthene	ND	27.8	
Fluorene	ND	27.8	
Phenanthrene	ND	27.8	
Anthracene	ND	27.8	
Fluoranthene	ND	27.8	
Pyrene	ND	27.8	
Benzo(a)anthracene	ND	27.8	
Chrysene	ND	27.8	
Benzofluoranthenes	ND	55.7	
Benzo(a)pyrene	ND	27.8	
Indeno(1,2,3-cd)pyrene	ND	27.8	
Dibenz(a,h)anthracene	ND	27.8	
Benzo(g,h,i)perylene	ND	27.8	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-03
Lab ID:	129140-03
Date Received:	8/1/2005
Date Prepared:	8/4/2005
Date Analyzed:	9/2/2005
% Solids	17.48
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2 - Fluorobiphenyl	39	X9	42	140
p - Terphenyl - d14	51.6		42	151

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Dimethylphthalate	ND	111	
Diethylphthalate	ND	111	
Di-n-butylphthalate	471	111	B1
Butylbenzylphthalate	271	111	B1
bis(2-Ethylhexyl)phthalate	382	111	B1
Di-n-octylphthalate	455	111	

STL Seattle

Client Name	North Creek Analytical
Client ID:	P5G1088-01
Lab ID:	129140-01
Date Received:	8/1/2005
Date Prepared:	8/3/2005
Date Analyzed:	8/9/2005
% Solids	36.03
Dilution Factor	1

Organochlorine Pesticides by USEPA Methods 8081A

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	68.9		47	144
Decachlorobiphenyl	134		51	149

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Aldrin	ND	5.08	
alpha-BHC	ND	5.08	
beta-BHC	ND	5.08	
delta-BHC	ND	5.08	
gamma-BHC (Lindane)	ND	5.08	
4,4'-DDD	ND	10.2	
4,4'-DDE	ND	10.2	
4,4'-DDT	ND	10.2	
Dieldrin	ND	10.2	
Endosulfan I	ND	5.08	
Endosulfan II	ND	10.2	
Endosulfan sulfate	ND	10.2	
Endrin	ND	10.2	
Endrin aldehyde	ND	10.2	
Heptachlor	ND	5.08	
Heptachlor epoxide	ND	5.08	
Methoxychlor	ND	50.8	
Endrin ketone	ND	10.2	
Toxaphene	ND	508	
alpha-Chlordane	ND	5.08	
gamma-Chlordane	ND	5.08	

STL Seattle

Client Name	North Creek Analytical
Client ID:	P5G1088-02
Lab ID:	129140-02
Date Received:	8/1/2005
Date Prepared:	8/3/2005
Date Analyzed:	8/9/2005
% Solids	24.43
Dilution Factor	1

Organochlorine Pesticides by USEPA Methods 8081A

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	54.5		47	144
Decachlorobiphenyl	74.8		51	149

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Aldrin	ND	7.8	
alpha-BHC	ND	7.8	
beta-BHC	ND	7.8	
delta-BHC	ND	7.8	
gamma-BHC (Lindane)	ND	7.8	
4,4'-DDD	ND	15.6	
4,4'-DDE	ND	15.6	
4,4'-DDT	ND	15.6	
Dieldrin	ND	15.6	
Endosulfan I	ND	7.8	
Endosulfan II	ND	15.6	
Endosulfan sulfate	ND	15.6	
Endrin	ND	15.6	
Endrin aldehyde	ND	15.6	
Heptachlor	ND	7.8	
Heptachlor epoxide	ND	7.8	
Methoxychlor	ND	7.8	
Endrin ketone	ND	15.6	
Toxaphene	ND	780	
alpha-Chlordane	ND	7.8	
gamma-Chlordane	ND	7.8	

STL Seattle

Client Name	North Creek Analytical
Client ID:	P5G1088-03
Lab ID:	129140-03
Date Received:	8/1/2005
Date Prepared:	8/3/2005
Date Analyzed:	8/9/2005
% Solids	17.48
Dilution Factor	1

Organochlorine Pesticides by USEPA Methods 8081A

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	59		47	144
Decachlorobiphenyl	117		51	149

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	RL	Flags
Aldrin	ND	10.6	
alpha-BHC	ND	10.6	
beta-BHC	ND	10.6	
delta-BHC	ND	10.6	
gamma-BHC (Lindane)	ND	10.6	
4,4'-DDD	ND	21.1	
4,4'-DDE	ND	21.1	
4,4'-DDT	ND	21.1	
Dieldrin	ND	21.1	
Endosulfan I	ND	10.6	
Endosulfan II	ND	21.1	
Endosulfan sulfate	ND	21.1	
Endrin	ND	21.1	
Endrin aldehyde	ND	21.1	
Heptachlor	ND	10.6	
Heptachlor epoxide	ND	10.6	
Methoxychlor	ND	106	
Endrin ketone	ND	21.1	
Toxaphene	ND	1060	
alpha-Chlordane	ND	10.6	
gamma-Chlordane	ND	10.6	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-01
Lab ID:	129140-01
Date Received:	8/1/2005
Date Prepared:	8/3/2005
Date Analyzed:	8/6/2005
% Solids	36.03
Dilution Factor	1

PCBs by EPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	95.2		60	123
Decachlorobiphenyl	107		65	126

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	RL	Flags
Aroclor 1016	ND	0.0262	
Aroclor 1221	ND	0.0262	
Aroclor 1232	ND	0.0262	
Aroclor 1242	ND	0.0262	
Aroclor 1248	ND	0.0262	
Aroclor 1254	ND	0.0262	
Aroclor 1260	0.0307	0.0262	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-02
Lab ID:	129140-02
Date Received:	8/1/2005
Date Prepared:	8/3/2005
Date Analyzed:	8/6/2005
% Solids	24.43
Dilution Factor	1

PCBs by EPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	86.6		60	123
Decachlorobiphenyl	96.9		65	126

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	RL	Flags
Aroclor 1016	ND	0.0404	
Aroclor 1221	ND	0.0404	
Aroclor 1232	ND	0.0404	
Aroclor 1242	ND	0.0404	
Aroclor 1248	ND	0.0404	
Aroclor 1254	ND	0.0404	
Aroclor 1260	0.0544	0.0404	

STL Seattle

Client Name:	North Creek Analytical
Client ID:	P5G1088-03
Lab ID:	129140-03
Date Received:	8/1/2005
Date Prepared:	8/3/2005
Date Analyzed:	8/6/2005
% Solids	17.48
Dilution Factor	1

PCBs by EPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	69.8		60	123
Decachlorobiphenyl	75.9		65	126

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	RL	Flags
Aroclor 1016	ND	0.0504	
Aroclor 1221	ND	0.0504	
Aroclor 1232	ND	0.0504	
Aroclor 1242	ND	0.0504	
Aroclor 1248	ND	0.0504	
Aroclor 1254	ND	0.0504	
Aroclor 1260	ND	0.0504	

STL Seattle

Client Name	North Creek Analytical
Client ID:	P5G1088-03
Lab ID:	129140-03
Date Received:	8/1/2005
Date Prepared:	8/10/2005
Date Analyzed:	8/10/2005
Dilution Factor	1
% Solids	17.48

Mercury by CVAA - USEPA Method 7471

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	RL	Flags
Mercury	ND	0.103	

STL Seattle

Lab ID:	Method Blank - SS1487
Date Received:	-
Date Prepared:	8/4/2005
Date Analyzed:	8/19/2005
% Solids	
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	117		37	156
2 - Fluorobiphenyl	108		35	144
p - Terphenyl - d14	125		39	158

Sample results are on an as received basis.

Analyte	Result (ug/kg)	RL	Flags
Naphthalene	ND	5	
2-Methylnaphthalene	ND	5	
1-Methylnaphthalene	ND	5	
Acenaphthylene	ND	5	
Acenaphthene	ND	5	
Fluorene	ND	5	
Phenanthrene	ND	5	
Anthracene	ND	5	
Fluoranthene	ND	5	
Pyrene	ND	5	
Benzo(a)anthracene	ND	5	
Chrysene	ND	5	
Benzofluoranthenes	ND	10	
Benzo(a)pyrene	ND	5	
Indeno(1,2,3-cd)pyrene	ND	5	
Dibenz(a,h)anthracene	ND	5	
Benzo(g,h,i)perylene	ND	5	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	P5G1088-02
Lab ID:	129140-02
Date Prepared:	8/4/2005
Date Analyzed:	8/19/2005
QC Batch ID:	SS1487

Semivolatile Organics by EPA Method 8270

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Naphthalene	6.1	2000	1220	60.7	1330	67.3	10	
2-Methylnaphthalene	2.9	2000	1090	54.6	1170	59.4	8.4	
1-Methylnaphthalene	1.5	2000	1140	57	1230	62.3	8.9	X7
Acenaphthylene	2.4	2000	1150	57.2	1190	60.5	5.6	
Acenaphthene	2.4	2000	1120	56	1180	60	6.9	
Fluorene	2.2	2000	1140	56.9	1170	59.7	4.8	
Phenanthrene	42	2000	1140	54.9	1160	57	3.8	X7
Anthracene	6.2	2000	1160	57.6	1150	58.5	1.6	
Fluoranthene	110	2000	1390	63.9	1350	63	-1.4	
Pyrene	110	2000	1330	61	1290	60	-1.7	
Benzo(a)anthracene	45	2000	1400	67.7	1330	65.5	-3.3	
Chrysene	70	2000	1230	58.1	1310	63	8.1	X7
Benzo(a)fluoranthene	130	4000	2420	57.4	2430	58.6	2.1	
Benzo(a)pyrene	59	2000	1210	57.6	1250	60.7	5.2	
Indeno(1,2,3-cd)pyrene	61	2000	1230	58.6	1180	57.2	-2.4	
Dibenz(a,h)anthracene	13	2000	1150	57.1	1130	56.7	-0.7	
Benzo(g,h,i)perylene	64	2000	1080	50.8	1060	50.8	0	X7

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SS1487
Date Prepared:	8/4/2005
Date Analyzed:	8/19/2005
QC Batch ID:	SS1487

Semivolatile Organics by EPA Method 8270

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	BSD Result (ug/kg)	BSD % Rec.	RPD	Flag
Naphthalene	0.27	500	586	117	470	94	-22	
2-Methylnaphthalene	0	500	614	123	494	98.7	-22	
1-Methylnaphthalene	0.11	500	625	125	506	101	-21	N
Acenaphthylene	0.15	500	626	125	499	99.7	-23	
Acenaphthene	0	500	631	126	503	101	-22	
Fluorene	0.09	500	644	129	515	103	-22	
Phenanthrene	0.38	500	617	123	506	101	-20	
Anthracene	0.18	500	652	130	518	104	-22	
Fluoranthene	0.22	500	662	132	527	105	-23	
Pyrene	0.51	500	647	129	514	103	-22	
Benzo(a)anthracene	0.3	500	588	118	480	95.9	-21	
Chrysene	0	500	604	121	508	102	-17	
Benzo(a)fluoranthene	0.34	1000	1240	124	1030	103	-19	
Benzo(a)pyrene	0.059	500	623	125	503	101	-21	
Indeno(1,2,3-cd)pyrene	0.1	500	599	120	467	93.4	-25	
Dibenz(a,h)anthracene	0.28	500	599	120	479	95.8	-22	
Benzo(g,h,i)perylene	0.29	500	574	115	469	93.7	-20	

STL Seattle

Lab ID:	Method Blank - PE1875
Date Received:	-
Date Prepared:	8/3/2005
Date Analyzed:	8/9/2005
% Solids	
Dilution Factor	1

Organochlorine Pesticides by USEPA Methods 8081A

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	76.7		47	144
Decachlorobiphenyl	99.5		51	149

Sample results are on an as received basis.

Analyte	Result (ug/kg)	RL	Flags
Aldrin	ND	2	
alpha-BHC	ND	2	
beta-BHC	ND	2	
delta-BHC	ND	2	
gamma-BHC (Lindane)	ND	2	
4,4'-DDD	ND	4	
4,4'-DDE	ND	4	
4,4'-DDT	ND	4	
Dieldrin	ND	4	
Endosulfan I	ND	2	
Endosulfan II	ND	4	
Endosulfan sulfate	ND	4	
Endrin	ND	4	
Endrin aldehyde	ND	4	
Heptachlor	ND	2	
Heptachlor epoxide	ND	2	
Methoxychlor	ND	20	
Endrin ketone	ND	4	
Toxaphene	ND	200	
alpha-Chlordane	ND	2	
gamma-Chlordane	ND	2	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	P5G1088-01
Lab ID:	129140-01
Date Prepared:	8/3/2005
Date Analyzed:	8/9/2005
QC Batch ID:	PE1875

Organochlorine Pesticides by USEPA Methods 8081A

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Aldrin	0	51.8	31.7	61.3	28.7	57.4	-6.6	
alpha-BHC	0	51.8	34.2	66	29.2	58.4	-12	
beta-BHC	0	51.8	32.2	62.2	27.8	55.7	-11	
delta-BHC	0	51.8	22.9	44.3	19.7	39.4	-12	
gamma-BHC (Lindane)	0	51.8	34.1	65.8	29.9	59.9	-9.4	
4,4'-DDD	0	51.8	38.4	74.2	34.2	68.4	-8.1	
4,4'-DDE	0	51.8	35.6	68.7	30.1	60.3	-13	
4,4'-DDT	0	51.8	54	104	45.1	90.2	-14	
Dieldrin	0	51.8	34.6	66.9	29.5	59	-13	
Endosulfan I	0	51.8	31.6	61.1	27.2	54.3	-12	
Endosulfan II	0	51.8	41.1	79.5	34.2	68.4	-15	
Endosulfan sulfate	0	51.8	34.4	66.4	28	56	-17	
Endrin	0	51.8	37.9	73.3	32.1	64.3	-13	
Endrin aldehyde	0	51.8	44.8	86.5	35.7	71.5	-19	
Heptachlor	0	51.8	45	87	40.8	81.6	-6.4	
Heptachlor epoxide	0	51.8	31.8	61.4	27.4	54.9	-11	
Methoxychlor	0	51.8	73.2	141	59.4	119	-17	
Endrin ketone	0	51.8	56.5	109	46.7	93.4	-15	
alpha-Chlordane	0	51.8	30.9	59.7	26.6	53.2	-12	
gamma-Chlordane	0	51.8	35.2	68	30.4	60.8	-11	

STL Seattle

Lab ID:	Method Blank - PB0990
Date Received:	-
Date Prepared:	8/3/2005
Date Analyzed:	8/5/2005
% Solids	
Dilution Factor	1

PCBs by EPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Tetrachloro-m-xylene	88.2		60	123
Decachlorobiphenyl	101		65	126

Sample results are on an as received basis.

Analyte	Result (mg/kg)	RL	Flags
Aroclor 1016	ND	0.01	
Aroclor 1221	ND	0.01	
Aroclor 1232	ND	0.01	
Aroclor 1242	ND	0.01	
Aroclor 1248	ND	0.01	
Aroclor 1254	ND	0.01	
Aroclor 1260	ND	0.01	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	PB0990
Date Prepared:	8/3/2005
Date Analyzed:	8/5/2005
QC Batch ID:	PB0990

PCBs by EPA Method 8082

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Aroclor 1242	0	0.1	0.0927	92.7	0.0821	82.1	-12	N
Aroclor 1260	0	0.1	0.0973	97.3	0.0872	87.2	-11	N

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	P5G0989-01
Lab ID:	129066-01
Date Prepared:	8/3/2005
Date Analyzed:	8/5/2005
QC Batch ID:	PB0990

PCBs by EPA Method 8082

Compound Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	MSD Result (mg/kg)	MSD % Rec.	RPD	Flag
Aroclor 1242	0	0.124	0.101	81.8	0.0964	78.5	-4.1	
Aroclor 1260	0.023	0.124	0.143	97	0.133	89.3	-8.3	X7

STL Seattle

Lab ID:	Method Blank - ZS423
Date Received:	-
Date Prepared:	8/10/2005
Date Analyzed:	8/10/2005
Dilution Factor	1

Mercury by CVAA - USEPA Method 7471

Sample results are on an as received basis.

Analyte	Result (mg/kg)	RL	Flags
Mercury	ND	0.02	

STL Seattle

Matrix Spike Report

Client Sample ID: DV1-4
Lab ID: 129077-08
Date Prepared: 8/10/2005
Date Analyzed: 8/10/2005
QC Batch ID: ZS423

Mercury by CVAA - USEPA Method 7471

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Mercury	2.45	0.199	2.59	72	X7a

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: ZS423
Date Prepared: 8/10/2005
Date Analyzed: 8/10/2005
QC Batch ID: ZS423

Mercury by CVAA - USEPA Method 7471

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Mercury	0	0.2	0.199	99.5	0.164	82	-19	

STL Seattle

Duplicate Report

Client Sample ID: DV1-4
Lab ID: 129077-08
Date Prepared: 8/10/2005
Date Analyzed: 8/10/2005
QC Batch ID: ZS423

Mercury by CVAA - USEPA Method 7471

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Mercury	2.4	2.3	4.3	

SUBCONTRACT ORDER
North Creek Analytical - Portland
P5G1088

129190

TB-232
8/1/05

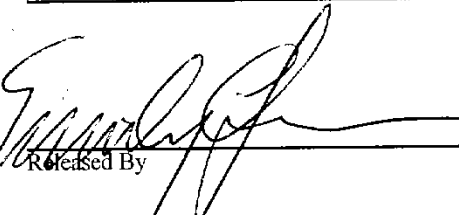

SENDING LABORATORY:

North Creek Analytical - Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Howard Holmes


RECEIVING LABORATORY:

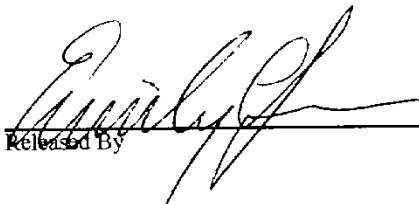
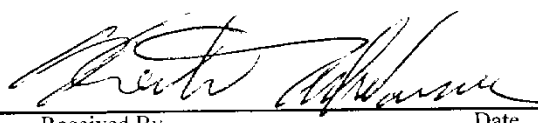
Severn Trent Laboratories - Tacoma
5755 8th Street East
Tacoma, WA 98424
Phone :253-922-2310
Fax: 253-922-5047

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: P5G1088-01 Soil Sampled:07/26/05 09:38				
8270 SIM PAH	08/10/05 16:00	08/09/05 09:38		LHS list *
Hg Total 7471A	08/10/05 16:00	08/23/05 09:38		
8081A/8082 Pest/PCB	08/10/05 16:00	08/09/05 09:38		
Containers Supplied:				
4 oz. jar (A)	4 oz. jar (B)	4 oz. jar (C)		
Sample ID: P5G1088-02 Soil Sampled:07/26/05 08:38				
8081A/8082 Pest/PCB	08/10/05 16:00	08/09/05 08:38		LHS List
8270 SIM PAH	08/10/05 16:00	08/09/05 08:38		
Hg Total 7471A	08/10/05 16:00	08/23/05 08:38		
Solids, Dry Weight	08/03/05 16:00	08/23/05 08:38		
Containers Supplied:				
4 oz. jar (A)	4 oz. jar (B)			
Sample ID: P5G1088-03 Soil Sampled:07/26/05 09:50				
Hg Total 7471A	08/10/05 16:00	08/23/05 09:50		LHS List
8270 SIM PAH	08/10/05 16:00	08/09/05 09:50		
Solids, Dry Weight	08/03/05 16:00	08/23/05 09:50		
8081A/8082 Pest/PCB	08/10/05 16:00	08/09/05 09:50		
Containers Supplied:				
4 oz. jar (A)	4 oz. jar (B)	4 oz. jar (C)		
Sample ID: P5G1088-04 Soil Sampled:07/26/05 11:24				
8270 SIM PAH	08/10/05 16:00	08/09/05 11:24		LHS List
Hg Total 7471A	08/10/05 16:00	08/23/05 11:24		
Solids, Dry Weight	08/03/05 16:00	08/23/05 11:24		
Containers Supplied:				
4 oz. jar (A)	4 oz. jar (B)			

	7-28-05		8/1/05
Released By	Date	Received By	Date
Released By	Date	Received By	Date

SUBCONTRACT ORDER
North Creek Analytical - Portland
P5G1088

Analysis	Due	Expires	Laboratory ID	Comments
				
Sample ID: P5G1088-05	Soil	Sampled:07/26/05 12:28		
Solids, Dry Weight	08/03/05 16:00	08/23/05 12:28		
8270 SIM PAH	08/10/05 16:00	08/09/05 12:28		
Hg Total 7471A	08/10/05 16:00	08/23/05 12:28		
Containers Supplied:				
4 oz. jar (A)	4 oz. jar (B)			

	7-28-05		8/1/05
Released By	Date	Received By	Date
Released By	Date	Received By	Date

TS- 232-
811 80

SUBCONTRACT ORDER
North Creek Analytical - Portland
P5G1088



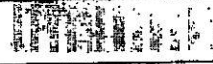

129140

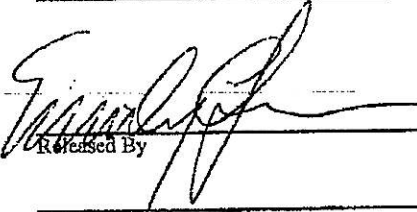
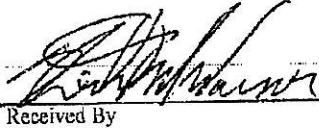
SENDING LABORATORY:

North Creek Analytical - Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Howard Holmes

RECEIVING LABORATORY:

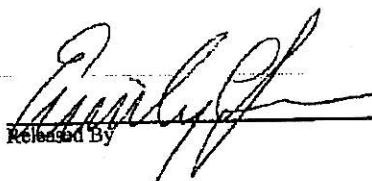
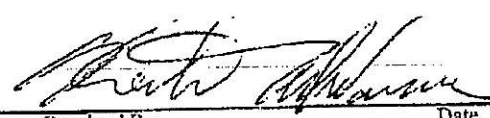
Severn Trent Laboratories - Tacoma
5755 8th Street East
Tacoma, WA 98424
Phone :253-922-2310
Fax: 253-922-5047

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: P5G1088-01	Soil	Sampled:07/26/05 09:38		<u>FQ 050774</u>
8270 SIM PAH	08/10/05 16:00	08/09/05 09:38		LHS list *
Hg Total 7471A	08/10/05 16:00	08/23/05 09:38		
8081A/8082 Pest/PCB	08/10/05 16:00	08/09/05 09:38		
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)	4 oz. jar (C)		
Sample ID: P5G1088-02	Soil	Sampled:07/26/05 08:38		<u>FO 050775</u>
8081A/8082 Pest/PCB	08/10/05 16:00	08/09/05 08:38		LHS List
8270 SIM PAH	08/10/05 16:00	08/09/05 08:38		
Hg Total 7471A	08/10/05 16:00	08/23/05 08:38		
Solids, Dry Weight	08/03/05 16:00	08/23/05 08:38		
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)			
Sample ID: P5G1088-03	Soil	Sampled:07/26/05 09:50		<u>FO 050776</u>
Hg Total 7471A	08/10/05 16:00	08/23/05 09:50		LHS List
8270 SIM PAH	08/10/05 16:00	08/09/05 09:50		
Solids, Dry Weight	08/03/05 16:00	08/23/05 09:50		
8081A/8082 Pest/PCB	08/10/05 16:00	08/09/05 09:50		
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)	4 oz. jar (C)		
Sample ID: P5G1088-04	Soil	Sampled:07/26/05 11:24		<u>FO 050777</u>
8270 SIM PAH	08/10/05 16:00	08/09/05 11:24		LHS List
Hg Total 7471A	08/10/05 16:00	08/23/05 11:24		
Solids, Dry Weight	08/03/05 16:00	08/23/05 11:24		
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)			

	<u>7-28-05</u>		<u>8/1/05</u>
Released By	Date	Received By	Date
Released By	Date	Received By	Date

SUBCONTRACT ORDER
North Creek Analytical - Portland
P5G1088

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: P5G1088-05	Soil	Sampled: 07/26/05 12:28		FO 050778
Solids, Dry Weight	08/03/05 16:00	08/23/05 12:28		
8270 SIM PAH	08/10/05 16:00	08/09/05 12:28		
Hg Total 7471A	08/10/05 16:00	08/23/05 12:28		
Containers Supplied:				
4 oz. jar (A)	4 oz. jar (B)			

	7-28-05		8/1/05
Released By	Date	Received By	Date
Released By	Date	Received By	Date



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907.563.9200 fax 907.563.9210

August 24, 2005

Jennifer Shackelford
City of Portland Water Pollution Laboratory
6543 N. Burlington Ave.
Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 07/27/05 17:05.
The following list is a summary of the NCA Work Orders contained in this report.
If you have any questions concerning this report, please feel free to contact me.

<u>Work</u>	<u>Project</u>	<u>ProjectNumber</u>
P5G1088	Portland Harbor	40567

Thank You,

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc.
Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 050774	P5G1088-01	Soil	07/26/05 09:38	07/27/05 17:05
FO 050775	P5G1088-02	Soil	07/26/05 08:38	07/27/05 17:05
FO 050776	P5G1088-03	Soil	07/26/05 09:50	07/27/05 17:05
FO 050777	P5G1088-04	Soil	07/26/05 11:24	07/27/05 17:05
FO 050778	P5G1088-05	Soil	07/26/05 12:28	07/27/05 17:05

North Creek Analytical - Portland

Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Conventional Chemistry Parameters by APHA/EPA Methods**North Creek Analytical - Bothell**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5G1088-01	Soil	FO 050774	Sampled: 07/26/05 09:38							
Total Organic Carbon	EPA 9060 mod.	46900	-----	1590	mg/kg dry	1x	5H17036	08/05/05	08/16/05 00:00	
P5G1088-03	Soil	FO 050776	Sampled: 07/26/05 09:50							
Total Organic Carbon	EPA 9060 mod.	34500	-----	3090	mg/kg dry	1x	5H17036	08/05/05	08/16/05 00:00	

North Creek Analytical - Portland

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Howard Holmes, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Physical Parameters by APHA/ASTM/EPA Methods**North Creek Analytical - Bothell**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5G1088-01	Soil	FO 050774	Sampled: 07/26/05 09:38							
Dry Weight	BSOPSP003R0	31.5	-----	1.00	%	1x	5H04034	08/04/05	08/05/05 00:00	
P5G1088-03	Soil	FO 050776	Sampled: 07/26/05 09:50							
Dry Weight	BSOPSP003R0	16.2	-----	1.00	%	1x	5H04034	08/04/05	08/05/05 00:00	

North Creek Analytical - Portland

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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Total Mercury per EPA Method 7471A - Laboratory Quality Control Results**North Creek Analytical - Portland**

QC Batch: 5071235

Soil Preparation Method: EPA 1631

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5071235-BLK1)								Extracted: 07/28/05 11:02						
Mercury	EPA 7471A	ND	---	0.100	mg/kg	1x	--	--	--	--	--	--	07/28/05 12:56	
LCS (5071235-BS1)								Extracted: 07/28/05 11:02						
Mercury	EPA 7471A	1.05	---	0.100	mg/kg	1x	--	1.00	105%	(80-120)	--	--	07/28/05 12:58	
LCS Dup (5071235-BSD1)								Extracted: 07/28/05 11:02						
Mercury	EPA 7471A	1.00	---	0.100	mg/kg	1x	--	1.00	100%	(80-120)	4.88% (20)		07/28/05 13:00	
Duplicate (5071235-DUP1)				QC Source: P5G1088-01				Extracted: 07/28/05 11:02						
Mercury	EPA 7471A	1.07	---	0.248	mg/kg dry	1x	ND	--	--	--	166% (40)		07/28/05 13:02	Q-06
Matrix Spike (5071235-MS1)				QC Source: P5G1088-01				Extracted: 07/28/05 11:02						
Mercury	EPA 7471A	2.66	---	0.241	mg/kg dry	1x	0.100	2.41	106%	(75-125)	--	--	07/28/05 13:05	
Matrix Spike Dup (5071235-MSD1)				QC Source: P5G1088-01				Extracted: 07/28/05 11:02						
Mercury	EPA 7471A	2.42	---	0.220	mg/kg dry	1x	0.100	2.20	105%	(75-125)	9.45% (40)		07/28/05 13:07	

North Creek Analytical - Portland

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Howard Holmes, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Conventional Chemistry Parameters by APHA/EPA Methods - Laboratory Quality Control Results

North Creek Analytical - Bothell

QC Batch: 5H17036

Soil Preparation Method: General Preparation

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5H17036-BLK1)										Extracted: 08/16/05 00:00				
Total Organic Carbon	EPA 9060 mod.	ND	---	500	mg/kg	1x	--	--	--	--	--	--	08/16/05 00:00	
LCS (5H17036-BS1)										Extracted: 05/18/05 00:00				
Total Organic Carbon	EPA 9060 mod.	30700	---	500	mg/kg	1x	--	29900	103%	(72-130)	--	--	08/16/05 00:00	
LCS Dup (5H17036-BSD1)										Extracted: 05/18/05 00:00				
Total Organic Carbon	EPA 9060 mod.	28000	---	500	mg/kg	1x	--	29900	93.6%	(72-130)	9.20% (30)		08/16/05 00:00	
Duplicate (5H17036-DUP1)										QC Source: P5G1088-01				
										Extracted: 08/05/05 00:00				
Total Organic Carbon	EPA 9060 mod.	53000	---	1590	mg/kg dry	1x	46900	--	--	--	12.2% (35)		08/16/05 00:00	
Duplicate (5H17036-DUP2)										QC Source: B5H0059-01				
										Extracted: 08/05/05 00:00				
Total Organic Carbon	EPA 9060 mod.	6900	---	500	mg/kg dry	1x	5460	--	--	--	23.3% (35)		08/16/05 00:00	
Duplicate (5H17036-DUP3)										QC Source: B5H0067-04				
										Extracted: 08/05/05 00:00				
Total Organic Carbon	EPA 9060 mod.	3500	---	500	mg/kg dry	1x	4260	--	--	--	19.6% (35)		08/16/05 00:00	
Duplicate (5H17036-DUP4)										QC Source: B5H0106-01				
										Extracted: 08/05/05 00:00				
Total Organic Carbon	EPA 9060 mod.	11900	---	500	mg/kg dry	1x	12700	--	--	--	6.50% (35)		08/16/05 00:00	
Duplicate (5H17036-DUP5)										QC Source: B5H0126-11				
										Extracted: 08/16/05 00:00				
Total Organic Carbon	EPA 9060 mod.	101000	---	2720	mg/kg dry	1x	123000	--	--	--	19.6% (35)		08/16/05 00:00	
Matrix Spike (5H17036-MS1)										QC Source: P5G1088-01				
										Extracted: 08/05/05 00:00				
Total Organic Carbon	EPA 9060 mod.	70100	---	1590	mg/kg dry	1x	46900	21700	107%	(40-160)	--	--	08/16/05 00:00	

North Creek Analytical - Portland

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Howard Holmes, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results

North Creek Analytical - Bothell

QC Batch: 5H04034

Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	------------------	--------------	----------	----------	----------	----------	----------	-------

Blank (5H04034-BLK1)

Extracted: 08/04/05 10:29

Dry Weight	BSOPSPL003R0 8	100	---	1.00	%	1x	--	--	--	--	--	--	08/05/05 00:00	
------------	-------------------	-----	-----	------	---	----	----	----	----	----	----	----	----------------	--

North Creek Analytical - Portland

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Howard Holmes, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Notes and Definitions

Report Specific Notes:

Q-06 - RPD is not applicable for analyte concentrations less than 5 times the MRL.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR / NA - Not Reported / Not Available

dry - Sample results reported on a dry weight basis. Reporting Limits are corrected for %Solids when %Solids are <50%.

wet - Sample results and reporting limits reported on a wet weight basis (as received).

RPD - Relative Percent Difference. (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.



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August 24, 2005

Jennifer Shackelford
City of Portland Water Pollution Laboratory
6543 N. Burlington Ave.
Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 07/27/05 17:05.
The following list is a summary of the NCA Work Orders contained in this report.
If you have any questions concerning this report, please feel free to contact me.

<u>Work</u>	<u>Project</u>	<u>ProjectNumber</u>
P5G1088	Portland Harbor	40567

Thank You,

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc.
Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 050774	P5G1088-01	Soil	07/26/05 09:38	07/27/05 17:05
FO 050775	P5G1088-02	Soil	07/26/05 08:38	07/27/05 17:05
FO 050776	P5G1088-03	Soil	07/26/05 09:50	07/27/05 17:05
FO 050777	P5G1088-04	Soil	07/26/05 11:24	07/27/05 17:05
FO 050778	P5G1088-05	Soil	07/26/05 12:28	07/27/05 17:05

North Creek Analytical - Portland

Howard Holmes, Project Manager

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Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Conventional Chemistry Parameters by APHA/EPA Methods**North Creek Analytical - Bothell**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5G1088-01	Soil	FO 050774	Sampled: 07/26/05 09:38							
Total Organic Carbon	EPA 9060 mod.	46900	—	1590	mg/kg dry	1x	5H17036	08/05/05	08/16/05 00:00	
P5G1088-03	Soil	FO 050776	Sampled: 07/26/05 09:50							
Total Organic Carbon	EPA 9060 mod.	34500	—	3090	mg/kg dry	1x	5H17036	08/05/05	08/16/05 00:00	

North Creek Analytical - Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc.
Environmental Laboratory Network

Page 2 of 7



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Physical Parameters by APHA/ASTM/EPA Methods

North Creek Analytical - Bothell

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5G1088-01	Soil	FO 050774	Sampled: 07/26/05 09:38							
Dry Weight	BSOPSPL003R0	31.5	---	1.00	%	1x	5H04034	08/04/05	08/05/05 00:00	
P5G1088-03	Soil	FO 050776	Sampled: 07/26/05 09:50							
Dry Weight	BSOPSPL003R0	16.2	---	1.00	%	1x	5H04034	08/04/05	08/05/05 00:00	

North Creek Analytical - Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc.
Environmental Laboratory Network



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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
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phone: (541) 383.9310 fax: 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
phone: (907) 563.9200 fax: (907) 563.9210

City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**
Project Number: 40567
Project Manager: Jennifer Shackelford

Report Created:
08/24/05 18:30

Total Mercury per EPA Method 7471A - Laboratory Quality Control Results
North Creek Analytical - Portland

QC Batch: 5071235

Soil Preparation Method: EPA 1631

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5071235-BLK1)										Extracted: 07/28/05 11:02				
Mercury	EPA 7471A	ND	—	0.100	mg/kg	1x	--	--	--	--	--	--	07/28/05 12:56	
LCS (5071235-BS1)										Extracted: 07/28/05 11:02				
Mercury	EPA 7471A	1.05	—	0.100	mg/kg	1x	--	1.00	105%	(80-120)	--	--	07/28/05 12:58	
LCS Dup (5071235-BS1)										Extracted: 07/28/05 11:02				
Mercury	EPA 7471A	1.00	—	0.100	mg/kg	1x	--	1.00	100%	(80-120)	4.88%	(20)	07/28/05 13:00	
Duplicate (5071235-DUP1)										QC Source: P5G1088-01				
Mercury	EPA 7471A	1.07	—	0.248	mg/kg dry	1x	ND	--	--	--	166%	(40)	07/28/05 13:02	Q-06
Matrix Spike (5071235-MS1)										QC Source: P5G1088-01				
Mercury	EPA 7471A	2.66	—	0.241	mg/kg dry	1x	0.100	2.41	106%	(75-125)	--	--	07/28/05 13:05	
Matrix Spike Dup (5071235-MSD1)										QC Source: P5G1088-01				
Mercury	EPA 7471A	2.42	—	0.220	mg/kg dry	1x	0.100	2.20	105%	(75-125)	9.45%	(40)	07/28/05 13:07	

North Creek Analytical - Portland

Howard Holmes, Project Manager

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Environmental Laboratory Network



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:
08/24/05 18:30

Conventional Chemistry Parameters by APHA/EPA Methods - Laboratory Quality Control Results
North Creek Analytical - Bothell

QC Batch: 5H17036 **Soil Preparation Method: General Preparation**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5H17036-BLK1) Extracted: 08/16/05 00:00														
Total Organic Carbon	EPA 9060 mod.	ND	--	500	mg/kg	1x	--	--	--	--	--	--	08/16/05 00:00	
LCS (5H17036-BS1) Extracted: 05/18/05 00:00														
Total Organic Carbon	EPA 9060 mod.	30700	--	500	mg/kg	1x	--	29900	103%	(72-130)	--	--	08/16/05 00:00	
LCS Dup (5H17036-BSD1) Extracted: 05/18/05 00:00														
Total Organic Carbon	EPA 9060 mod.	28000	--	500	mg/kg	1x	--	29900	93.6%	(72-130)	9.20%	(30)	08/16/05 00:00	
Duplicate (5H17036-DUP1) QC Source: P5G1088-01 Extracted: 08/05/05 00:00														
Total Organic Carbon	EPA 9060 mod.	53000	--	1590	mg/kg dry	1x	46900	--	--	--	12.2%	(35)	08/16/05 00:00	
Duplicate (5H17036-DUP2) QC Source: B5H0059-01 Extracted: 08/05/05 00:00														
Total Organic Carbon	EPA 9060 mod.	6900	--	500	mg/kg dry	1x	5460	--	--	--	23.3%	(35)	08/16/05 00:00	
Duplicate (5H17036-DUP3) QC Source: B5H0067-04 Extracted: 08/05/05 00:00														
Total Organic Carbon	EPA 9060 mod.	3500	--	500	mg/kg dry	1x	4260	--	--	--	19.6%	(35)	08/16/05 00:00	
Duplicate (5H17036-DUP4) QC Source: B5H0106-01 Extracted: 08/05/05 00:00														
Total Organic Carbon	EPA 9060 mod.	11900	--	500	mg/kg dry	1x	12700	--	--	--	6.50%	(35)	08/16/05 00:00	
Duplicate (5H17036-DUP5) QC Source: B5H0126-11 Extracted: 08/16/05 00:00														
Total Organic Carbon	EPA 9060 mod.	101000	--	2720	mg/kg dry	1x	123000	--	--	--	19.6%	(35)	08/16/05 00:00	
Matrix Spike (5H17036-MS1) QC Source: P5G1088-01 Extracted: 08/05/05 00:00														
Total Organic Carbon	EPA 9060 mod.	70100	--	1590	mg/kg dry	1x	46900	21700	107%	(40-160)	--	--	08/16/05 00:00	

North Creek Analytical - Portland

Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:
08/24/05 18:30

Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results
North Creek Analytical - Bothell

QC Batch: 5H04034

Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5H04034-BLK1)										Extracted: 08/04/05 10:29				
Dry Weight	BSOPSPLO03R0 8	100	--	1.00	%	1x	--	--	--	--	--	--	08/05/05 00:00	

North Creek Analytical - Portland

Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**

Project Number: 40567

Project Manager: Jennifer Shackelford

Report Created:

08/24/05 18:30

Notes and Definitions
Report Specific Notes:

Q-06 - RPD is not applicable for analyte concentrations less than 5 times the MRL.

Laboratory Reporting Conventions:

DET - Analyte **DETECTED** at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte **NOT DETECTED** at or above the reporting limit (MDL or MRL, as appropriate).

NR / NA - **Not Reported / Not Available**

dry - Sample results reported on a **dry weight basis**. Reporting Limits are corrected for %Solids when %Solids are <50%.

wet - Sample results and reporting limits reported on a **wet weight basis** (as received).

RPD - **Relative Percent Difference**. (RPDs calculated using Results, not Percent Recoveries).

MRL - **METHOD REPORTING LIMIT**. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - **METHOD DETECTION LIMIT**. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

North Creek Analytical - Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc.
Environmental Laboratory Network

Page 7 of 7



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



MEMORANDUM

Date: November 14, 2005

To: File

From: Mike Hauser
Environmental Technician

Subject: In-line sed samp Basin 16 - **File Correction Explanation** 1020.001

On November 10, 2005, a Field Ops crew, accompanied by Linda Scheffler and Robin Cook (outside consultant), collected in-line sediment samples from storm sewer lines in Basin 16, northwest Portland.

The field work was documented assuming that north/south was parallel to NW Front Ave. In fact, north is about 45 degrees to the east of what was originally called north in the documentation. This was expedient, in that it greatly simplified how to field document where samples were collected, however it was not accurate.

In order to be as accurate as possible I am making changes to both the field data sheets and the field notes to indicate north as it really occurs. All changes to my field notes and field data sheets will be initialed and dated.

The effect of this change is that it has changed the name of some of the samples that were collected.

The samples submitted to WPCL under the original chain-of-custody on Nov 10 contain incorrect sample name information. A corrected chain-of-custody has been made and is attached to this original chain. The WPCL lab has been given this corrected information and should be entering in the correct information into the database.



City of Portland
Chain-of-Custody
Bureau of Environmental Services



Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Date: 11-10-05
Page: 1 of 2
Collected By: MJS/JJM

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT &
OTHER

OUTFALL 16

* STL will perform PCB's and Mercury (EPA 7471)
** for correct LOCATION AND SAMPLE TYPE'S PLEASE SEE ATTACHED
STL - Please send invoice to Howard Holmes at Northcreek and lab reports to
Renee Chauvin or Jennifer Shackelford

Requested Analyses

File Number: 1020.001		Sediment & Water:		OTHER		General						Metals - liquid			Metals - solid		Field Comments				
OUTFALL 16		* STL will perform PCB's and Mercury (EPA 7471)		** For counter locations and sample types please see ATTACHED paperwork		PCB's*						SVOC LHS CUSTOM LIST			Total Metals (Ag, As, Cd, Cr, Cu, Ni, Pb, Zn)			Total Mercury			
WPCIL Sample I.D.		Location**		Point Code		Sample Date		Sample Time		Sample Type											
FO 051277	IL-16-AAX411-1105	16_6	10-Nov-05	0919	G	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Total Mercury (EPA 7471)*	
FO 051278	IL-16-AAX413-1105	16_7	10-Nov-05	1009	G	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
FO 051279	IL-16-AMZ116-1105-water at node	16_8W	10-Nov-05	1042	G																
FO 051280	IL-16-AMZ116-1105-water 3' down from node	16_9W	10-Nov-05	1048	G																
FO 051281	IL-16-AMZ116-1105-sed 3' down from node	16_10	10-Nov-05	1107	G	●															
FO 051282	IL-16-AMZ116-1105-S	16_11	10-Nov-05	1120	G	●															
FO 051283	IL-16-AMZ116-1105-SW	16_12	10-Nov-05	1126	G	●															
FO 051284	IL-16-AMZ117-1105-W	16_13W	10-Nov-05	1252	G																
FO 051285	IL-16-AMZ117-1105-S	16_14W	10-Nov-05	1257	G																

Relinquished By: 1. Signature: Printed Name: MICHAEL HANSEN Date: 11-10-05 Time: 1630	Relinquished By: 2. Signature: _____ Printed Name: _____ Date: _____ Time: _____	Relinquished By: 3. Signature: _____ Printed Name: _____ Date: _____ Time: _____	Relinquished By: 4. Signature: _____ Printed Name: _____ Date: _____ Time: _____
Received By: 1. Signature: Printed Name: KES'S DANIEL Date: 11/10/05 Time: 1630	Received By: 2. Signature: _____ Printed Name: _____ Date: _____ Time: _____	Received By: 3. Signature: _____ Printed Name: _____ Date: _____ Time: _____	Received By: 4. Signature: _____ Printed Name: _____ Date: _____ Time: _____



Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696

Requested Analyses

[illegible]

s:\eid\1000\1020.001\Sampdoc\Portland Harbor Inline Samp COC - OF 16 (10-20-05).xls



Date: _____
Page: _____ of _____
Collected By: _____

Project Name: PORTLAND HARBOR INLINE SAMP					
File Number: 1020.001	Matrix: SEDIMENT & OTHER				
OUTFALL 16					
* STL will perform SVOC's, PCB's, and Mercury on solids (EPA 7471)					
STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford					
WPCCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type
10051277	IL-16-AAAX411-1105 3555 NW Front Ave	16_6	10-Nov-05	0919	G
10278	IL-16-AAAX413-1105 3345 NW Front Ave	16_7	10-Nov-05	1009	G
10279	IL-16-AMZ116-1105 3551 NW Front Ave	16_8W	10-Nov-05	1042	G
10280	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_9W	10-Nov-05	1048	G
10281	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_10	10-Nov-05	1107	G
10282	IL-16-AMZ116-1105-SE 3551 NW Front Ave	16_11	10-Nov-05	1120	G
10283	IL-16-AMZ116-1105-S 3551 NW Front Ave	16_12	10-Nov-05	1126	G
10284	IL-16-AMZ117-1105-SW 3340 NW 26th Ave	16_13W	10-Nov-05	1252	G
10285	IL-16-AMZ117-1105-SE 3340 NW 26th Ave	16_14W	10-Nov-05	1257	G
Relinquished By: 2.					
Signature:		Time:		Date:	
Printed Name:		Date:		Date:	
Relinquished By: 1.					
Signature:		Time:		Date:	
Printed Name:		Date:		Date:	
Received By: 1.					
Signature:		Time:		Date:	
Printed Name:		Date:		Date:	

Requested Analyses

File Number: 1020.001		Matrix: OTHER		SEDIMENT & OTHER		Requested Analytes		Field Comments			
OUTFALL 16											
* STL will perform SVOC's, PCB's, and Mercury on solids (EPA 7471)											
STL - Please send invoice to Howard Holmes at Northcreek and lab reports to Renee Chauvin or Jennifer Shackelford											
WPCIL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	PCB's	SVOC LHS CUSTOM LIST	General	Metals - liquid	Metals - solid	Field Comments
1277	IL-16-AAX411-1105 3556 NW Front Ave	16_6	10-Nov-05	0919	G	●	●				
1278	IL-16-AAX413-1105 3345 NW Front Ave	16_7	10-Nov-05	1009	G	●	●				
1279	IL-16-AMZ116-1105 3551 NW Front Ave	16_8W	10-Nov-05	1042	G				●	●	
1280	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_9W	10-Nov-05	1048	G				●	●	
1281	IL-16-AMZ116-1105-NE 3551 NW Front Ave	16_10	10-Nov-05	1107	G		●				
1282	IL-16-AMZ116-1105-SE 3551 NW Front Ave	16_11	10-Nov-05	1120	G		●				
1283	IL-16-AMZ116-1105-S 3551 NW Front Ave	16_12	10-Nov-05	1126	G						
1284	IL-16-AMZ117-1105-SW 3340 NW 26th Ave	16_13W	10-Nov-05	1252	G				●	●	
1285	IL-16-AMZ117-1105-SE 3340 NW 26th Ave	16_14W	10-Nov-05	1257	G				●	●	

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Samp
COC-OF-16
10-20-05
xis



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 9:19 System ID AJ10739 Sample ID FO051277

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX411-1105
3556 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_6
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a plicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	17.2	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	12.4	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	132	mg/Kg dry wt	0.50	EPA 6020
COPPER	402	mg/Kg dry wt	0.25	EPA 6020
LEAD	231	mg/Kg dry wt	0.10	EPA 6020
NICKEL	70.7	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.20	mg/Kg dry wt	0.10	EPA 6020
ZINC	763	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	0.049	mg/Kg dry wt	0.025	EPA 7471
POLYCHLORINATED BIPHENYLS (PCB) - NCA				
PCB 1016	<59	µg/Kg dry wt	59	EPA 8082
PCB 1221	<59	µg/Kg dry wt	59	EPA 8082
PCB 1232	<59	µg/Kg dry wt	59	EPA 8082
PCB 1242	<59	µg/Kg dry wt	59	EPA 8082
PCB 1248	<59	µg/Kg dry wt	59	EPA 8082
PCB 1254	<59	µg/Kg dry wt	59	EPA 8082
PCB 1260	<59	µg/Kg dry wt	59	EPA 8082
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	7.8	µg/Kg dry wt	6.1	EPA 8270-SIM
2-Methylnaphthalene	18	µg/Kg dry wt	6.1	EPA 8270-SIM
Acenaphthene	<6.1	µg/Kg dry wt	6.1	EPA 8270-SIM
Acenaphthylene	<6.1	µg/Kg dry wt	6.1	EPA 8270-SIM
Anthracene	10	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzo(a)anthracene	57	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzo(a)pyrene	55	µg/Kg dry wt	6.1	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 9:19 **System ID** AJ10739 **Sample ID** FO051277

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX411-1105
3556 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_6
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
Benzo(g,h,i)perylene	58	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzofluoranthenes	120	µg/Kg dry wt	12	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	2900	µg/Kg dry wt	25	EPA 8270-SIM
Butylbenzylphthalate	140	µg/Kg dry wt	12	EPA 8270-SIM
Chrysene	82	µg/Kg dry wt	6.1	EPA 8270-SIM
Dibenzo(a,h)anthracene	14	µg/Kg dry wt	6.1	EPA 8270-SIM
Diethyl phthalate	<12	µg/Kg dry wt	12	EPA 8270-SIM
Dimethyl phthalate	<12	µg/Kg dry wt	12	EPA 8270-SIM
Di-n-butyl phthalate	25	µg/Kg dry wt	25	EPA 8270-SIM
Di-n-octyl phthalate	48	µg/Kg dry wt	25	EPA 8270-SIM
Fluoranthene	110	µg/Kg dry wt	6.1	EPA 8270-SIM
Fluorene	8.5	µg/Kg dry wt	6.1	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	39	µg/Kg dry wt	6.1	EPA 8270-SIM
Naphthalene	13	µg/Kg dry wt	6.1	EPA 8270-SIM
Phenanthrene	54	µg/Kg dry wt	6.1	EPA 8270-SIM
Pyrene	110	µg/Kg dry wt	6.1	EPA 8270-SIM

End of Report for Sample ID: FO051277



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 10:00 System ID AJ10740 Sample ID FO051278

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX413-1105
3345 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_7
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	6.38	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	15.2	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	90.3	mg/Kg dry wt	0.50	EPA 6020
COPPER	259	mg/Kg dry wt	0.25	EPA 6020
LEAD	150	mg/Kg dry wt	0.10	EPA 6020
NICKEL	50.9	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.12	mg/Kg dry wt	0.10	EPA 6020
ZINC	692	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	0.070	mg/Kg dry wt	0.023	EPA 7471
POLYCHLORINATED BIPHENYLS (PCB) - NCA				
PCB 1016	<65	µg/Kg dry wt	65	EPA 8082
PCB 1221	<65	µg/Kg dry wt	65	EPA 8082
PCB 1232	<65	µg/Kg dry wt	65	EPA 8082
PCB 1242	<65	µg/Kg dry wt	65	EPA 8082
PCB 1248	<65	µg/Kg dry wt	65	EPA 8082
PCB 1254	<65	µg/Kg dry wt	65	EPA 8082
PCB 1260	<65	µg/Kg dry wt	65	EPA 8082
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	6.6	µg/Kg dry wt	6.4	EPA 8270-SIM
2-Methylnaphthalene	15	µg/Kg dry wt	6.4	EPA 8270-SIM
Acenaphthene	9.2	µg/Kg dry wt	6.4	EPA 8270-SIM
Acenaphthylene	6.5	µg/Kg dry wt	6.4	EPA 8270-SIM
Anthracene	16	µg/Kg dry wt	6.4	EPA 8270-SIM
Benzo(a)anthracene	60	µg/Kg dry wt	6.4	EPA 8270-SIM
Benzo(a)pyrene	79	µg/Kg dry wt	6.4	EPA 8270-SIM

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656

Report Date: 1/4/2006

Validated By: Signature on File



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 10:00 **System ID** AJ10740 **Sample ID** FO051278

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AAX413-1105
3345 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_7
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
Benzo(g,h,i)perylene	71	µg/Kg dry wt	6.4	EPA 8270-SIM
Benzofluoranthenes	160	µg/Kg dry wt	13	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	450	µg/Kg dry wt	26	EPA 8270-SIM
Butylbenzylphthalate	190	µg/Kg dry wt	13	EPA 8270-SIM
Chrysene	99	µg/Kg dry wt	6.4	EPA 8270-SIM
Dibenzo(a,h)anthracene	19	µg/Kg dry wt	6.4	EPA 8270-SIM
Diethyl phthalate	<13	µg/Kg dry wt	13	EPA 8270-SIM
Dimethyl phthalate	49	µg/Kg dry wt	13	EPA 8270-SIM
Di-n-butyl phthalate	<26	µg/Kg dry wt	26	EPA 8270-SIM
Di-n-octyl phthalate	<26	µg/Kg dry wt	26	EPA 8270-SIM
Fluoranthene	110	µg/Kg dry wt	6.4	EPA 8270-SIM
Fluorene	9.3	µg/Kg dry wt	6.4	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	54	µg/Kg dry wt	6.4	EPA 8270-SIM
Naphthalene	11	µg/Kg dry wt	6.4	EPA 8270-SIM
Phenanthrene	73	µg/Kg dry wt	6.4	EPA 8270-SIM
Pyrene	120	µg/Kg dry wt	6.4	EPA 8270-SIM

End of Report for Sample ID: FO051278



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 10:42 System ID AJ10741 Sample ID FO051279

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_8W
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	<0.0020	µg/L	0.000	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	51.6	µg/L	0.1	EPA 200.8
CADMIUM	<0.10	µg/L	0.1	EPA 200.8
CHROMIUM	0.22	µg/L	0.4	EPA 200.8
COPPER	1.59	µg/L	0.2	EPA 200.8
LEAD	0.31	µg/L	0.1	EPA 200.8
NICKEL	2.27	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	9.94	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051279



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 10:48 System ID AJ10742 Sample ID FO051280

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-NE
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_9W
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	<0.0020	µg/L	0.002	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	24.9	µg/L	0.1	EPA 200.8
CADMIUM	<0.10	µg/L	0.1	EPA 200.8
CHROMIUM	0.35	µg/L	0.4	EPA 200.8
COPPER	1.58	µg/L	0.2	EPA 200.8
LEAD	0.40	µg/L	0.1	EPA 200.8
NICKEL	0.90	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	18.3	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051280



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 11:07 System ID AJ10743 Sample ID FO051281

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-NE
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_10
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	194	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	1.84	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	29.7	mg/Kg dry wt	0.50	EPA 6020
COPPER	151	mg/Kg dry wt	0.25	EPA 6020
LEAD	53.3	mg/Kg dry wt	0.10	EPA 6020
NICKEL	12.3	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.13	mg/Kg dry wt	0.10	EPA 6020
ZINC	216	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	0.087	mg/Kg dry wt	0.037	EPA 7471
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	<12	µg/Kg dry wt	12	EPA 8270-SIM
2-Methylnaphthalene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Acenaphthene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Acenaphthylene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Anthracene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Benzo(a)anthracene	21	µg/Kg dry wt	12	EPA 8270-SIM
Benzo(a)pyrene	26	µg/Kg dry wt	12	EPA 8270-SIM
Benzo(g,h,i)perylene	39	µg/Kg dry wt	12	EPA 8270-SIM
Benzofluoranthenes	68	µg/Kg dry wt	24	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	2400	µg/Kg dry wt	49	EPA 8270-SIM
Butylbenzylphthalate	120	µg/Kg dry wt	24	EPA 8270-SIM
Chrysene	48	µg/Kg dry wt	12	EPA 8270-SIM
Dibenzo(a,h)anthracene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Diethyl phthalate	<24	µg/Kg dry wt	24	EPA 8270-SIM
Dimethyl phthalate	<24	µg/Kg dry wt	24	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 11:07 **System ID** AJ10743 **Sample ID** FO051281

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-NE
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_10
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a plicable.

Test Parameter	Result	Units	MRL	Method
Di-n-butyl phthalate	<49	µg/Kg dry wt	49	EPA 8270-SIM
Di-n-octyl phthalate	130	µg/Kg dry wt	49	EPA 8270-SIM
Fluoranthene	54	µg/Kg dry wt	12	EPA 8270-SIM
Fluorene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	23	µg/Kg dry wt	12	EPA 8270-SIM
Naphthalene	<12	µg/Kg dry wt	12	EPA 8270-SIM
Phenanthrene	25	µg/Kg dry wt	12	EPA 8270-SIM
Pyrene	72	µg/Kg dry wt	12	EPA 8270-SIM

End of Report for Sample ID: FO051281



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 11:20 System ID AJ10744 Sample ID FO051282

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-SE
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_11
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	5.45	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	0.96	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	97.3	mg/Kg dry wt	0.50	EPA 6020
COPPER	110	mg/Kg dry wt	0.25	EPA 6020
LEAD	100	mg/Kg dry wt	0.10	EPA 6020
NICKEL	40.9	mg/Kg dry wt	0.25	EPA 6020
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020
ZINC	704	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	<0.018	mg/Kg dry wt	0.018	EPA 7471
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	<48	µg/Kg dry wt	48	EPA 8270-SIM
2-Methylnaphthalene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Acenaphthene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Acenaphthylene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Anthracene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Benzo(a)anthracene	120	µg/Kg dry wt	48	EPA 8270-SIM
Benzo(a)pyrene	140	µg/Kg dry wt	48	EPA 8270-SIM
Benzo(g,h,i)perylene	160	µg/Kg dry wt	48	EPA 8270-SIM
Benzofluoranthenes	270	µg/Kg dry wt	95	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	<190	µg/Kg dry wt	190	EPA 8270-SIM
Butylbenzylphthalate	170	µg/Kg dry wt	95	EPA 8270-SIM
Chrysene	140	µg/Kg dry wt	48	EPA 8270-SIM
Dibenzo(a,h)anthracene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Diethyl phthalate	<95	µg/Kg dry wt	95	EPA 8270-SIM
Dimethyl phthalate	<95	µg/Kg dry wt	95	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 11:20 **System ID** AJ10744 **Sample ID** FO051282

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-SE
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_11
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a plicable.

Test Parameter	Result	Units	MRL	Method
Di-n-butyl phthalate	<190	µg/Kg dry wt	190	EPA 8270-SIM
Di-n-octyl phthalate	<190	µg/Kg dry wt	190	EPA 8270-SIM
Fluoranthene	210	µg/Kg dry wt	48	EPA 8270-SIM
Fluorene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	110	µg/Kg dry wt	48	EPA 8270-SIM
Naphthalene	<48	µg/Kg dry wt	48	EPA 8270-SIM
Phenanthrene	120	µg/Kg dry wt	48	EPA 8270-SIM
Pyrene	210	µg/Kg dry wt	48	EPA 8270-SIM

End of Report for Sample ID: FO051282



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 11:26 **System ID** AJ10745 **Sample ID** FO051283

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-S
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_12
IMS File/Invoice #: 1020.001

Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	7.83	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	2.08	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	67.9	mg/Kg dry wt	0.50	EPA 6020
COPPER	110	mg/Kg dry wt	0.25	EPA 6020
LEAD	115	mg/Kg dry wt	0.10	EPA 6020
NICKEL	41.9	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.13	mg/Kg dry wt	0.10	EPA 6020
ZINC	954	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	0.054	mg/Kg dry wt	0.019	EPA 7471
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	<59	µg/Kg dry wt	59	EPA 8270-SIM
2-Methylnaphthalene	<59	µg/Kg dry wt	59	EPA 8270-SIM
Acenaphthene	<59	µg/Kg dry wt	59	EPA 8270-SIM
Acenaphthylene	<59	µg/Kg dry wt	59	EPA 8270-SIM
Anthracene	66	µg/Kg dry wt	59	EPA 8270-SIM
Benzo(a)anthracene	260	µg/Kg dry wt	59	EPA 8270-SIM
Benzo(a)pyrene	340	µg/Kg dry wt	59	EPA 8270-SIM
Benzo(g,h,i)perylene	390	µg/Kg dry wt	59	EPA 8270-SIM
Benzofluoranthenes	830	µg/Kg dry wt	120	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	<230	µg/Kg dry wt	230	EPA 8270-SIM
Butylbenzylphthalate	410	µg/Kg dry wt	120	EPA 8270-SIM
Chrysene	450	µg/Kg dry wt	59	EPA 8270-SIM
Dibenzo(a,h)anthracene	100	µg/Kg dry wt	59	EPA 8270-SIM
Diethyl phthalate	<120	µg/Kg dry wt	120	EPA 8270-SIM
Dimethyl phthalate	<120	µg/Kg dry wt	120	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 11:26 **System ID** AJ10745 **Sample ID** FO051283

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ116-1105-S
3551 NW FRONT AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_12
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a plicable.

Test Parameter	Result	Units	MRL	Method
Di-n-butyl phthalate	<230	µg/Kg dry wt	230	EPA 8270-SIM
Di-n-octyl phthalate	<230	µg/Kg dry wt	230	EPA 8270-SIM
Fluoranthene	420	µg/Kg dry wt	59	EPA 8270-SIM
Fluorene	<59	µg/Kg dry wt	59	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	320	µg/Kg dry wt	59	EPA 8270-SIM
Naphthalene	<59	µg/Kg dry wt	59	EPA 8270-SIM
Phenanthrene	220	µg/Kg dry wt	59	EPA 8270-SIM
Pyrene	420	µg/Kg dry wt	59	EPA 8270-SIM

End of Report for Sample ID: FO051283



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 12:52 System ID AJ10746 Sample ID FO051284

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ117-1105-SW
3340 NW 26TH AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_13W
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	0.010	µg/L	0.002	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	2.49	µg/L	0.1	EPA 200.8
CADMIUM	0.83	µg/L	0.1	EPA 200.8
CHROMIUM	1.54	µg/L	0.4	EPA 200.8
COPPER	40.9	µg/L	0.2	EPA 200.8
LEAD	9.84	µg/L	0.1	EPA 200.8
NICKEL	4.09	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	166	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051284



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 12:57 System ID AJ10747 Sample ID FO051285

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ117-1105-SE
3340 NW 26TH AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_14W
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	0.0047	µg/L	0.002	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	3.32	µg/L	0.1	EPA 200.8
CADMIUM	0.24	µg/L	0.1	EPA 200.8
CHROMIUM	0.54	µg/L	0.4	EPA 200.8
COPPER	19.6	µg/L	0.2	EPA 200.8
LEAD	2.33	µg/L	0.1	EPA 200.8
NICKEL	3.97	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	176	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051285



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 13:15 System ID AJ10748 Sample ID FO051286

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ120-1105
3182 NW 26TH AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_15W
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	0.016	µg/L	0.002	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	0.72	µg/L	0.1	EPA 200.8
CADMIUM	0.81	µg/L	0.1	EPA 200.8
CHROMIUM	2.43	µg/L	0.4	EPA 200.8
COPPER	51.2	µg/L	0.2	EPA 200.8
LEAD	18.4	µg/L	0.1	EPA 200.8
NICKEL	4.58	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	158	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051286



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 13:29 **System ID** AJ10749 **Sample ID** FO051287

Proj./Company Name: PORTLAND HARBOR INLINE SAMP	Page: 1
Address/Location: IL-16-AMZ121-1105	Date Received: 11/10/2005
3208 NW YEON AVE	Sample Status: COMPLETE AND VALIDATED
Proj Subcategory: REGULATORY PLAN & EVAL	Sample Type: GRAB
Sample Point Code: 16_16W	Sample Matrix: OTHER
IMS File/Invoice #: 1020.001	Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	0.036	µg/L	0.002	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	3.38	µg/L	0.1	EPA 200.8
CADMIUM	1.70	µg/L	0.1	EPA 200.8
CHROMIUM	11.4	µg/L	0.4	EPA 200.8
COPPER	78.3	µg/L	0.2	EPA 200.8
LEAD	42.9	µg/L	0.1	EPA 200.8
NICKEL	10.1	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	428	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051287



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 13:55 System ID AJ10750 Sample ID FO051288

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location: IL-16-AMZ125-1105

3055 NW YEON AVE

Proj Subcategory: REGULATORY PLAN & EVAL

Sample Point Code: 16_17W

IMS File/Invoice #: 1020.001

Page: 1

Date Received: 11/10/2005

Sample Status: COMPLETE AND
VALIDATED

Sample Type: GRAB

Sample Matrix: OTHER

Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
MERCURY	0.0051	µg/L	0.002	EPA 200.8
METALS BY ICP-MS (TOTAL) - 8				
ARSENIC	1.23	µg/L	0.1	EPA 200.8
CADMIUM	0.50	µg/L	0.1	EPA 200.8
CHROMIUM	3.26	µg/L	0.4	EPA 200.8
COPPER	13.9	µg/L	0.2	EPA 200.8
LEAD	10.2	µg/L	0.1	EPA 200.8
NICKEL	4.09	µg/L	0.2	EPA 200.8
SILVER	<0.10	µg/L	0.1	EPA 200.8
ZINC	101	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO051288



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 14:02 System ID AJ10751 Sample ID FO051289

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ125-1105
3055 NW YEON AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_18
IMS File/Invoice #: 1020.001
Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	1.61	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	0.48	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	77.7	mg/Kg dry wt	0.50	EPA 6020
COPPER	91.2	mg/Kg dry wt	0.25	EPA 6020
LEAD	15.4	mg/Kg dry wt	0.10	EPA 6020
NICKEL	29.9	mg/Kg dry wt	0.25	EPA 6020
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020
ZINC	204	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	<0.023	mg/Kg dry wt	0.023	EPA 7471
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	<6.0	µg/Kg dry wt	6.0	EPA 8270-SIM
2-Methylnaphthalene	<6.0	µg/Kg dry wt	6.0	EPA 8270-SIM
Acenaphthene	<6.0	µg/Kg dry wt	6.0	EPA 8270-SIM
Acenaphthylene	<6.0	µg/Kg dry wt	6.0	EPA 8270-SIM
Anthracene	8.6	µg/Kg dry wt	6.0	EPA 8270-SIM
Benzo(a)anthracene	35	µg/Kg dry wt	6.0	EPA 8270-SIM
Benzo(a)pyrene	38	µg/Kg dry wt	6.0	EPA 8270-SIM
Benzo(g,h,i)perylene	37	µg/Kg dry wt	6.0	EPA 8270-SIM
Benzofluoranthenes	77	µg/Kg dry wt	12	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	800	µg/Kg dry wt	24	EPA 8270-SIM
Butylbenzylphthalate	100	µg/Kg dry wt	12	EPA 8270-SIM
Chrysene	61	µg/Kg dry wt	6.0	EPA 8270-SIM
Dibenzo(a,h)anthracene	10	µg/Kg dry wt	6.0	EPA 8270-SIM
Diethyl phthalate	<12	µg/Kg dry wt	12	EPA 8270-SIM
Dimethyl phthalate	29	µg/Kg dry wt	12	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 14:02 **System ID** AJ10751 **Sample ID** FO051289

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ125-1105
3055 NW YEON AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_18
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
Di-n-butyl phthalate	38	µg/Kg dry wt	24	EPA 8270-SIM
Di-n-octyl phthalate	120	µg/Kg dry wt	24	EPA 8270-SIM
Fluoranthene	84	µg/Kg dry wt	6.0	EPA 8270-SIM
Fluorene	<6.0	µg/Kg dry wt	6.0	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	24	µg/Kg dry wt	6.0	EPA 8270-SIM
Naphthalene	<6.0	µg/Kg dry wt	6.0	EPA 8270-SIM
Phenanthrene	40	µg/Kg dry wt	6.0	EPA 8270-SIM
Pyrene	89	µg/Kg dry wt	6.0	EPA 8270-SIM

End of Report for Sample ID: FO051289



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 14:30 **System ID** AJ10752 **Sample ID** FO051290

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ132-1105-NE
2770 NW YEON AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_19
IMS File/Invoice #: 1020.001

Page: 1
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	1.70	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	0.31	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	115	mg/Kg dry wt	0.50	EPA 6020
COPPER	86.4	mg/Kg dry wt	0.25	EPA 6020
LEAD	28.4	mg/Kg dry wt	0.10	EPA 6020
NICKEL	104	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.20	mg/Kg dry wt	0.10	EPA 6020
ZINC	128	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	<0.021	mg/Kg dry wt	0.021	EPA 7471
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	22	µg/Kg dry wt	6.1	EPA 8270-SIM
2-Methylnaphthalene	35	µg/Kg dry wt	6.1	EPA 8270-SIM
Acenaphthene	<6.1	µg/Kg dry wt	6.1	EPA 8270-SIM
Acenaphthylene	8.6	µg/Kg dry wt	6.1	EPA 8270-SIM
Anthracene	29	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzo(a)anthracene	31	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzo(a)pyrene	34	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzo(g,h,i)perylene	46	µg/Kg dry wt	6.1	EPA 8270-SIM
Benzofluoranthenes	79	µg/Kg dry wt	12	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	1500	µg/Kg dry wt	25	EPA 8270-SIM
Butylbenzylphthalate	290	µg/Kg dry wt	12	EPA 8270-SIM
Chrysene	88	µg/Kg dry wt	6.1	EPA 8270-SIM
Dibenzo(a,h)anthracene	11	µg/Kg dry wt	6.1	EPA 8270-SIM
Diethyl phthalate	<12	µg/Kg dry wt	12	EPA 8270-SIM
Dimethyl phthalate	<12	µg/Kg dry wt	12	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 14:30 **System ID** AJ10752 **Sample ID** FO051290

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ132-1105-NE
2770 NW YEON AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_19
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a plicable.

Test Parameter	Result	Units	MRL	Method
Di-n-butyl phthalate	100	µg/Kg dry wt	25	EPA 8270-SIM
Di-n-octyl phthalate	170	µg/Kg dry wt	25	EPA 8270-SIM
Fluoranthene	160	µg/Kg dry wt	6.1	EPA 8270-SIM
Fluorene	19	µg/Kg dry wt	6.1	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	22	µg/Kg dry wt	6.1	EPA 8270-SIM
Naphthalene	50	µg/Kg dry wt	6.1	EPA 8270-SIM
Phenanthrene	85	µg/Kg dry wt	6.1	EPA 8270-SIM
Pyrene	120	µg/Kg dry wt	6.1	EPA 8270-SIM

End of Report for Sample ID: FO051290



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 14:40 **System ID** AJ10753 **Sample ID** FO051291

Proj./Company Name: PORTLAND HARBOR INLINE SAMP	Page: 1
Address/Location: IL-16-AMZ132-1105-SW	Date Received: 11/10/2005
2770 NW YEON AVE	Sample Status: COMPLETE AND VALIDATED
Proj Subcategory: REGULATORY PLAN & EVAL	Sample Type: GRAB
Sample Point Code: 16_20	Sample Matrix: SEDIMENT
IMS File/Invoice #: 1020.001	Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ARSENIC	1.84	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	0.44	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	86.7	mg/Kg dry wt	0.50	EPA 6020
COPPER	62.5	mg/Kg dry wt	0.25	EPA 6020
LEAD	32.2	mg/Kg dry wt	0.10	EPA 6020
NICKEL	30.5	mg/Kg dry wt	0.25	EPA 6020
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020
ZINC	165	mg/Kg dry wt	0.50	EPA 6020
OUTSIDE				
MERCURY	<0.022	mg/Kg dry wt	0.022	EPA 7471
SEMI-VOLATILE ORGANICS, CUSTOM - STL				
1-Methylnaphthalene	<5.6	µg/Kg dry wt	5.6	EPA 8270-SIM
2-Methylnaphthalene	<5.6	µg/Kg dry wt	5.6	EPA 8270-SIM
Acenaphthene	13	µg/Kg dry wt	5.6	EPA 8270-SIM
Acenaphthylene	<5.6	µg/Kg dry wt	5.6	EPA 8270-SIM
Anthracene	12	µg/Kg dry wt	5.6	EPA 8270-SIM
Benzo(a)anthracene	62	µg/Kg dry wt	5.6	EPA 8270-SIM
Benzo(a)pyrene	65	µg/Kg dry wt	5.6	EPA 8270-SIM
Benzo(g,h,i)perylene	55	µg/Kg dry wt	5.6	EPA 8270-SIM
Benzofluoranthenes	120	µg/Kg dry wt	11	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	730	µg/Kg dry wt	22	EPA 8270-SIM
Butylbenzylphthalate	79	µg/Kg dry wt	11	EPA 8270-SIM
Chrysene	77	µg/Kg dry wt	5.6	EPA 8270-SIM
Dibenzo(a,h)anthracene	13	µg/Kg dry wt	5.6	EPA 8270-SIM
Diethyl phthalate	<11	µg/Kg dry wt	11	EPA 8270-SIM
Dimethyl phthalate	<11	µg/Kg dry wt	11	EPA 8270-SIM



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 11/10/2005 14:40 **System ID** AJ10753 **Sample ID** FO051291

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AMZ132-1105-SW
2770 NW YEON AVE
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 16_20
IMS File/Invoice #: 1020.001

Page: 2
Date Received: 11/10/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH/MJS

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, met hod blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as a pplicable.

Test Parameter	Result	Units	MRL	Method
Di-n-butyl phthalate	37	µg/Kg dry wt	22	EPA 8270-SIM
Di-n-octyl phthalate	44	µg/Kg dry wt	22	EPA 8270-SIM
Fluoranthene	120	µg/Kg dry wt	5.6	EPA 8270-SIM
Fluorene	12	µg/Kg dry wt	5.6	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	37	µg/Kg dry wt	5.6	EPA 8270-SIM
Naphthalene	5.8	µg/Kg dry wt	5.6	EPA 8270-SIM
Phenanthrene	76	µg/Kg dry wt	5.6	EPA 8270-SIM
Pyrene	150	µg/Kg dry wt	5.6	EPA 8270-SIM

End of Report for Sample ID: FO051291

ANALYTICAL REPORT

Job Number: 580-596-1

Job Description: Portland Harbor Inline Samp

For:

City of Portland BES
6543 N. Burlington Ave
Portland, OR 97203

Attention: Peter Abrams

Tom Coyner
Project Manager I
tcoyner@stl-inc.com
12/02/2005

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Severn Trent Laboratories, Inc.

STL Seattle 5755 8th Street East, Tacoma, WA 98424

Tel 253-922-2310 Fax 253-922-5047 www.stl-inc.com

METHOD SUMMARY

Client: City of Portland BES

Job Number: 580-596-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)	STL-SEA	SW846 8270C	
Ultrasonic Extraction (Low Level)	STL-SEA		SW846 3550B
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	STL-SEA	SW846 8082	
Ultrasonic Extraction (Low Level)	STL-SEA		SW846 3550B
Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)	STL-SEA	SW846 7471A	
Mercury in Solid or Semi-Solid Waste (Manual	STL-SEA		SW846 7471A
Percent Moisture	STL-SEA	EPA 160.3	

LAB REFERENCES:

STL-SEA = STL-Seattle

METHOD REFERENCES:

EPA - US Environmental Protection Agency

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: City of Portland BES

Job Number: 580-596-1

Method	Analyst	Analyst ID
SW846 8270C	Frans, Ben	BF
SW846 8082	Marfiak, Steve T	STM
SW846 7471A	Woo, Fred C	FCW
EPA 160.3	Cloud, Jeffrey A	JAC

SAMPLE SUMMARY

Client: City of Portland BES

Job Number: 580-596-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-596-1	FO 051277	Solid	11/10/2005 0919	11/16/2005 1000
580-596-2	FO 051278	Solid	11/10/2005 1009	11/16/2005 1000
580-596-3	FO 051281	Solid	11/10/2005 1107	11/16/2005 1000
580-596-4	FO 051282	Solid	11/10/2005 1120	11/16/2005 1000
580-596-5	FO 051283	Solid	11/10/2005 1126	11/16/2005 1000
580-596-6	FO 051289	Solid	11/10/2005 1402	11/16/2005 1000
580-596-7	FO 051290	Solid	11/10/2005 1430	11/16/2005 1000
580-596-8	FO 051291	Solid	11/10/2005 1440	11/16/2005 1000

SAMPLE RESULTS

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051277

Lab Sample ID: 580-596-1

Date Sampled: 11/10/2005 0919

Client Matrix: Solid

% Moisture: 19.2

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01271.D

Dilution: 1.0

Initial Weight/Volume: 20.1575 g

Date Analyzed: 11/23/2005 1827

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		13		6.1
2-Methylnaphthalene		18		6.1
1-Methylnaphthalene		7.8		6.1
Acenaphthylene		6.1	U	6.1
Acenaphthene		6.1	U	6.1
Fluorene		8.5		6.1
Phenanthrene		54		6.1
Anthracene		10		6.1
Fluoranthene		110		6.1
Pyrene		110		6.1
Benzo[a]anthracene		57		6.1
Chrysene		82		6.1
Benzo[fluoranthene]		120		12
Benzo[a]pyrene		55		6.1
Indeno[1,2,3-cd]pyrene		39		6.1
Dibenz(a,h)anthracene		14		6.1
Benzo[g,h,i]perylene		58		6.1
Bis(2-ethylhexyl) phthalate		2900		25
Butyl benzyl phthalate		140		12
Diethyl phthalate		12	U	12
Dimethyl phthalate		12	U	12
Di-n-butyl phthalate		25		25
Di-n-octyl phthalate		48		25
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		91		42 - 140
Nitrobenzene-d5		90		38 - 141
Terphenyl-d14		81		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051278

Lab Sample ID: 580-596-2

Date Sampled: 11/10/2005 1009

Client Matrix: Solid

% Moisture: 24.4

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01272.D

Dilution: 1.0

Initial Weight/Volume: 20.6428 g

Date Analyzed: 11/23/2005 1856

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		11		6.4
2-Methylnaphthalene		15		6.4
1-Methylnaphthalene		6.6		6.4
Acenaphthylene		6.5		6.4
Acenaphthene		9.2		6.4
Fluorene		9.3		6.4
Phenanthrene		73		6.4
Anthracene		16		6.4
Fluoranthene		110		6.4
Pyrene		120		6.4
Benzo[a]anthracene		60		6.4
Chrysene		99		6.4
Benzo[fluoranthene]		160		13
Benzo[a]pyrene		79		6.4
Indeno[1,2,3-cd]pyrene		54		6.4
Dibenz(a,h)anthracene		19		6.4
Benzo[g,h,i]perylene		71		6.4
Bis(2-ethylhexyl) phthalate		450		26
Butyl benzyl phthalate		190		13
Diethyl phthalate		13	U	13
Dimethyl phthalate		49		13
Di-n-butyl phthalate		26	U	26
Di-n-octyl phthalate		26	U	26
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		68		42 - 140
Nitrobenzene-d5		98		38 - 141
Terphenyl-d14		90		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051281

Lab Sample ID: 580-596-3

Date Sampled: 11/10/2005 1107

Client Matrix: Solid

% Moisture: 59.3

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01273.D

Dilution: 1.0

Initial Weight/Volume: 20.1714 g

Date Analyzed: 11/23/2005 1925

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		12	U	12
2-Methylnaphthalene		12	U	12
1-Methylnaphthalene		12	U	12
Acenaphthylene		12	U	12
Acenaphthene		12	U	12
Fluorene		12	U	12
Phenanthrene		25		12
Anthracene		12	U	12
Fluoranthene		54		12
Pyrene		72		12
Benzo[a]anthracene		21		12
Chrysene		48		12
Benzo[fluoranthene]		68		24
Benzo[a]pyrene		26		12
Indeno[1,2,3-cd]pyrene		23		12
Dibenz(a,h)anthracene		12	U	12
Benzo[g,h,i]perylene		39		12
Bis(2-ethylhexyl) phthalate		2400		49
Butyl benzyl phthalate		120		24
Diethyl phthalate		24	U	24
Dimethyl phthalate		24	U	24
Di-n-butyl phthalate		49	U	49
Di-n-octyl phthalate		130		49
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		90		42 - 140
Nitrobenzene-d5		98		38 - 141
Terphenyl-d14		96		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051282

Lab Sample ID: 580-596-4

Date Sampled: 11/10/2005 1120

Client Matrix: Solid

% Moisture: 1.5

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01274.D

Dilution: 10

Initial Weight/Volume: 21.3418 g

Date Analyzed: 11/23/2005 1947

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		48	U	48
2-Methylnaphthalene		48	U	48
1-Methylnaphthalene		48	U	48
Acenaphthylene		48	U	48
Acenaphthene		48	U	48
Fluorene		48	U	48
Phenanthrene		120		48
Anthracene		48	U	48
Fluoranthene		210		48
Pyrene		210		48
Benzo[a]anthracene		120		48
Chrysene		140		48
Benzo[fluoranthene]		270		95
Benzo[a]pyrene		140		48
Indeno[1,2,3-cd]pyrene		110		48
Dibenz(a,h)anthracene		48	U	48
Benzo[g,h,i]perylene		160		48
Bis(2-ethylhexyl) phthalate		190	U	190
Butyl benzyl phthalate		170		95
Diethyl phthalate		95	U	95
Dimethyl phthalate		95	U	95
Di-n-butyl phthalate		190	U	190
Di-n-octyl phthalate		190	U	190
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		103		42 - 140
Nitrobenzene-d5		105		38 - 141
Terphenyl-d14		109		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051283

Lab Sample ID: 580-596-5

Date Sampled: 11/10/2005 1126

Client Matrix: Solid

% Moisture: 16.9

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01275.D

Dilution: 10

Initial Weight/Volume: 20.5131 g

Date Analyzed: 11/23/2005 2016

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		59	U	59
2-Methylnaphthalene		59	U	59
1-Methylnaphthalene		59	U	59
Acenaphthylene		59	U	59
Acenaphthene		59	U	59
Fluorene		59	U	59
Phenanthrene		220		59
Anthracene		66		59
Fluoranthene		420		59
Pyrene		420		59
Benzo[a]anthracene		260		59
Chrysene		450		59
Benzo[fluoranthene]		830		120
Benzo[a]pyrene		340		59
Indeno[1,2,3-cd]pyrene		320		59
Dibenz(a,h)anthracene		100		59
Benzo[g,h,i]perylene		390		59
Bis(2-ethylhexyl) phthalate		230	U	230
Butyl benzyl phthalate		410		120
Diethyl phthalate		120	U	120
Dimethyl phthalate		120	U	120
Di-n-butyl phthalate		230	U	230
Di-n-octyl phthalate		230	U	230
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		82		42 - 140
Nitrobenzene-d5		85		38 - 141
Terphenyl-d14		75		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051289

Lab Sample ID: 580-596-6

Date Sampled: 11/10/2005 1402

Client Matrix: Solid

% Moisture: 19.2

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01276.D

Dilution: 1.0

Initial Weight/Volume: 20.6094 g

Date Analyzed: 11/23/2005 2045

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		6.0	U	6.0
2-Methylnaphthalene		6.0	U	6.0
1-Methylnaphthalene		6.0	U	6.0
Acenaphthylene		6.0	U	6.0
Acenaphthene		6.0	U	6.0
Fluorene		6.0	U	6.0
Phenanthrene		40		6.0
Anthracene		8.6		6.0
Fluoranthene		84		6.0
Pyrene		89		6.0
Benzo[a]anthracene		35		6.0
Chrysene		61		6.0
Benzo[fluoranthene]		77		12
Benzo[a]pyrene		38		6.0
Indeno[1,2,3-cd]pyrene		24		6.0
Dibenz(a,h)anthracene		10		6.0
Benzo[g,h,i]perylene		37		6.0
Bis(2-ethylhexyl) phthalate		800		24
Butyl benzyl phthalate		100		12
Diethyl phthalate		12	U	12
Dimethyl phthalate		29		12
Di-n-butyl phthalate		38		24
Di-n-octyl phthalate		120		24

Surrogate	%Rec	Acceptance Limits
2-Fluorobiphenyl	90	42 - 140
Nitrobenzene-d5	100	38 - 141
Terphenyl-d14	89	42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051290

Lab Sample ID: 580-596-7

Date Sampled: 11/10/2005 1430

Client Matrix: Solid

% Moisture: 22.0

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01277.D

Dilution: 1.0

Initial Weight/Volume: 20.9128 g

Date Analyzed: 11/23/2005 2114

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		50		6.1
2-Methylnaphthalene		35		6.1
1-Methylnaphthalene		22		6.1
Acenaphthylene		8.6		6.1
Acenaphthene		6.1	U	6.1
Fluorene		19		6.1
Phenanthrene		85		6.1
Anthracene		29		6.1
Fluoranthene		160		6.1
Pyrene		120		6.1
Benzo[a]anthracene		31		6.1
Chrysene		88		6.1
Benzo[fluoranthene]		79		12
Benzo[a]pyrene		34		6.1
Indeno[1,2,3-cd]pyrene		22		6.1
Dibenz(a,h)anthracene		11		6.1
Benzo[g,h,i]perylene		46		6.1
Bis(2-ethylhexyl) phthalate		1500		25
Butyl benzyl phthalate		290		12
Diethyl phthalate		12	U	12
Dimethyl phthalate		12	U	12
Di-n-butyl phthalate		190		25
Di-n-octyl phthalate		170		25
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		87		42 - 140
Nitrobenzene-d5		94		38 - 141
Terphenyl-d14		97		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051291

Lab Sample ID: 580-596-8

Date Sampled: 11/10/2005 1440

Client Matrix: Solid

% Moisture: 15.1

Date Received: 11/16/2005 1000

8270C Semivolatile Organic Compounds by GC/MS (Selective Ion Monitoring)

Method: 8270C

Analysis Batch: 580-1742

Instrument ID: 5973N

Preparation: 3550B

Prep Batch: 580-1555

Lab File ID: HP01278.D

Dilution: 1.0

Initial Weight/Volume: 20.9965 g

Date Analyzed: 11/23/2005 2142

Final Weight/Volume: 20 mL

Date Prepared: 11/17/2005 1302

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Naphthalene		5.8		5.6
2-Methylnaphthalene		5.6	U	5.6
1-Methylnaphthalene		5.6	U	5.6
Acenaphthylene		5.6	U	5.6
Acenaphthene		13		5.6
Fluorene		12		5.6
Phenanthrene		76		5.6
Anthracene		12		5.6
Fluoranthene		120		5.6
Pyrene		150		5.6
Benzo[a]anthracene		62		5.6
Chrysene		77		5.6
Benzo[fluoranthene]		120		11
Benzo[a]pyrene		65		5.6
Indeno[1,2,3-cd]pyrene		37		5.6
Dibenz(a,h)anthracene		13		5.6
Benzo[g,h,i]perylene		55		5.6
Bis(2-ethylhexyl) phthalate		730		22
Butyl benzyl phthalate		79		11
Diethyl phthalate		11	U	11
Dimethyl phthalate		11	U	11
Di-n-butyl phthalate		37		22
Di-n-octyl phthalate		44		22
Surrogate		%Rec		Acceptance Limits
2-Fluorobiphenyl		90		42 - 140
Nitrobenzene-d5		102		38 - 141
Terphenyl-d14		94		42 - 151

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051277

Lab Sample ID: 580-596-1

Date Sampled: 11/10/2005 0919

Client Matrix: Solid

% Moisture: 19.2

Date Received: 11/16/2005 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-1780

Instrument ID: 6890N

Preparation: 3550B

Prep Batch: 580-1639

Lab File ID: PCB9215.D

Dilution: 1.0

Initial Weight/Volume: 10.4861 g

Date Analyzed: 11/23/2005 0021

Final Weight/Volume: 10 mL

Date Prepared: 11/21/2005 1404

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		0.059	U	0.059
PCB-1221		0.059	U	0.059
PCB-1232		0.059	U	0.059
PCB-1242		0.059	U	0.059
PCB-1248		0.059	U	0.059
PCB-1254		0.059	U	0.059
PCB-1260		0.059	U	0.059

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	86	60 - 123
DCB Decachlorobiphenyl	98	65 - 126

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051278

Lab Sample ID: 580-596-2

Date Sampled: 11/10/2005 1009

Client Matrix: Solid

% Moisture: 24.4

Date Received: 11/16/2005 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-1780

Instrument ID: 6890N

Preparation: 3550B

Prep Batch: 580-1639

Lab File ID: PCB9212.D

Dilution: 1.0

Initial Weight/Volume: 10.1658 g

Date Analyzed: 11/22/2005 2310

Final Weight/Volume: 10 mL

Date Prepared: 11/21/2005 1404

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		0.065	U	0.065
PCB-1221		0.065	U	0.065
PCB-1232		0.065	U	0.065
PCB-1242		0.065	U	0.065
PCB-1248		0.065	U	0.065
PCB-1254		0.065	U	0.065
PCB-1260		0.065	U	0.065

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	75	60 - 123
DCB Decachlorobiphenyl	82	65 - 126

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051277

Lab Sample ID: 580-596-1

Date Sampled: 11/10/2005 0919

Client Matrix: Solid

% Moisture: 19.2

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID:

Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID:

N/A

Dilution: 1.0

Initial Weight/Volume: 0.5027 g

Date Analyzed: 11/28/2005 1236

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.049		0.025

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051278

Lab Sample ID: 580-596-2

Date Sampled: 11/10/2005 1009

Client Matrix: Solid

% Moisture: 24.4

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID: Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5861 g

Date Analyzed: 11/28/2005 1300

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.070		0.023

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051281

Lab Sample ID: 580-596-3

Date Sampled: 11/10/2005 1107

Client Matrix: Solid

% Moisture: 59.3

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID: Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.6708 g

Date Analyzed: 11/28/2005 1304

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.087		0.037

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051282

Lab Sample ID: 580-596-4

Date Sampled: 11/10/2005 1120

Client Matrix: Solid % Moisture: 1.5

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID:

Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID:

N/A

Dilution: 1.0

Initial Weight/Volume: 0.5789 g

Date Analyzed: 11/28/2005 1309

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.018	U	0.018

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051283

Lab Sample ID: 580-596-5

Date Sampled: 11/10/2005 1126

Client Matrix: Solid

% Moisture: 16.9

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID:

Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID:

N/A

Dilution: 1.0

Initial Weight/Volume: 0.6218 g

Date Analyzed: 11/28/2005 1314

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.054		0.019

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051289

Lab Sample ID: 580-596-6

Date Sampled: 11/10/2005 1402

Client Matrix: Solid

% Moisture: 19.2

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID:

Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID:

N/A

Dilution: 1.0

Initial Weight/Volume: 0.5298 g

Date Analyzed: 11/28/2005 1319

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.023	U	0.023

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051290

Lab Sample ID: 580-596-7

Date Sampled: 11/10/2005 1430

Client Matrix: Solid

% Moisture: 22.0

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID:

Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID:

N/A

Dilution: 1.0

Initial Weight/Volume: 0.5996 g

Date Analyzed: 11/28/2005 1324

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.021	U	0.021

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

Client Sample ID: FO 051291

Lab Sample ID: 580-596-8

Date Sampled: 11/10/2005 1440

Client Matrix: Solid

% Moisture: 15.1

Date Received: 11/16/2005 1000

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-1809

Instrument ID:

Leeman Hydra AA

Preparation: 7471A

Prep Batch: 580-1751

Lab File ID:

N/A

Dilution: 1.0

Initial Weight/Volume: 0.5390 g

Date Analyzed: 11/28/2005 1339

Final Weight/Volume: 50 mL

Date Prepared: 11/28/2005 1036

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.022	U	0.022

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

General Chemistry

Client Sample ID: FO 051277

Lab Sample ID: 580-596-1

Client Matrix: Solid

Date Sampled: 11/10/2005 0919

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	81		%	0.10	1.0	160.3
	Anly Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	19		%	0.10	1.0	160.3
	Anly Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051278

Lab Sample ID: 580-596-2

Client Matrix: Solid

Date Sampled: 11/10/2005 1009

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	76		%	0.10	1.0	160.3
	Anly Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	24		%	0.10	1.0	160.3
	Anly Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051281

Lab Sample ID: 580-596-3

Client Matrix: Solid

Date Sampled: 11/10/2005 1107

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	41		%	0.10	1.0	160.3
	Anly Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	59		%	0.10	1.0	160.3
	Anly Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051282

Lab Sample ID: 580-596-4

Client Matrix: Solid

Date Sampled: 11/10/2005 1120

Date Received: 11/16/2005 1000

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

General Chemistry

Client Sample ID: FO 051282

Lab Sample ID: 580-596-4

Client Matrix: Solid

Date Sampled: 11/10/2005 1120

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	98		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	1.5		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051283

Lab Sample ID: 580-596-5

Client Matrix: Solid

Date Sampled: 11/10/2005 1126

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	83		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	17		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051289

Lab Sample ID: 580-596-6

Client Matrix: Solid

Date Sampled: 11/10/2005 1402

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	81		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	19		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051290

Lab Sample ID: 580-596-7

Client Matrix: Solid

Date Sampled: 11/10/2005 1430

Date Received: 11/16/2005 1000

Analytical Data

Client: City of Portland BES

Job Number: 580-596-1

General Chemistry

Client Sample ID: FO 051290

Lab Sample ID: 580-596-7

Client Matrix: Solid

Date Sampled: 11/10/2005 1430

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	78		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	22		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			

Client Sample ID: FO 051291

Lab Sample ID: 580-596-8

Client Matrix: Solid

Date Sampled: 11/10/2005 1440

Date Received: 11/16/2005 1000

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	85		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			
Percent Moisture	15		%	0.10	1.0	160.3
	Any Batch: 580-1557	Date Analyzed	11/17/2005 1320			

DATA REPORTING QUALIFIERS

Client: City of Portland BES

Job Number: 580-596-1

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Analyte was not detected at or above the reporting limit.
GC Semi VOA		
	U	Analyte was not detected at or above the reporting limit.
Metals		
	U	Analyte was not detected at or above the reporting limit.
	*	LCS, LCSD, MS, MSD, MD, or Surrogate exceeds the control limits

QUALITY CONTROL RESULTS

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

Method Blank - Batch: 580-1555

Lab Sample ID: MB 580-1555/1-A
 Client Matrix: Solid
 Dilution: 1.0
 Date Analyzed: 11/23/2005 1719
 Date Prepared: 11/17/2005 1302

Analysis Batch: 580-1742
 Prep Batch: 580-1555
 Units: ug/Kg

Method: 8270C Preparation: 3550B

Instrument ID: 5973N
 Lab File ID: HP01268.D
 Initial Weight/Volume: 20 g
 Final Weight/Volume: 20 mL
 Injection Volume:

Analyte	Result	Qual	RL
Naphthalene	5.0	U	5.0
2-Methylnaphthalene	5.0	U	5.0
1-Methylnaphthalene	5.0	U	5.0
Acenaphthylene	5.0	U	5.0
Acenaphthene	5.0	U	5.0
Fluorene	5.0	U	5.0
Phenanthrene	5.0	U	5.0
Anthracene	5.0	U	5.0
Fluoranthene	5.0	U	5.0
Pyrene	5.0	U	5.0
Benzo[a]anthracene	5.0	U	5.0
Chrysene	5.0	U	5.0
Benzofluoranthene	10	U	10
Benzo[a]pyrene	5.0	U	5.0
Indeno[1,2,3-cd]pyrene	5.0	U	5.0
Dibenz(a,h)anthracene	5.0	U	5.0
Benzo[g,h,i]perylene	5.0	U	5.0
Bis(2-ethylhexyl) phthalate	20	U	20
Butyl benzyl phthalate	10	U	10
Diethyl phthalate	10	U	10
Dimethyl phthalate	10	U	10
Di-n-butyl phthalate	20	U	20
Di-n-octyl phthalate	20	U	20

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	100	42 - 140
Nitrobenzene-d5	98	38 - 141
Terphenyl-d14	108	42 - 151

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

**Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 580-1555**

**Method: 8270C
Preparation: 3550B**

LCS Lab Sample ID: LCS 580-1555/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/23/2005 1742
Date Prepared: 11/17/2005 1302

Analysis Batch: 580-1742
Prep Batch: 580-1555
Units: ug/Kg

Instrument ID: 5973N
Lab File ID: HP01269.D
Initial Weight/Volume: 20 g
Final Weight/Volume: 20 mL
Injection Volume:

LCSD Lab Sample ID: LCSD 580-1555/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/23/2005 1804
Date Prepared: 11/17/2005 1302

Analysis Batch: 580-1742
Prep Batch: 580-1555
Units: ug/Kg

Instrument ID: 5973N
Lab File ID: HP01270.D
Initial Weight/Volume: 20 g
Final Weight/Volume: 20 mL
Injection Volume:

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Naphthalene	91	89	54 - 131	2	26		
2-Methylnaphthalene	94	92	51 - 138	2	27		
1-Methylnaphthalene	100	97	50 - 150	3	30		
Acenaphthylene	92	89	52 - 130	3	28		
Acenaphthene	96	94	50 - 144	2	27		
Fluorene	90	91	50 - 134	0	31		
Phenanthrene	92	92	55 - 133	1	28		
Anthracene	82	83	52 - 135	2	27		
Fluoranthene	98	97	54 - 135	1	36		
Pyrene	93	96	47 - 152	3	31		
Benzo[a]anthracene	95	91	55 - 135	5	27		
Chrysene	91	92	59 - 133	1	26		
Benzo[fluoranthene	103	95	43 - 154	7	31		
Benzo[a]pyrene	92	96	54 - 138	4	30		
Indeno[1,2,3-cd]pyrene	79	94	45 - 153	17	29		
Dibenz(a,h)anthracene	78	89	50 - 150	13	30		
Benzo[g,h,i]perylene	83	96	54 - 142	14	28		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-1555

Method: 8270C
Preparation: 3550B

MS Lab Sample ID: 580-596-8
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/23/2005 2211
Date Prepared: 11/17/2005 1302

Analysis Batch: 580-1742
Prep Batch: 580-1555

Instrument ID: 5973N
Lab File ID: HP01279.D
Initial Weight/Volume: 20.6562 g
Final Weight/Volume: 20 mL
Injection Volume:

MSD Lab Sample ID: 580-596-8
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/23/2005 2240
Date Prepared: 11/17/2005 1302

Analysis Batch: 580-1742
Prep Batch: 580-1555

Instrument ID: 5973N
Lab File ID: HP01280.D
Initial Weight/Volume: 20.3774 g
Final Weight/Volume: 20 mL
Injection Volume:

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Naphthalene	88	85	54 - 131	2	26		
2-Methylnaphthalene	92	90	51 - 138	1	27		
1-Methylnaphthalene	95	92	50 - 150	1	30		
Acenaphthylene	87	86	52 - 130	1	28		
Acenaphthene	88	93	50 - 144	6	27		
Fluorene	90	94	50 - 134	6	31		
Phenanthrene	85	85	55 - 133	0	28		
Anthracene	84	84	52 - 135	2	27		
Fluoranthene	84	85	54 - 135	2	36		
Pyrene	76	82	47 - 152	7	31		
Benzo[a]anthracene	100	96	55 - 135	2	27		
Chrysene	77	81	59 - 133	5	26		
Benzofluoranthene	86	79	43 - 154	6	31		
Benzo[a]pyrene	85	78	54 - 138	6	30		
Indeno[1,2,3-cd]pyrene	76	65	45 - 153	13	29		
Dibenz(a,h)anthracene	72	63	50 - 150	11	30		
Benzo[g,h,i]perylene	69	58	54 - 142	14	28		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

Method Blank - Batch: 580-1639

Lab Sample ID: MB 580-1639/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/22/2005 2200
Date Prepared: 11/21/2005 1404

Analysis Batch: 580-1780
Prep Batch: 580-1639
Units: mg/Kg

Method: 8082 Preparation: 3550B

Instrument ID: 6890N
Lab File ID: PCB9209.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	RL
PCB-1016	0.050	U	0.050
PCB-1221	0.050	U	0.050
PCB-1232	0.050	U	0.050
PCB-1242	0.050	U	0.050
PCB-1248	0.050	U	0.050
PCB-1254	0.050	U	0.050
PCB-1260	0.050	U	0.050

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	98	60 - 123
DCB Decachlorobiphenyl	108	65 - 126

Laboratory Control/ Laboratory Control Duplicate Recovery Report - Batch: 580-1639

Method: 8082 Preparation: 3550B

LCS Lab Sample ID: LCS 580-1639/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/22/2005 2223
Date Prepared: 11/21/2005 1404

Analysis Batch: 580-1780
Prep Batch: 580-1639
Units: mg/Kg

Instrument ID: 6890N
Lab File ID: PCB9210.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 580-1639/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/22/2005 2247
Date Prepared: 11/21/2005 1404

Analysis Batch: 580-1780
Prep Batch: 580-1639
Units: mg/Kg

Instrument ID: 6890N
Lab File ID: PCB9211.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
PCB-1242	94	97	57 - 128	4	8		
PCB-1260	101	108	65 - 132	7	8		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-1639

Method: 8082
Preparation: 3550B

MS Lab Sample ID: 580-596-2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/22/2005 2334
Date Prepared: 11/21/2005 1404

Analysis Batch: 580-1780
Prep Batch: 580-1639

Instrument ID: 6890N
Lab File ID: PCB9213.D
Initial Weight/Volume: 10.3115 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

MSD Lab Sample ID: 580-596-2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/22/2005 2358
Date Prepared: 11/21/2005 1404

Analysis Batch: 580-1780
Prep Batch: 580-1639

Instrument ID: 6890N
Lab File ID: PCB9214.D
Initial Weight/Volume: 10.3690 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
PCB-1242	62	65	57 - 128	4	8		
PCB-1260	84	86	65 - 132	1	8		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

Method Blank - Batch: 580-1751

Lab Sample ID: MB 580-1751/15-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/28/2005 1353
Date Prepared: 11/28/2005 1036

Analysis Batch: 580-1809
Prep Batch: 580-1751
Units: mg/Kg

Method: 7471A Preparation: 7471A

Instrument ID: Leeman Hydra AA
Lab File ID: N/A
Initial Weight/Volume: 0.5 g
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Mercury	0.020	U	0.020

Laboratory Control/ Laboratory Control Duplicate Recovery Report - Batch: 580-1751

Method: 7471A Preparation: 7471A

LCS Lab Sample ID: LCS 580-1751/16-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/28/2005 1358
Date Prepared: 11/28/2005 1036

Analysis Batch: 580-1809
Prep Batch: 580-1751
Units: mg/Kg

Instrument ID: Leeman Hydra AA
Lab File ID: N/A
Initial Weight/Volume: 0.5 g
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-1751/17-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/28/2005 1403
Date Prepared: 11/28/2005 1036

Analysis Batch: 580-1809
Prep Batch: 580-1751
Units: mg/Kg

Instrument ID: Leeman Hydra AA
Lab File ID: N/A
Initial Weight/Volume: 0.5 g
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Mercury	91	91	75 - 125	0	25		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: City of Portland BES

Job Number: 580-596-1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-1751

Method: 7471A
Preparation: 7471A

MS Lab Sample ID: 580-596-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/28/2005 1250
Date Prepared: 11/28/2005 1036

Analysis Batch: 580-1809
Prep Batch: 580-1751

Instrument ID: Leeman Hydra AA
Lab File ID: N/A
Initial Weight/Volume: 0.5639 g
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-596-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/28/2005 1255
Date Prepared: 11/28/2005 1036

Analysis Batch: 580-1809
Prep Batch: 580-1751

Instrument ID: Leeman Hydra AA
Lab File ID: N/A
Initial Weight/Volume: 0.5277 g
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Mercury	82	9	75 - 125	106	35		*

Matrix Duplicate - Batch: 580-1751

Method: 7471A
Preparation: 7471A

Lab Sample ID: 580-596-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/28/2005 1241
Date Prepared: 11/28/2005 1036

Analysis Batch: 580-1809
Prep Batch: 580-1751
Units: mg/Kg

Instrument ID: Leeman Hydra AA
Lab File ID: N/A
Initial Weight/Volume: 0.5349 g
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Mercury	0.049	0.063	25	35	
Mercury	0.049	0.053	6	35	

Calculations are performed before rounding to avoid round-off errors in calculated results.



Temp Blank

4.8 c

CHAIN OF CUSTODY REPORT

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244
11922 E 1st Ave, Spokane, WA 99206-5302
9405 SW Nimbus Ave, Beaverton, OR 97008-7145
20332 Empire Ave, Ste Fl, Bend, OR 97701-5712
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210
509-924-9200 FAX 924-9290
503-906-9200 FAX 906-9210
541-383-9310 FAX 382-7588
907-563-9200 FAX 563-9210

Work Order #:

PSK00012

TURNAROUND REQUEST

In Business Days *

Organic & Inorganic Analyses

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8	9	10

Petroleum Hydrocarbon Analyses

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8	9	10

OTHER Specify:

* Turnaround Request (TAR) does not include any base field charges.

NCA CLIENT: CITY OF PORTLAND		INVOICE TO: CHAARLES CYTLE	
REPORT TO: TRANSHIPEN SHAKEL FORD		P.O. NUMBER: 36232	
ADDRESS:		PRESERVATIVE	
PHONE:		FAX:	
PROJECT NAME: PORTLAND MARINA TWELFTH STAMP		PROJECT NUMBER:	
SAMPLED BY:		REQUESTED ANALYSES	
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	MATRIX (W, S, O)	
1 FO 051277	11/10/05 0919	5 3	
2 FO 051278	11/10/05 1009	5 3	
3 FO 051281	11/10/05 1107	5 2	
4 FO 051282	11/10/05 1120	5 2	
5 FO 051283	11/10/05 1126	5 2	
6 FO 051289	11/10/05 1402	5 2	
7 FO 051290	11/10/05 1430	5 2	
8 FO 051291	11/10/05 1440	5 2	
9			
10			
RELEASED BY: [Signature]		RECEIVED BY: [Signature]	
PRINT NAME: KATIE DENNIS		PRINT NAME: BOB F	
FIRM: COR		FIRM: NCA	
DATE: 11/14/05		DATE: 11/14/05	
TIME: 1554		TIME: 1554	
RELEASED BY: [Signature]		RECEIVED BY: [Signature]	
PRINT NAME: BOB F		PRINT NAME: BOB F	
FIRM: NCA		FIRM: NCA	
DATE: 11/14/05		DATE: 11/14/05	
TIME: 1640		TIME: 1640	
ADDITIONAL REMARKS: PLEASE CHIP FOR EPA 8082 AND Hg 7471 TO SEVEN TREAT LABORATORY		TEMP: 0.4	
COC REV 09/04		PAGE 1 OF 1	

SUBCONTRACT ORDER
North Creek Analytical - Portland
P5K0612

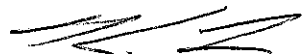
SENDING LABORATORY:

North Creek Analytical - Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Howard Holmes

RECEIVING LABORATORY:

Severn Trent Laboratories - Tacoma
5755 8th Street East
Tacoma, WA 98424
Phone :253-922-2310
Fax: 253-922-5047

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: P5K0612-01	Soil	Sampled:11/10/05 09:19		include COP ID: FO 051277
8270C Semivolatiles	11/29/05 16:00	11/24/05 09:19		COP sample; LHS list
Hg Total 7471A	11/29/05 16:00	12/08/05 09:19		COP sample
Solids, Dry Weight	11/21/05 13:00	12/08/05 09:19		COP sample
8082 PCB LL	11/29/05 16:00	11/24/05 09:19		COP sample
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)	4 oz. jar (C)		
Sample ID: P5K0612-02	Soil	Sampled:11/10/05 10:09		include COP ID: FO 051278
8082 PCB LL	11/29/05 16:00	11/24/05 10:09		COP sample
8270C Semivolatiles	11/29/05 16:00	11/24/05 10:09		COP sample; LHS list
Hg Total 7471A	11/29/05 16:00	12/08/05 10:09		COP sample
Solids, Dry Weight	11/21/05 13:00	12/08/05 10:09		COP sample
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)	4 oz. jar (C)		
Sample ID: P5K0612-03	Soil	Sampled:11/10/05 11:07		include COP ID: FO 051281
8270C Semivolatiles	11/29/05 16:00	11/24/05 11:07		COP sample; LHS list
Hg Total 7471A	11/29/05 16:00	12/08/05 11:07		COP sample
Solids, Dry Weight	11/21/05 13:00	12/08/05 11:07		COP sample
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)			
Sample ID: P5K0612-04	Soil	Sampled:11/10/05 11:20		include COP ID: FO 051282
Solids, Dry Weight	11/21/05 13:00	12/08/05 11:20		COP sample
Hg Total 7471A	11/29/05 16:00	12/08/05 11:20		COP sample
8270C Semivolatiles	11/29/05 16:00	11/24/05 11:20		COP sample; LHS list
<i>Containers Supplied:</i>				
4 oz. jar (A)	4 oz. jar (B)			



11-15-05

Released By _____ Date _____ Received By _____ Date _____

Released By _____ Date _____ Received By _____ Date _____

LOGIN SAMPLE RECEIPT CHECK LIST

Client: City of Portland BES

Job Number: 580-596-1

Login Number: 596

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present	True	
Samples do not require splitting or compositing	True	

Attachment D
Video Survey Report

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail

Report Date 10/24/2005 09:52 AM

Submitted By Bret Davison

Page 1

Inspection # 217046

Work Order #

Activity STMNTV NOT FOR WO'S - STORM MAIN TV

From ID STMH AAX408

To STMH AMZ486

Length 224.00

Address 3636 NW FRONT AVE
PORTLAND ORUpstream Address 3636 NW FRONT AVE
PORTLAND ORDownstream Address 3636 NW FRONT AVE
PORTLAND OR

Started 10/13/2005 10:46

Completed 10/13/2005 10:46

Comp By TSR2

Project 638200 BES TV CONTRACT. GAIL LUTHY

Crew

Crew Leader

Operator TSR2

Weather RAIN

Flow Depth 0.00
Pipe DetReverse Setup ☐Prior History ☐Sketch ☐

Media

Format	VHS	Media #	BSP101
Index	4545	To	5200

Condition Ratings

Structural	0	Root	0	I/I	0	Overall	0
------------	---	------	---	-----	---	---------	---

Comments

2218 END US AAX408 CONCRETE GOOD CONDITION

Readings

Setup From	To	Index	Clock	Grouped	Defect	Code	Description
------------	----	-------	-------	---------	--------	------	-------------

AAX408

D 0.00 0.00 4602 0 N
START DS AMZ486 CONCRETE GOOD CONDITION
LAGE DIAMATER MH
3636 NW FRONT AVE

End of Readings

AMZ486

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 09:52 AM**Submitted By** Bret Davison

Page 2

Custom

Field Measurements:**Job #** 175294

Top Distance	228.00	ft	Pipe Diameter	48.00	in
Joint Length	12.00	ft	Pipe Height	0.00	in
Length TV'd	228.00	ft			

Summary:

GOOD CONDITION

Recommendations:

End of Report

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main Inventory Detail

Report Date 10/24/2005 09:52 AM

Submitted By Bret Davison

Page 1

Main ID STMH AMZ486
Address 3636 NW FRONT AVE
PORTLAND OR

To STMH AAX405

#

Qualifier *
Area GUILDS LK GUILDS LAKE
Sub-area 2726

District WEST ASSETS IN NW/SW/W PORTLAND
Location SHTT STREET ROW, HEAVY TRAFFIC
Map # NEW/2726-009D

Main Line Type	STML	STORM GRAVITY MAIN	Diameter	48.00	Design Flow	0.00
Pipe Type	CSP	CONCRETE - UNKNOWN REINFORCING	Height	0.00	Friction Factor	0.000
Pipe Shape	CIRC	CIRCULAR (PIPE)	Length	224.00	Slope	0.00201
Dir From Ups			Ups Depth	14.00	Ups Invert Elev	9.60
Dir From Dwn			Dwn Depth	10.00	Dwn Invert Elev	9.15
Joint Type			Joint Length	0.00		
Service Status	IN	ASSET IS IN SERVICE	Complex			
X Coord			Parcel			
Y Coord			Date Installed	08/17/1987	Grnd Water Lev	0.00
Z Coord			As Built	H0258	Incoming Mains	0
Manufacturer			Surface Cover	ASPH	ASPHALT STREET	
Critical Rating			Ownership	BES	ENVIRONMENTAL SERVICES	
Expired		By				
Budget #						

Comments PDOT job 17920 built this line ?

Service Connections

Service Line ID	Diam	Distance	From	Address
-----------------	------	----------	------	---------

There are no service connections for this asset

Inlets

Inlet ID	Inlet Type	Grate Type	Length	Width	Connection Type	Distance	From	Direction
Address								

There are no inlets for this asset

Field Inspections

Inspection #	Started	Completed	Hydraulic	Total I/I Qty
--------------	---------	-----------	-----------	---------------

There are no field inspections for this asset

TV Inspections

Inspection #	Started	Completed	Structural	Root	I/I	Overall
--------------	---------	-----------	------------	------	-----	---------

217047	10/13/2005 11:19	10/13/2005 11:19	0	0	0	0
--------	------------------	------------------	---	---	---	---

Formula-Based TV Inspections

Inspection #	Started	Completed
--------------	---------	-----------

There are no Formula-Based TV Inspections for this asset

Assets	Unit ID	Expired	Address	Description
Comp Type				
Qualifier				

No other assets associated to this asset

Linear Asset Inspections	Completed	Activity
Inspection #	Started	

There are no linear asset inspections for this asset

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main Inventory Detail**Report Date** 10/24/2005 09:52 AM**Submitted By** Bret Davison

Page 2

Schedules

Activity	Resched By	WO Status	Unit	Interval	Next Scheduled	Last Completed	Priority	Assign To	Crew	Authorization
----------	------------	--------------	------	----------	----------------	----------------	----------	-----------	------	---------------

There are no schedules for this asset

Group Schedules

Group ID	Activity	Unit	Interval	Next Scheduled	Pri	Asgn To	Crew	Auth
----------	----------	------	----------	----------------	-----	---------	------	------

There are no group schedules for this asset

History Work Order # Priority	Activity Problem	Act Type Project	Act Group	Initiated	Scheduled	Completed	Source	Maint Type
-------------------------------------	---------------------	---------------------	-----------	-----------	-----------	-----------	--------	------------

175295	SPSWTV			10/11/2005	10/12/2005		BES	UM
F	NOTV	BESOF16						

Associated Parts

Part #	Description	Quantity
--------	-------------	----------

There are no associated parts for this asset

Safety Procedures

Message	Description	Activity	Comments
---------	-------------	----------	----------

There are no safety messages for this asset. Please follow required safety procedures.

Contacts

There are no contacts for this asset.

Nodal Asset Inspections

Inspection #	Started	Completed	Activity
--------------	---------	-----------	----------

There are no Nodal asset inspections for this asset

Custom**UPS MH Type** MH **COMPKEY** 121610**Warranty Expiration****Node Name****Sheet Number****Notes** 11/06/03- CANDIB: ENTERED PER SEWER MAP
10/11/04-SHANNONH: UPDATED DATE PER AS-BUILT**Abandoned By Job****Date Abandoned**

End of Report

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail

Report Date 10/24/2005 09:53 AM

Submitted By Bret Davison

Page 1

Inspection # 217048 Work Order #
From ID STMH AAX405 To STMH ANC077 Activity STMTV NOT FOR WO'S - STORM MAIN TV
Address 3653 NW FRONT AVE Length 48.00
PORTLAND OR
Upstream Address 3653 NW FRONT AVE
PORTLAND OR
Downstream Address 3653 NW FRONT AVE
PORTLAND OR

Started 10/13/2005 11:47

Completed 10/13/2005 11:47

Comp By TSR2

Project 638200 BES TV CONTRACT. GAIL LUTHY

Crew

Crew Leader

Operator TSR2

Weather SHOWERS

Flow Depth 0.00
Pipe DetReverse Setup ☐Sketch ☐Prior History ☐

Media

Format	VHS	Media #	BSP101
Index	5151	To	5445

Condition Ratings

Structural	0	Root	0	I/I	0	Overall	0
------------	---	------	---	-----	---	---------	---

Comments

52 END DS ANC077 CONCRETE GOOD CONDITION
LARGE DIAMETER MH
BURIED

Readings

Setup	From	To	Index	Clock	Grouted	Defect	Code	Description
-------	------	----	-------	-------	---------	--------	------	-------------



AAX405

U 0.00 0.00 5207 0 N
START US AAX405 CONCRETE GOOD CONDITION
LARGE DIAMETER MH
3653 NW FRONT AVE

End of Readings



ANC077

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 09:53 AM**Submitted By** Bret Davison

Page 2

Custom

Field Measurements:

Job # 175296	Top Distance 0.00	ft	Pipe Diameter 48.00	in
	Joint Length 12.00	ft	Pipe Height 0.00	in
	Length TV'd 52.00	ft		

Summary:

GOOD CONDITION

Recommendations:

End of Report

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 10:02 AM**Submitted By** Bret Davison

Page 1

Inspection # 217043 **Work Order #**
From ID STMH AMZ122 **To** STMH AMZ121 **Activity** STMNTV NOT FOR WO'S - STORM MAIN TV
Address 3208 NW YEON AVE **Length** 77.00
PORTLAND OR
Upstream Address 3208 NW YEON AVE
PORTLAND OR
Downstream Address 3208 NW YEON AVE
PORTLAND OR

Started 10/13/2005 09:07**Completed** 10/13/2005 09:07**Comp By** TSR2**Project** 638200 BES TV CONTRACT. GAIL LUTHY**Crew****Crew Leader****Operator** TSR2**Weather** RAIN**Flow Depth** 0.00**Pipe Det****Reverse Setup** ☐**Prior History** ☐**Sketch** ☐**Media****Format** VHS **Media #** BSP101**Index** 1647 **To** 2107**Condition Ratings**

Structural	0	Root	0	I/I	0	Overall	0
-------------------	---	-------------	---	------------	---	----------------	---

Comments

86 END US AMX122 CONCRETE GOOD CONDITION

Readings

Setup	From	To	Index	Clock	Grouted	Defect	Code	Description
-------	------	----	-------	-------	---------	--------	------	-------------

Comments

AMZ122

D 0.00 0.00 1647 0 N
START DS AMZ121 CONCRETE GOOD CONDITION
OVAL
3208 NW YEON AVE

End of Readings



AMZ121

Custom

Field Measurements:

Job #	175289	Top Distance	86.00	ft	Pipe Diameter	30.00	in
		Joint Length	12.00	ft	Pipe Height	0.00	in
		Length TV'd	86.00	ft			

Summary:
GOOD CONDITION

Recommendations:

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 10:02 AM**Submitted By** Bret Davison

Page 1

Inspection # 217042**Work Order #****Activity** STMNTV NOT FOR WO'S - STORM MAIN TV**From ID** STMH AMZ121**To** STMH AMZ120**#** **Length** 204.00**Address** 3208 NW YEON AVE

PORTLAND OR

Upstream Address 3208 NW YEON AVE

PORTLAND OR

Downstream Address 3208 NW YEON AVE

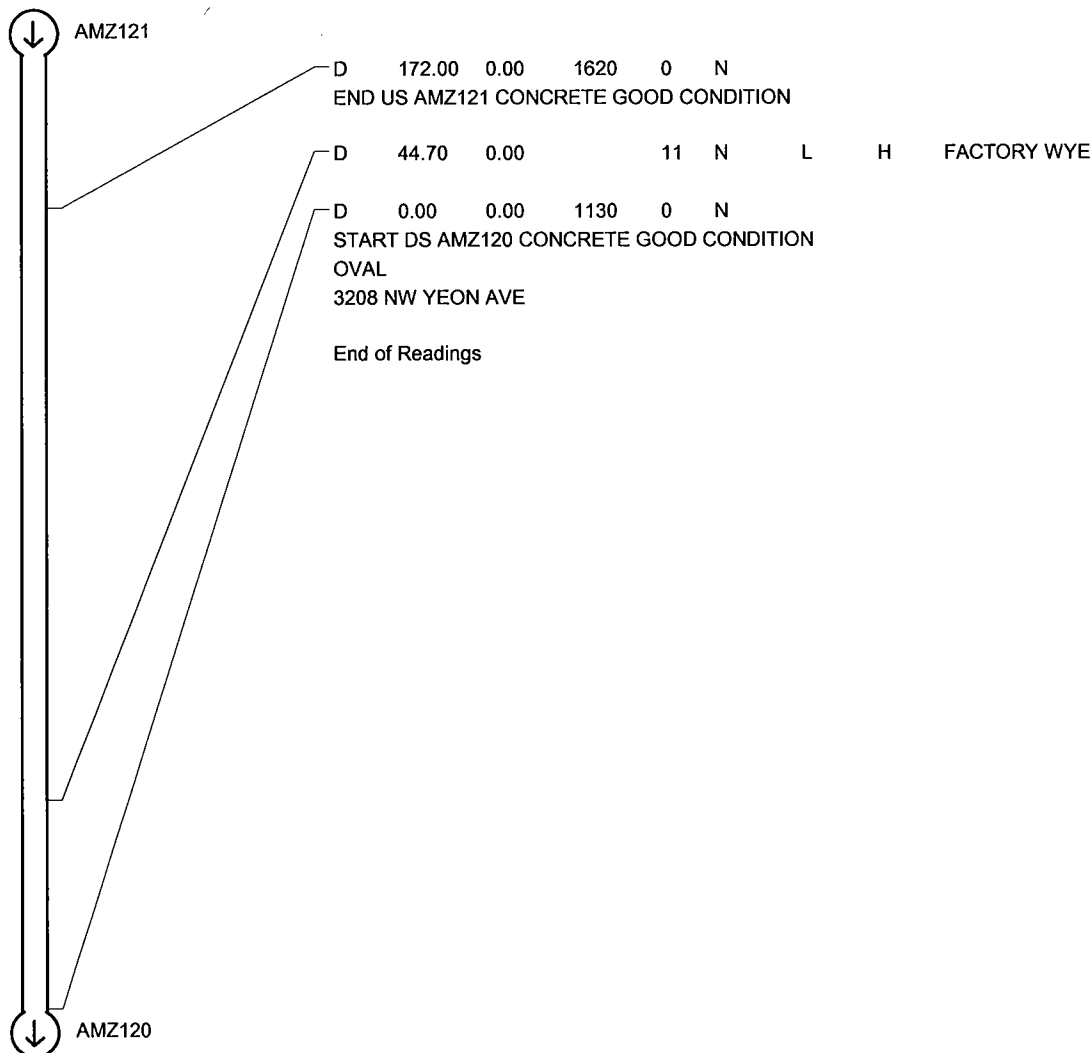
PORTLAND OR

Started 10/13/2005 08:49**Completed** 10/13/2005 08:49**Comp By** TSR2**Project** 638200 BES TV CONTRACT. GAIL LUTHY**Crew****Crew Leader****Operator** TSR2**Weather** RAIN**Flow Depth** 0.00**Pipe Det****Reverse Setup** ☒**Prior History** ☐**Sketch** ☐**Media****Format** VHS**Media #** BSP101**Index** 1130**To** 1648**Condition Ratings****Structural** 0**Root** 0**I/I** 0**Overall** 0**Comments**

No Comments

Readings

Setup From	To	Index	Clock	Grouted	Defect	Code	Description
------------	----	-------	-------	---------	--------	------	-------------



Custom

Field Measurements:

Job # 175290	Top Distance	174.00	ft	Pipe Diameter	30.00	in
	Joint Length	12.00	ft	Pipe Height	0.00	in
	Length TV'd	172.00	ft			

Summary:
GOOD CONDITION

Recommendations:

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail

Report Date 10/24/2005 10:02 AM

Submitted By Bret Davison

Page 1

Inspection # 217041 Work Order #
From ID STMHAMZ120 To STMHAMZ117 Activity STMNTV NOT FOR WO'S - STORM MAIN TV
Address 3208 NW YEON AVE # Length 324.00
PORTLAND OR
Upstream Address 3208 NW YEON AVE
PORTLAND OR
Downstream Address 3445 NW FRONT AVE
PORTLAND OR

Started 10/13/2005 07:39
Completed 10/13/2005 07:39
Comp By TSR2
Project 638200 BES TV CONTRACT. GAIL LUTHY
Crew

Crew Leader
Operator TSR2
Weather RAIN

Flow Depth 0.00
Pipe Det

Reverse Setup ☒
Sketch ☐

Prior History ☐

Media			
Format	VHS	Media #	BSP101
Index	0	To	1130

Condition Ratings

Structural	0	Root	0	I/I	0	Overall	0
------------	---	------	---	-----	---	---------	---

Comments

No Comments

Readings

Setup	From	To	Index	Clock	Grouted	Defect	Code	Description
-------	------	----	-------	-------	---------	--------	------	-------------

↓ AMZ120

D	321.00	0.00	1108	0	N			
END US AMZ120 CONCRETE GOOD CONDITION								
D	239.00	0.00		9	N	L	H	FACTORY WYE
D	154.00	0.00		3	N	L	H	FACTORY WYE
D	0.00	0.00	0	0	N			
START DS AMZ117 CONCRETE GOOD CONDITION								
OVAL								
14 FEET 4 INCH DEEP								
3445 NW FRONT AVE								
End of Readings								

↓ AMZ117

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 10:02 AM**Submitted By** Bret Davison

Page 2

Custom**Field Measurements:****Job #** 175291

Top Distance	321.00	ft	Pipe Diameter	30.00	in
Joint Length	12.00	ft	Pipe Height	0.00	in
Length TV'd	321.00	ft			

Summary:

GOOD CONDITION

Recommendations:

End of Report

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail

Report Date 10/24/2005 10:03 AM

Submitted By Bret Davison

Page 1

Inspection # 217044

Work Order #

Activity STMNTV NOT FOR WO'S - STORM MAIN TV

From ID STMHAMZ117

To STMHAMZ116

#

Length 215.00

Address 3445 NW FRONT AVE
PORTLAND ORUpstream Address 3445 NW FRONT AVE
PORTLAND ORDownstream Address 3445 NW FRONT AVE
PORTLAND OR

Started 10/13/2005 09:16

Completed 10/13/2005 09:16

Comp By TSR2

Project 638200 BES TV CONTRACT. GAIL LUTHY

Crew

Crew Leader

Operator TSR2

Weather RAIN

Flow Depth 0.00

Pipe Det

Reverse Setup ☐Sketch ☐Prior History ☐

Media

Format VHS

Media # BSP101

Index 2107

To 3237

Condition Ratings

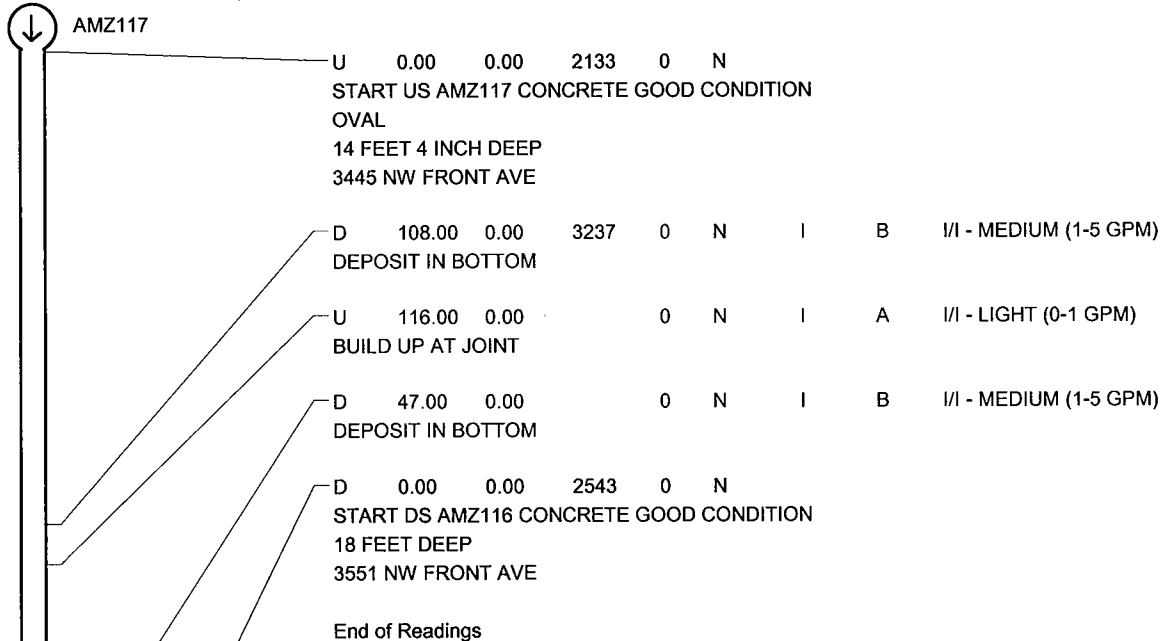
Structural	0	Root	0	I/I	21	Overall	6
------------	---	------	---	-----	----	---------	---

Comments

No Comments

Readings

Setup	From	To	Index	Clock	Grouted	Defect	Code	Description
-------	------	----	-------	-------	---------	--------	------	-------------



CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 10:03 AM**Submitted By** Bret Davison

Page 2

Custom**Field Measurements:****Job #** 175292

Top Distance	0.00	ft	Pipe Diameter	36.00	in
Joint Length	12.00	ft	Pipe Height	0.00	in
Length TV'd	224.00	ft			

Summary:

OK CONDITION LINE IS 224 NOT 215 CAN NOT WALK DUE TO RR TRACK

Recommendations:

End of Report

CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 10:03 AM**Submitted By** Bret Davison

Page 1

Inspection # 217045**Work Order #****Activity** STMNTV NOT FOR WO'S - STORM MAIN TV**From ID** STMH AMZ116**To** STMH AAX408**#** **Length** 200.00**Address** 3445 NW FRONT AVE
PORTLAND OR**Upstream Address** 3445 NW FRONT AVE
PORTLAND OR**Downstream Address** 3636 NW FRONT AVE
PORTLAND OR**Started** 10/13/2005 10:12**Crew Leader****Reverse Setup** ☐**Prior History** ☐**Completed** 10/13/2005 10:12**Operator** TSR2**Sketch** ☐**Comp By** TSR2**Weather** RAIN**Project** 638200 BES TV CONTRACT. GAIL LUTHY**Media**

Format	VHS	Media #	BSP101
Index	3254	To	3906

Crew**Flow Depth** 0.00**Pipe Det****Condition Ratings**

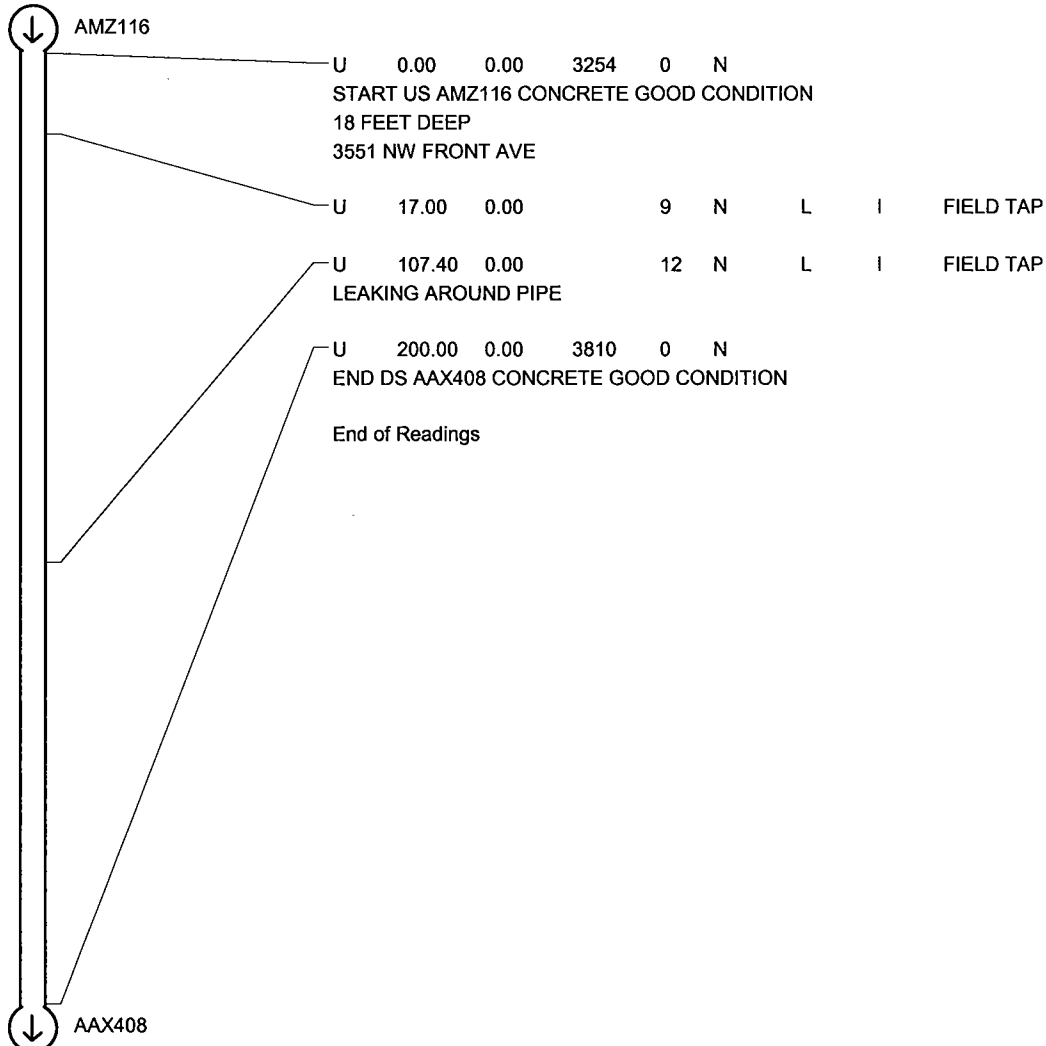
Structural	0	Root	0	I/I	0	Overall	0
-------------------	---	-------------	---	------------	---	----------------	---

Comments

No Comments

Readings

Setup	From	To	Index	Clock	Grouted	Defect	Code	Description
-------	------	----	-------	-------	---------	--------	------	-------------



CITY OF PORTLAND, OR BES

1120 SW 5th Ave
Portland, OR 97204-1912
(503)823-4000

Storm Main TV Inspection Detail**Report Date** 10/24/2005 10:03 AM**Submitted By** Bret Davison

Page 2

Custom**Field Measurements:****Job #** 175293**Top Distance** 201.00 **ft** **Pipe Diameter** 42.00 **in****Joint Length** 12.00 **ft** **Pipe Height** 0.00 **in****Length TV'd** 200.00 **ft****Summary:**

GOOD CONDITION

Recommendations:

End of Report

APPENDIX C

Outfall Basin 16 – 2007 Inline Solids Investigation

Appendix C

Outfall Basin 16 2007 Inline Solids Investigation Data Summary Report June 2008

Introduction

This report summarizes the results of the City of Portland BES source control investigation of inline solids collected from a small branch of the Outfall Basin 16 stormwater conveyance system. A preliminary evaluation of dry-weather flow and inline solids sample results from 2005 indicated the possible presence of arsenic at elevated concentrations in the downstream portion of the Basin 16 conveyance system (results presented in Appendix B of the Basin 16 Phase I Report). The purpose of this sampling event was to evaluate whether inline solids in this branch of the conveyance system are a potential source of arsenic.

This investigation is part of the City's ongoing source control program associated with the Portland Harbor City of Portland Outfalls Project. These investigation results are submitted pursuant to the August 13, 2003, Intergovernmental Agreement between the DEQ and the City.

Field Activities

The City coordinated with DEQ regarding this source control investigation before conducting the work. Sampling activities occurred on July 24, 2007. The sampling team first attempted to collect inline solids from manhole AND582, located just upstream from the branch's connection with the stormwater main at manhole AMZ116 (see Figure 1). However, solids were not observed, and the next upstream manhole (AND583) was selected as an alternate location. A solids sample was collected from the line downstream of manhole AND583 using a stainless steel spoon and bowl, in accordance with BES Field Operations' Standard Operating Procedures. Photographs of the sampling location and collected solids are included in Attachment A. Field notes taken during sampling activities are provided in Attachment B. The sampling location is shown on Figure 1.

Manhole AND583 is located in a grassy area on the east side of NW 26th Drive, near the intersection of NW 26th Drive and NW Front Avenue (see Photo 1). Solids were collected from the 12-inch-diameter line that discharges from the manhole. Solids in this location represent contributions from two catch basins; one catch basin receives drainage from NW 26th Drive and the other from NW Front Avenue. No water was observed in the line; although the line and solids were wet (field notes indicate that it had rained the previous day).

Summary of Results

The inline solids sample was analyzed for arsenic and total organic carbon (TOC). Table 1 summarizes the chemical analytical results and includes the Portland Harbor Joint Source Control Strategy (JSCS) (DEQ/EPA, 2005; amended July 2007) screening level values (SLVs) for comparison. The laboratory analytical results and data review summary for the samples are provided in Attachment C.

Arsenic was detected at a concentration less than the JSCS toxicity and bioaccumulation SLVs. Based on these results, stormwater solids associated with this branch of the Basin 16 conveyance system does not appear to be an arsenic source to the river.

References

DEQ/EPA. 2005. *Portland Harbor Joint Source Control Strategy, Final*, dated December 2005 (updated July 2007).

Figure

Figure 1 – *Basin 16 Inline Solids Sampling Location, July 24, 2007*

Table

Table 1 – *Summary of Chemical Analytical Results, Inline Solids Sample, Outfall Basin 16*

Attachments

Attachment A – *Field Photographs*

Attachment B – *Field Data Sheets*

Attachment C – *Laboratory Results*



Legend

- Storm Pipe
- Basin 16 Boundary
- Taxlot
- Non-City Outfall
- City Outfall
- Manhole
- Sample Location
- DEQ Environmental Cleanup Sites

0 50 100 200 Feet

Information contained on this map is accurate according to available records, however, the City of Portland makes no warranty, expressed or implied, as to the completeness or accuracy of the information published

Figure 1
Basin 16
Inline Solids
Sampling Location
July 24, 2007

Source: City of Portland BES
Aerial photo 2006

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
1125 NW 10th Avenue, Room 1000
Portland, Oregon, 97204-1912

File Name:
s:\gis\outfalls\outfall16\
samplingof16basinsample.mxd

Program Manager:
Dawn Sanders
Portland Harbor Superfund

Sheet No.
1 OF 1

Date Printed: 02/11/2008
Prepared by: Sara Gardner

Table 1
Summary of Chemical Analytical Results
Inline Solids Sample
Outfall Basin 16

			Inline Solids	JSCS ⁽¹⁾	
			Manhole AND583	Screening Level Value	
			FO 070917		
			7/24/2007	(Toxicity)	(Bioaccumulation)
Class	Analyte	Units			
Total Organic Carbon (EPA 9060 MOD)					
	TOC	mg/Kg	68,700	--	--
Metals (EPA 6020)					
	Arsenic	mg/Kg	5.55	33	7
Notes:					

⁽¹⁾JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended 2007).

-- No JSCS screening level available.

mg/kg = Milligrams per kilogram.

Attachment A
Field Photographs



Photo 1 (July, 2007). Aboveground location of manhole AND583, looking south. The photograph was taken at the intersection of NW 26th Drive and NW Front Avenue.



Photo 2 (July, 2007). Looking downstream from manhole AND583.



Photo 3 (July, 2007). Solids collected from the 12-inch-diameter line downstream from manhole AND583.

Attachment B

Field Notes



CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave.,
Portland, OR 97203-5452



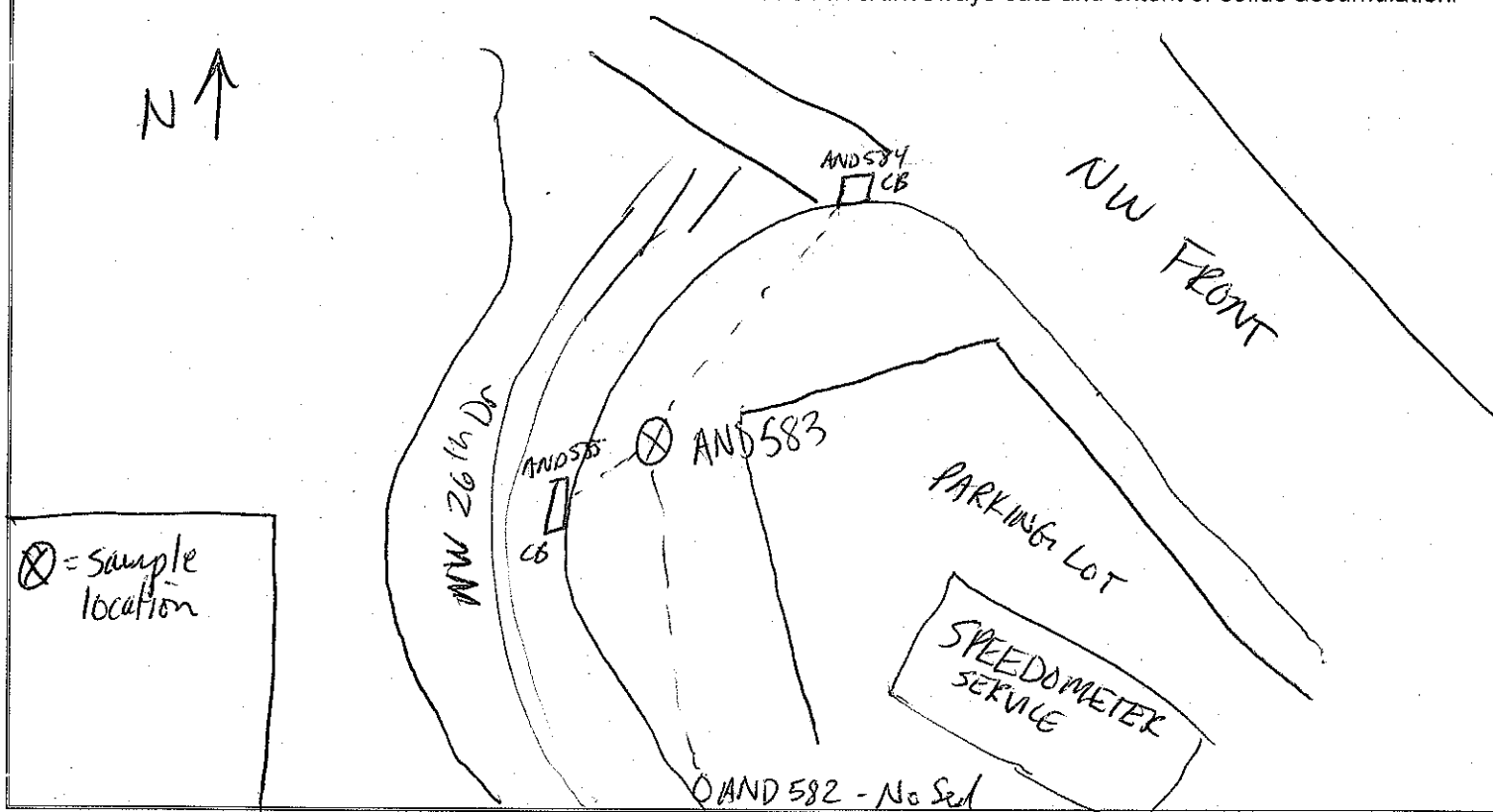
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: <i>Portland Harbor Inline Samp</i>		Project Number: <i>1020.001</i>	
Sampling Team: <i>LAP/RCB</i>	Date: <i>7/24/07</i>	Arrival Time: <i>0935</i>	Current Weather Conditions/Last Rain: <i>Partly cloudy - last rain yesterday</i>
Basin: <i>16</i>	Node: <i>AND 583</i>	Subbasin:	
Sampling Location Description/Address: <i>3551 NW Front Ave</i>			

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	<i>No flowing or standing water though pipe and sediment are wet</i>
Does river appear to back up to this location? Describe rate/color/odor of flow:	<i>No</i>
Are sediments observed in the line?	<i>Yes</i>
Are sample-able quantities of sediments present in the line?	<i>Yes</i>
Describe lateral extent of sample-able sediments present in the line:	<i>downstream: > 10' (as far as the eye can see) upstream: no material</i>

SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation.



Date: 7-24-07		SECTION 2 - SAMPLE COLLECTION REPORT		Node: AND583	
Sampling Equipment:			<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)		
Equipment Decontamination process:			<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 7/24/07	Sample time: 1000	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-16AND583-0707			
Sample location description: (number of feet from node of entry) Ø - 2' downstream					
Sample collection technique:			Stainless steel spoon to scrape seeds out of pipe composited into stainless steel bowl		
Describe Color of sample:			dark brown		
Describe Texture/Particle size:			fine sandy/silt w/ some gravels		
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):			NO ODOR, NO SHEEN		
Describe depth of solids in area where sample collected:			Ø - 2" DEPTH		
Describe amount and type of debris in sample:			90% SILT 7% FINE SAND 3% gravel		
Amount and type of debris removed from final sample:			NONE		
Compositing notes: —					
Sample Jars Collected (number, size, full or partial)? (2) 4 oz jars ; full					
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).					
Lab ID FO 070917		Duplicate sample collected? <input checked="" type="radio"/> Y <input type="radio"/> N Dupe ID			
Duplicate sample identification # on COC:		—			
Any deviations from standard procedures: NO					

SECTION 3 - PHOTOGRAPH LOG	
Overview of node showing drainage area	YES (#5)
Plan view of sediments inline	YES (#2 & 3)
Homogenized sample (sediment in bowl)	YES (#4)
Other?	



Page 1 of 1

Project PORTLAND
Location 3551 NW Front Ave
Subject IL-16-AND583-0707

Project No. 1020.001
Date 7-24-07
By RCB, LAP

0935 Arrive on site. Enter AND582 to discover no sample-able sediment present.

1000: Enter AND583. Sample AND583. Routine sample. Sediment is caked to each side of pipe wall (approx. 2" depth). Center of channel is generally free of sediments (ϕ - 0.5" depth). 12" line. Sediment extends downstream as far as the eye can see. There is gravelly material upstream of the manhole, (about 5' upstream of node) & therefore, un-samplable. A lateral (10") enters pipe upstream of node & is devoid of sediment.

Sediment recovered is mineral material consisting of primarily fine sandy/silt w/ some gravels. No organic debris present. No odor or sheen observed. Dark brown in color.

Attachment C

Laboratory Results

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
(503) 823-5696



City of Portland
Chain-of-Custody
Bureau of Environmental Services



Date: 7/24/07
Page: 1 of 1
Collected By: LAR/KCB

Project Name: **PORTLAND HARBOR INLINE SAMP**

File Number: 1020.001

Matrix: **SEDIMENT**

Requested Analyses

General

Metals

Field Comments

OUTFALL 16 CHAIN-OF-CUSTODY

WPCL Sample I.D.

Location

Point Code Sample Date Sample Time Sample Type

FO 070917

IL-16-ANDS83-0707
3551 NW Front Ave

16_21

7/24/07

1000

ACB
PC

Total Organic Carbon

Total Arsenic

Relinquished By: 1

Signature: *[Signature]*

Time: 1039

Printed Name: **ANDY C. BESTON**

Date: 7/24/07

Received By: 1

Signature: *[Signature]*

Time: 1039

Printed Name: **Rena Kueh**

Date: 7/24/07

Relinquished By: 2

Signature:

Time:

Printed Name:

Date:

Received By: 2

Signature:

Time:

Printed Name:

Date:

Relinquished By: 3

Signature:

Time:

Printed Name:

Date:

Received By: 3

Signature:

Time:

Printed Name:

Date:

Relinquished By: 4

Signature:

Time:

Printed Name:

Date:

Received By: 4

Signature:

Time:

Printed Name:

Date:



City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO070917

Sample Collected: 07/24/07 10:00
Sample Received: 07/24/07

Sample Status: COMPLETE AND
VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-16-AND583-0707
3551 NW FRONT AVE
Sample Point Code: 16_21
Sample Type: GRAB
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1

System ID: AL06909
EID File # : 1020.001
LocCode: PORTHARI
Collected By: LAP/RCB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
METALS					
ARSENIC	5.55	mg/Kg dry wt	0.50	EPA 6020	08/08/07
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	68700	mg/Kg dry wt	100	EPA 9060 MOD	08/01/07

End of Report for Sample ID: FO070917

Report Date: 08/24/07

Validated By:

August 15, 2007

Jennifer Shackelford
City of Portland Water Pollution Laboratory
6543 N. Burlington Ave.
Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 07/24/07 14:15.
The following list is a summary of the Work Orders contained in this report, generated on 08/15/07 19:32.

If you have any questions concerning this report, please feel free to contact me.

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
PQG0820	Portland Harbor	36238

TestAmerica - Portland, OR



Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.
Portland, OR 97203

Project Name:

Portland Harbor

Project Number:

36238

Project Manager:

Jennifer Shackelford

Report Created:

08/15/07 19:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO070917	PQG0820-01	Soil	07/24/07 10:00	07/24/07 14:15

TestAmerica - Portland, OR



Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**
Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created:
08/15/07 19:32

Total Organic Carbon

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQG0820-01	(FO070917)	Soil					Sampled: 07/24/07 10:00			
Total Organic Carbon - Duplicates	9060	68700	----	100	mg/Kg	1x	8366	08/01/07 14:55	08/01/07 14:55	

Harold B. Holmes

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



City of Portland Water Pollution Laboratory
6543 N. Burlington Ave.
Portland, OR 97203

Project Name: **Portland Harbor**
Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created:
08/15/07 19:32

Total Organic Carbon - Laboratory Quality Control Results

TestAmerica Connecticut

QC Batch: 8366

Soil Preparation Method: NA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (220-8366-5)			QC Source:					Extracted: 08/01/07 13:19						
Total Organic Carbon - Duplicates	9060	6590	---	100	mg/Kg	1x	--	6430	103%	(53-155)	--	--	08/01/07 13:19	
Blank (220-8366-6)			QC Source:					Extracted: 08/01/07 13:26						
Total Organic Carbon - Duplicates	9060	ND	---	100	mg/Kg	1x	--	--	--	--	--	--	08/01/07 13:26	
Matrix Spike (22591S)			QC Source: PQG0820-01					Extracted: 08/01/07 15:24						
Total Organic Carbon - Duplicates	9060	186000	---	100	mg/Kg	1x	68700	110000	106%	(75-125)	--	--	08/01/07 15:24	
Duplicate (22591X)			QC Source: PQG0820-01					Extracted: 08/01/07 15:09						
Total Organic Carbon - Duplicates	9060	73200	---	100	mg/Kg	1x	68700	--	--	--	6%	(20)	08/01/07 15:09	

TestAmerica - Portland, OR

Howard B. Holmes

Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory

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Project Name: **Portland Harbor**

Project Number: 36238

Project Manager: Jennifer Shackelford

Report Created:

08/15/07 19:32

Notes and Definitions

Report Specific Notes:

None

Laboratory Reporting Conventions:

- DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR/NA - Not Reported / Not Available
- dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
- wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.
- Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica - Portland, OR



Howard Holmes, Project Manager

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CHAIN OF CUSTODY REPORT

Work Order #: **PQ60820**

CLIENT: City of Portland		INVOICE TO: Charles Lytle		TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses <input checked="" type="checkbox"/> STD <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 Petroleum Hydrocarbon Analyses <input type="checkbox"/> STD <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 OTHER Specify: _____ <small>* Turnaround Request less than standard may incur Rush Charges.</small>			
REPORT TO: Jennifer Shackelford		P.O. NUMBER: 36238					
ADDRESS:		PRESERVATIVE					
PHONE: FAX:		REQUESTED ANALYSES					
PROJECT NAME: Portland Harbor							
PROJECT NUMBER: Inline Samp							
SAMPLED BY:							
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TOC					
1 FO 070917	7/24/07 1000	X					
2							
3							
4							
5							
6							
7							
8							
9							
10							
RELEASED BY: Rona Kluch	FIRM: City of Portland	DATE: 7/24/07	TIME: 1240	RECEIVED BY: [Signature]	FIRM: TAP	DATE: 7-24-07	TIME: 1755
RELEASED BY: Serena Morgan	FIRM: TAP	DATE: 7-24-07	TIME: 1240	RECEIVED BY: [Signature]	FIRM: TAP	DATE: 7-24-07	TIME: 1430
ADDITIONAL REMARKS:						TEMP: 0.7	PAGE 1 OF 1

TestAmerica Sample Receipt Checklist

Cooler ID(s): _____

Received by: _____

Unpacked by: _____

Logged-in by: _____

Work Order No. PQG10820

(section A)

(section B)

Date: 7/24

Date: 7/24

Date: 7-24

Time: 1430

Initials: HSJ

Initials: MP

Client: COP

Project: Portland Harbor

Temperature out of range:

☐ No Ice
☐ Ice Melted
☐ W/in 4 Hours
☐ Other: _____

***ESI Clients (see Section C)

Cooler Temperature (IR): 0.7 °C plastic glass NA (oil/air samples, ESI client)

A

Custody Seals: (# _____)

Signature: Y ☒ None Dated: _____

Container Type:

☒ #Cooler(s)
☐ #Box(s)
☐ None (#Other: _____)

Coolant Type:

☐ Gel Ice
☒ Loose Ice
☐ None

Packing Material:

☐ Bubble Bags
☐ Styrofoam Cubbies
☒ None (Other: _____)

Received from:

☒ TA Courier
☐ Envoy
☐ UPS
☐ Fed Ex
☐ Client
☐ TDP
☐ DHL
☐ SDS
☐ Mid-Valley
☐ GS/TA
☐ GS/Envoy
☐ Other: _____

B

Sample Status:

(If N circled, see NOD)

General:

Intact? ☒ Y N
Containers Match COC? ☒ Y N none given
IDs Match COC? ☒ Y N

For Analyses Requested:

Correct Type & Preservation? ☒ Y N
Adequate Volume? ☒ Y N
Within Hold Time? ☒ Y N

Volatiles:

VOAs Free of Headspace? ☐ Y N ☒ NA
TB on COC? not provided ☐ Y N ☒ NA

Metals:

HNO3 Preserved? ☐ Y N ☒ NA

C

***ESI Clients Only:

Temperature Blank: _____ °C not provided

All preserved bottles checked Y N NA (voas/soils/all unp.)
All preserved accordingly? Y N (see NOD) NA (voas/soils/all unp.)

Army Corp:

Geiger (ticks/min): _____

Temperatures (IR): _____ °C _____ °C _____ °C _____ °C
(left) (middle) (right) (air)

Project Managers:

Comments: _____

PM Reviewed: _____ (Initial/Date)