CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204-1912 ▪ Sam Adams, Commissioner ▪ Dean Marriott, Director

TECHNICAL MEMORANDUM No. OF17-1

City Outfall Basin 17
Data Report for GE Inline Solids Split Samples

TO: File

FROM: Dawn Sanders, City of Portland, Bureau of Environmental Services
Linda Scheffler, City of Portland, Bureau of Environmental Services

COPIES: Bruce Brody-Heine, GSI

DATE: March 9, 2006

SUBJECT: **Portland Harbor Source Control Investigation**

Introduction

This technical memorandum (TM) summarizes the results of the City of Portland (City), Bureau of Environmental Services' (BES) analysis and evaluation of splits from samples of inline solids collected for General Electric (GE) in the Outfall Basin 17 stormwater conveyance system. The GE inline solids sampling investigation focused on the area of the basin that drains NW Industrial Street, NW 29th Avenue, NW 30th Avenue, and portions of adjoining properties. Several of the properties connected to the conveyance system are listed Oregon Department of Environmental Quality (DEQ) upland Portland Harbor cleanup sites. The GE investigation, conducted in September 2004, was intended to evaluate potential sources of contaminants discharged to the City stormwater collection system near the GE site.

Purpose and Objectives

The purpose of this investigation is to provide additional information on the nature of inline solids, in the vicinity of the GE Decommissioning Facility, to guide future source control investigations in this area. The objective of this TM is to summarize the results from the analysis of split samples obtained from the GE investigation for future comparison with GE results.

This area of the City Outfall Basin 17 stormwater collection system receives runoff from several DEQ cleanup sites, including the GE Decommissioning Facility, Paco Pumps, and Galvanizers Co. (see Figure 1). According to the DEQ Environmental Cleanup Site Information (ECSI) Database Site Summary Reports and files for GE (ECSI Site No. 4003) and Paco Pumps (ECSI Site No. 146), PCBs have been detected in soil on both properties (DEQ, 2005a; DEQ, 2005b). Metals and petroleum hydrocarbons have been detected in soil and groundwater at the Galvanizers facility (ESCI Site No. 1196) (DEQ, 2006).

BES analysis of inline solids collected during line maintenance activities in 2002 detected PCBs and metals near these facilities at concentrations that exceeded DEQ High Sediment Comparison Values. Based on these results, DEQ required GE to sample its onsite stormwater collection system, and subsequently to sample inline solids in the City stormwater conveyance system near its property. The City analyzed archived sample splits collected from the City system for PCBs, SVOCs, metals, and petroleum

hydrocarbons as part of the City's ongoing source control program. The results of the City analyses are summarized in this TM.

Background

In March 2002, BES and Metro Rooter Plumbing conducted extensive cleaning of a 54-inch-diameter line that drains to City Outfall 17. Inline solids were analyzed from three locations to determine proper waste disposal. Analytical results for these samples were summarized in an internal investigative memorandum dated June 30, 2003. The PCB Aroclor 1260 was detected in the sample collected from node AAX469, which is just downstream from the inlet of a stormwater lateral from the GE property (COP, 2003). In January 2004, GE sampled catch basins on its property and submitted the results to DEQ. The resulting detected concentrations of PCBs in the catch basin samples prompted DEQ to require that GE sample the City's stormwater conveyance system in the area.

Subsequently, GE requested the BES Field Operations staff to conduct inline solids sampling on behalf of GE in September 2004. The City sampling team attempted to obtain inline solids samples for GE at 11 proposed sampling locations. Sufficient inline solids were present at seven of these locations for samples to be collected. The City retained split samples for future analysis at four locations where sufficient sample volume was available. These four samples were frozen from the date of collection, and submitted for analysis on June 9, 2005. Data from GE's analysis of the seven samples are pending.

Figure 1 provides an overview of the City Outfall Basin 17 stormwater conveyance system and the approximate locations of split samples collected during the September 2004 sampling event. The area of interest in this conveyance system consists of three main branches and associated catchment systems that drain to a 54-inch-diameter concrete main. The main extends from the southern portion of the basin north through the intersection of NW Industrial Street and NW 30th Avenue (node AAX473) to Outfall 17.

Four lines connect to the 54-inch-diameter main at node AAX473 (see Figure 2). Three of these lines discharge directly to the main: a 24-inch-diameter line that collects stormwater from the eastern portion of the subject area; a 42-inch-diameter line that collects stormwater from the western portion of the basin; and a 12-inch-diameter line, which may represent a lateral connection from the northwest corner of the intersection. The fourth line, a 36-inch-diameter line, leaves the manhole at approximately 6 feet above the bottom of the invert, and provides an overflow connection to node AAX474.

Three samples were collected from this area and the fourth sample was collected from the 54-inch-diameter main downstream of the connection from GE, at node AAX469. See field photographs and field notes in Attachments A and B for photos and descriptions of this series of connections.

Field Activities

The City sampling team obtained two of the sample splits (AAX473-S and AAX473-E) at approximately 12:45 p.m. on September 28, 2004, and an additional two sample splits (ANC338 and AAX469) between 9:50 a.m. and 11:50 a.m. on September 29, 2004. No measurable precipitation occurred at the site on the sampling days, or for the previous six days. The samples were collected using a stainless steel spoon and bowl in accordance with BES Field Operations Standard Operating Procedures. The locations where the split samples were obtained are described below. Attachment A includes field photographs. Attachment B includes notes from the field sampling.

The 54-inch-diameter main at manhole AAX473 contained standing water, solids, and some debris when the crew entered to collect samples (see Attachment A, Photo 1).

Sample AAX473-S: Solids were collected from the 54-inch-diameter main, just upstream (south) from the manhole where the other lines enter the system. The sample location is downstream of a lateral connection

from Galvanizers, Co., and other industrial and commercial facilities along NW 30th Avenue. Plumbing records indicate that Galvanizers has had several connections to the storm line on NW 30th Avenue. In 2001, Galvinizers plugged an old connection and installed a new connection farther upstream.

Sample AAX473-E: Solids were collected from the 24-inch-diameter line entering the 54-inch-diameter line from the east at node AAX473. A stormwater lateral that drains the southern portion of the GE facility enters the 24-inch-diameter line on NW Industrial Street, upstream from the sampling point at node AAX473. The 24-inch-diameter line also drains the area along NW 29th Avenue, south of NW Industrial Street, including associated catch basins and laterals from commercial and industrial facilities, including Galavanizers.

Sample ANC338: The sampling team collected solids at manhole ANC338, a previously unnamed manhole that connects to node AAX473 via a 12-inch-diameter line. The origin of the 12-inch-diameter line entering ANC338 is unknown.

Sample AAX469: Solids were collected from node AAX469, which is on the 54-inch-diameter main downstream of node AAX473 and is the point where a stormwater lateral from the GE storage yard connects to the City line.

Summary

The four archived inline solids split samples were submitted to the City's laboratory on June 9, 2005, for analysis of metals, PCBs, SVOCs, and total petroleum hydrocarbons. Table 1 provides a summary of the chemical analytical results for the inline solids sampling and the Portland Harbor Joint Source Control Strategy (JSCS) (DEQ/EPA, 2005) Stormwater Sediment Screening Level Values and DEQ Default Background Concentrations (DEQ, 2002) for comparison. Complete analytical results are presented in Attachment C. Figures 3 through 5 show the locations of the four samples with a summary of the analytical results.

The results from samples analyzed by GE as part of this investigation will be incorporated into the ongoing source control assessment of Outfall Basin 17 when the data become available to the City.

References

COP. 2003. City of Portland Outfall 17 Contaminated Sediment Source Identification, Investigative Memorandum, dated June 30, 2003.

DEQ. 2002. DEQ Default Background Concentrations for Inorganic Contaminants in Various Environmental Media. Internal Memorandum from the Toxicology Workgroup to DEQ Cleanup Project Managers, dated October 28, 2002.

DEQ. 2005a. DEQ Site Summary Report – Details for ECSI Site No. 4003. DEQ Environmental Cleanup Site Information (ECSI) Database. Accessed November 2005. http://www.deq.state.or.us/wmc/ecsi/ecsidetail.asp?seqnbr=4003.

DEQ. 2005b. DEQ Site Summary Report – Details for ECSI Site No. 146. DEQ Environmental Cleanup Site Information (ECSI) Database. Accessed December 2005. http://www.deq.state.or.us/wmc/ecsi/ecsidetail.asp?seqnbr=146.

DEQ. 2006. DEQ Site Summary Report – Details for ECSI Site No. 1196. DEQ Environmental Cleanup Site Information (ECSI) Database. Accessed January 2006. http://www.deq.state.or.us/wmc/ECSI/ecsidetail.asp?seqnbr=1196.

DEQ/EPA. 2005. Portland Harbor Joint Source Control Strategy, Final, dated December 2005.

Tables

Table 1 – *Summary of Chemical Analytical Results, Inline Solids Sampling*

Figures

Figure 1 – *Outfall 17 Inline Solids Sampling – Basin Overview*

Figure 2 – *Outfall 17 Inline Solids Sampling – Intersection of NW 30th and Industrial*

Figure 3 – *Outfall 17 Inline Solids Sampling – Metals*

Figure 4 – *Outfall 17 Inline Solids Sampling – SVOCs*

Figure 5 – *Outfall 17 Inline Solids Sampling – PCBs and Total Petroleum Hydrocarbons (TPH)*

Attachments

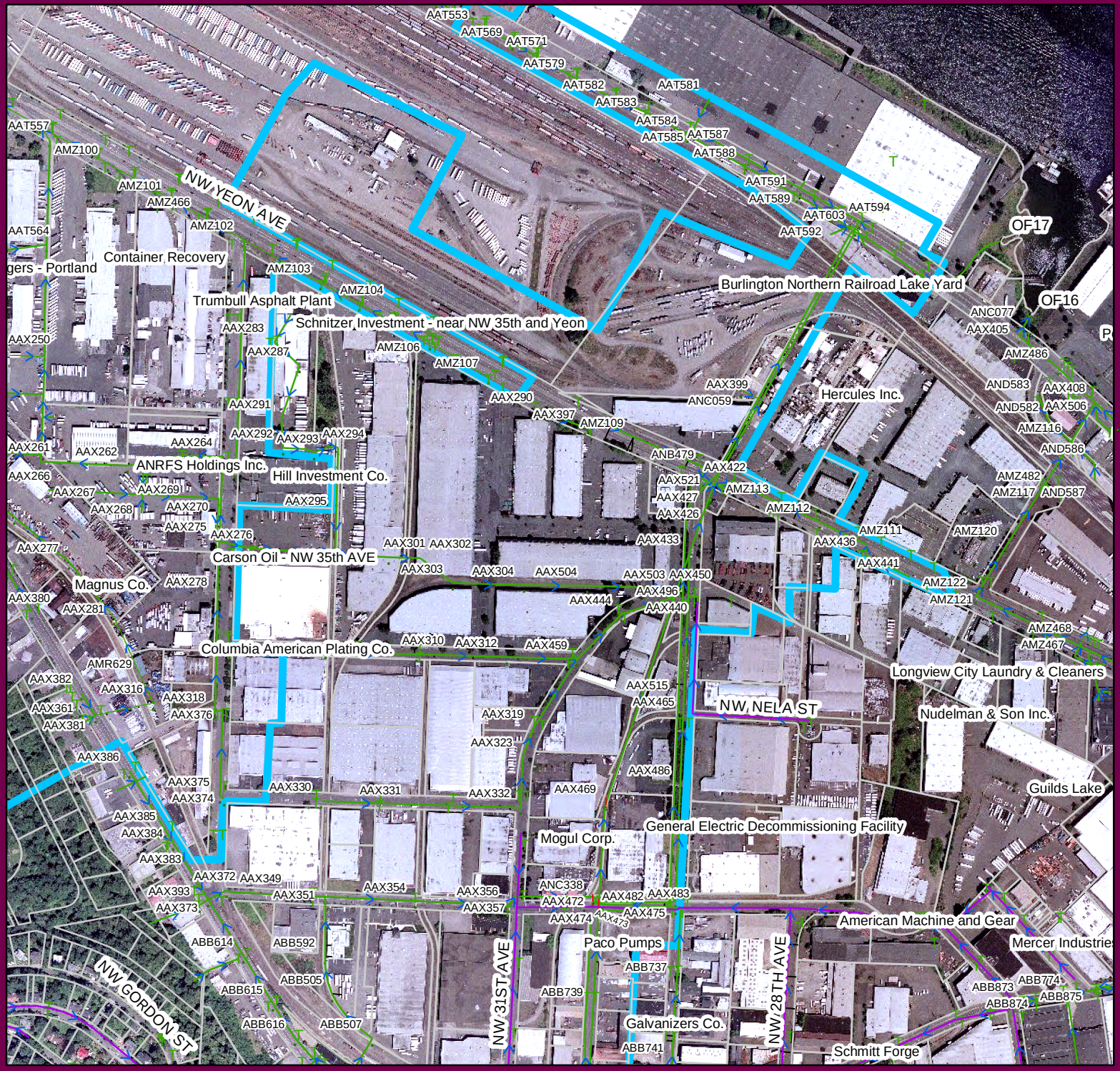
Attachment A – *Field Photographs*
Attachment B – *Field Notes*
Attachment C – *Laboratory Results*

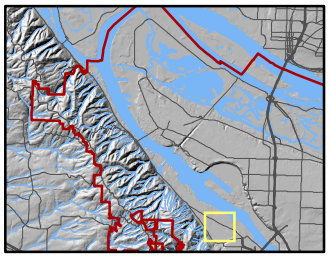
Table 1
Summary of Chemical Analytical Results
Inline Solids Sampling
City Outfall Basin 17

			Upstream ----------> Downstream					
			Inline solids	Inline solids	Inline solids	Inline solids	JSCS	JSCS
			IL-17-AAX473-0904-S	IL-17-AAX473-0904-E	IL-17-ANC338-0904	IL-17-AAX469-0904	Screening Level	Screening Level
Class	**Analyte**	Units	9/28/2004	9/28/2004	9/29/2004	9/29/2004	(Toxicity)[5]	(Bioaccumulation)[6]
Metals (EPA 6020)								
	Antimony	mg/Kg	1.15 J	1.56 J	0.75 J	0.78 J	64	10
	Arsenic	mg/Kg	7.02 J	11.8 J	2.52 J	3.61 J	33	--
	Cadmium	mg/Kg	1.34 J	1.30 J	0.50 J	1.26 J	4.98	0.003
	Chromium	mg/Kg	65.1 J	82.2 J	33.9 J	39.5 J	111	4200
	Copper	mg/Kg	95.8 J	54.5 J	33.6 J	85.6 J	149	10
	Lead	mg/Kg	170 J	71.3 J	80.9 J	113 J	128	128
	Mercury	mg/Kg	3.64 J	0.14 J	0.12 J	0.13 J	1.06	--
	Nickel	mg/Kg	30.7 J	35.2 J	20.6 J	24.4 J	48.6	316
	Silver	mg/Kg	2.46 J	0.23 J	0.22 J	0.40 J	5	--
	Zinc	mg/Kg	3780 J	26600 J	363 J	7010 J	459	3
Polychlorinated Biphenyls (EPA 8082)								
	PCB 1242	µg/Kg	10.8 UJ	17.8 UJ	122 UJ	1840 J	--	2
	PCB 1260	µg/Kg	324 J	324 J	2140 J	4400 J	200	--
	Total PCBs	µg/Kg	324	324	2140	6240	676	
PAHs (EPA 8270-SIM)								
	Acenaphthene	µg/Kg	219 UJ	37.6 UJ	36.3 J	32.3 UJ	300	--
	Anthracene	µg/Kg	497 J	37.6 UJ	22.6 UJ	32.3 UJ	845	--
	Benzo(a)anthracene	µg/Kg	219 UJ	37.6 UJ	39.8 J	32.3 UJ	1050	--
	Benzo(a)pyrene	µg/Kg	219 UJ	37.6 UJ	56.9 J	32.3 UJ	1450	--
	Benzofluoranthenes	µg/Kg	437 UJ	75.2 UJ	88.1 J	64.6 UJ	300	--
	Benzo(g,h,i)perylene	µg/Kg	219 UJ	37.6 UJ	66.2 J	75.9 J	1290	--
	Chrysene	µg/Kg	219 UJ	37.6 UJ	52.2 J	32.3 UJ	1300	--
	Fluoranthene	µg/Kg	895 J	37.6 UJ	101 J	125 J	2230	--
	Fluorene	µg/Kg	219 UJ	37.6 UJ	25.9 J	32.3 UJ	536	--
	Indeno(1,2,3-cd)pyrene	µg/Kg	219 UJ	37.6 UJ	42.5 J	32.3 UJ	100	--
	Phenanthrene	µg/Kg	903 J	37.6 UJ	63.2 J	106 J	1170	--
	Pyrene	µg/Kg	779 J	37.6 UJ	127 J	116 J	1520	--
Phthalates (EPA 8270-SIM)								
	Bis(2-ethylhexyl)phthalate	µg/Kg	2630 J	397 J	267 J	1630 J	800	330
	Di-n-butylphthalate	µg/Kg	1090 UJ	188 UJ	113 UJ	172 J	100	--
Other SVOCs (EPA 8270-SIM)								
	1,2,4-Trichlorobenzene	µg/Kg	547 UJ	94 UJ	56.5 UJ	3440 J	9200	--
	1,3-Dichlorobenzene	µg/Kg	547 UJ	94 UJ	56.5 UJ	345 J	300	--
	1,4-Dichlorobenzene	µg/Kg	610 J	94 UJ	56.5 UJ	400 J	300	--
Total Petroleum Hydrocarbons - Hydrocarbon Identification (NWTPH-HCID Method)								
	Gasoline	mg/Kg	Detected	20 UJ	20 UJ	20 UJ	--	--
	Heavy Fuel Oil	mg/Kg	100 UJ	Detected	100 UJ	100 UJ	--	--
	Lube Oil	mg/Kg	Detected	Detected	100 UJ	100 UJ	--	--
Total Petroleum Hydrocarbons - Diesel Extended Range (NWTPH-Dx Method)								
	#6 Fuel Oil	mg/Kg	500 UJ	216 J	NA	NA	--	--
	Motor Oil	mg/Kg	774 J	519 J	NA	NA	--	--
Total Petroleum Hydrocarbons - Gasoline Extended Range (NWTPH-Gx Method)								
	Gasoline range hydrocarbons	mg/Kg	7.66 J				--	--

Notes:

J = The analyte was detected and has been qualified as an estimated quantity.
U = The analyte was not detected above the reported sample quanitfication limit.
UJ = The analyte was not detected above the the reported sample quantification limit; the quantitation limit is estimated.
µg/Kg = micrograms per kilogram dry weight; mg/Kilogram = milligrams per kilogram dry weight.
JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005).
(5) MacDonald PEC and other SQV's Screening level for Soil/Catch Basin Sediment.
(6) DEQ 2001 Bioaccumulative Sediment SLV's Screening level for Soil/Catch Basin Sediment.
-- No JSCS screening level available.
Only compounds detected in one or more samples are shown on Table 1, see Attachment C for complete laboratory results.





Legend

- Storm Inlets
- Storm Pipe
- Combined Pipe
- Manhole
- Taxlots
- 17 Basin Boundary
- Sample Location

0 250 500 1000 Feet

DEQ Environmental Cleanup Sites (ECSI) sites shown on map

Figure 1
Outfall 17
Inline Solids Sampling
Basin Overview
Sample Date: 9/28/04 & 9/29/04

Source: City of Portland BES Aerial photo 2004	Environmental Services City of Portland 1120 SW Fifth Avenue, Room 1000 Portland Oregon, 97204-1912
File Name: s:\gis\outfalls\outfalls_17\overview021406_sg.mxd	Program Manager: Dawn Sanders Portland Harbor Superfund
Sheet No. 1 OF 1	Date Printed: 02/14/2006 Prepared by: Sara Gardner

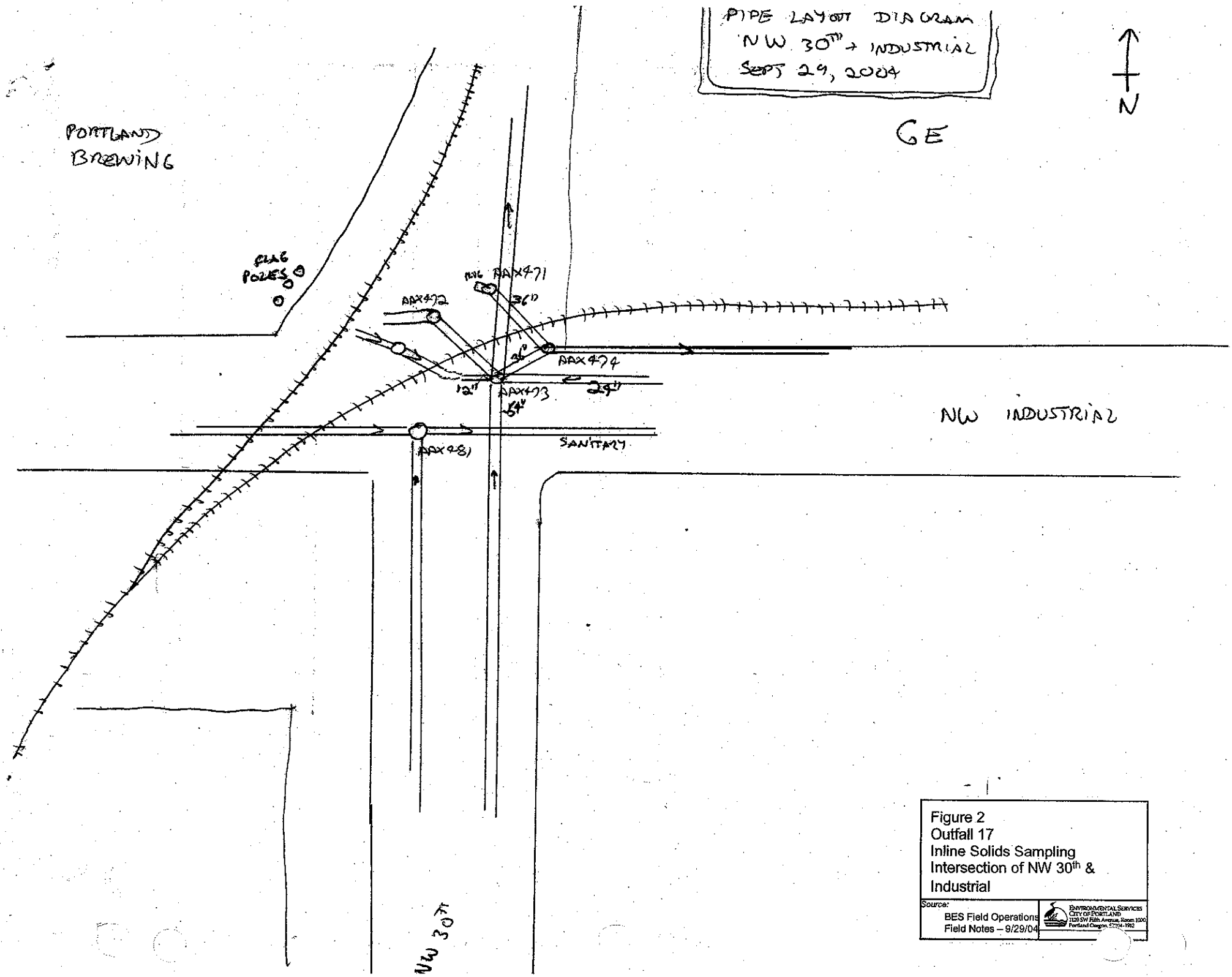
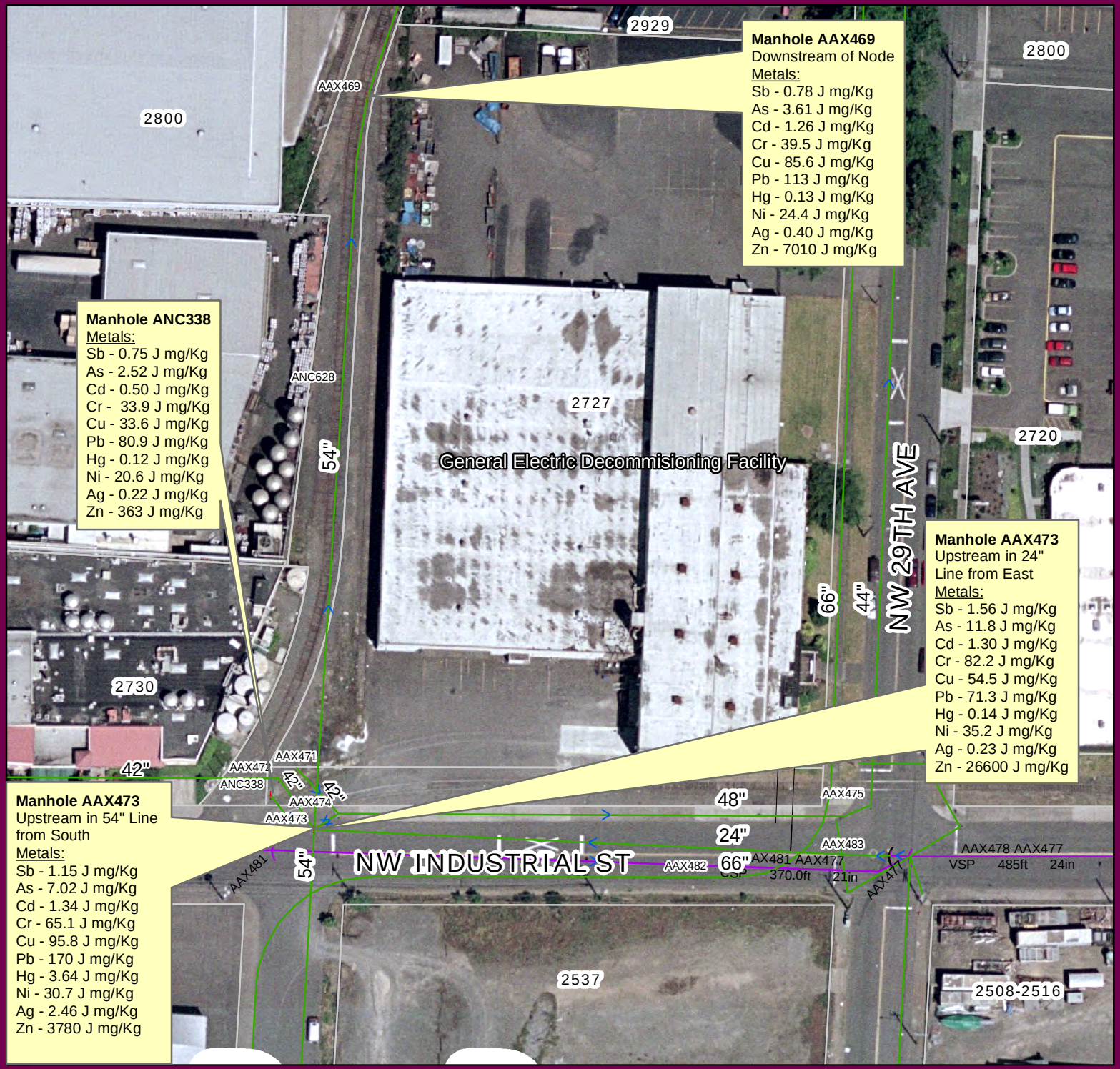
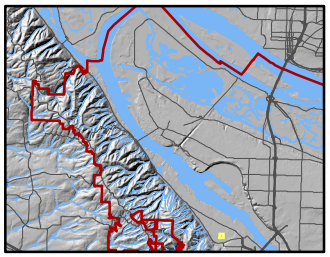


Figure 2
Outfall 17
Inline Solids Sampling
Intersection of NW 30th & Industrial

Source:
BES Field Operations
Field Notes – 9/29/04

Environmental Services
City of Portland
1120 SW Fifth Avenue, Room 1000
Portland, Oregon 97204-1912





Legend

- Storm Inlets
- Storm Pipe
- Combined Pipe
- Manhole
- Taxlots
- Sample Location

0 250 500 1000 Feet

Note: Only detected constituents are shown.

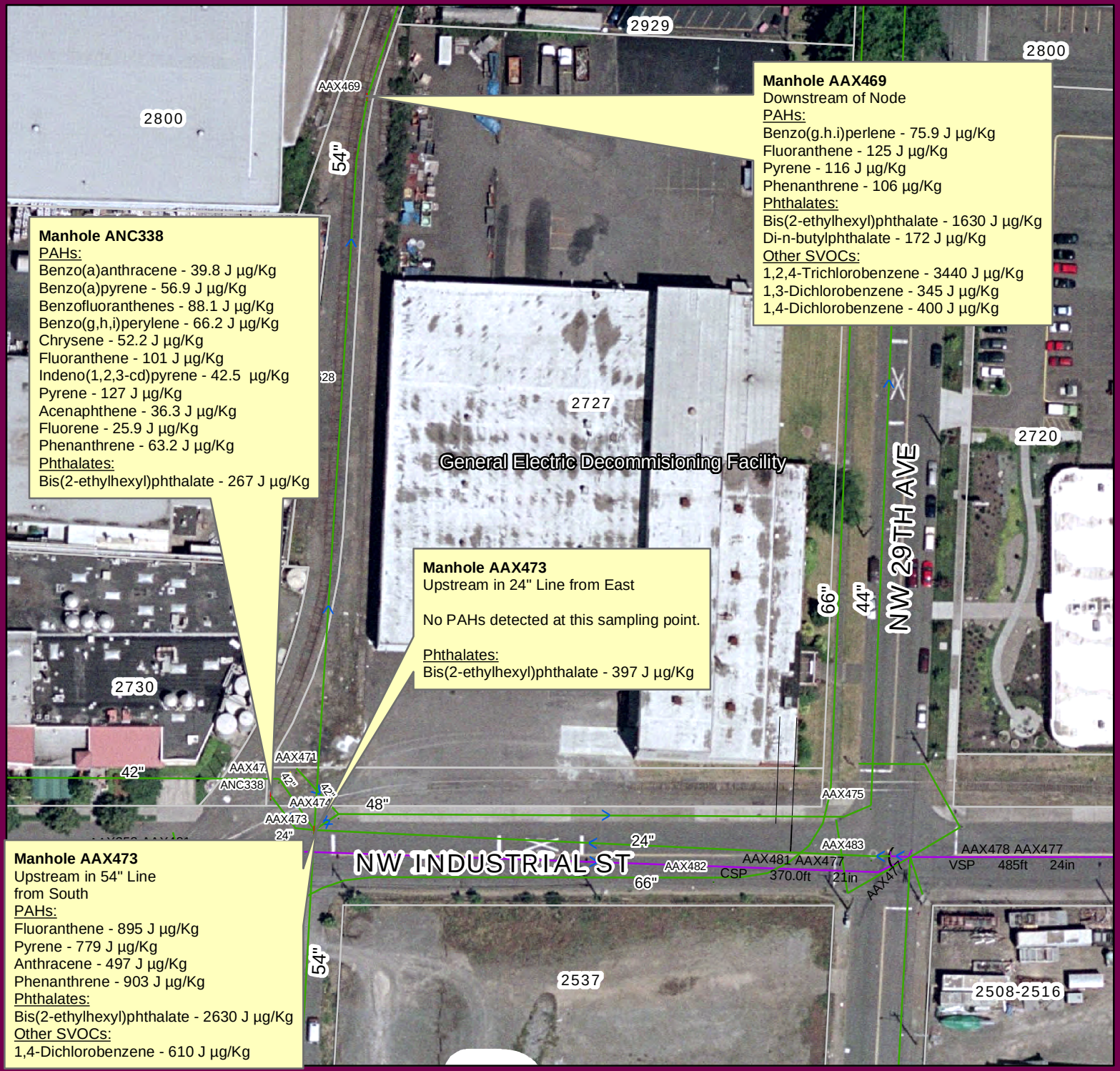
mg/Kg = milligrams/Kilogram dry weight

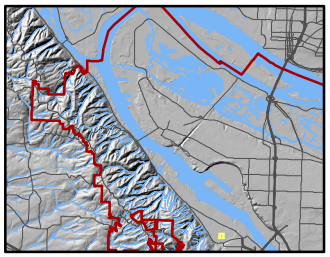
DEQ Environmental Cleanup Sites (ECSI) sites shown on map

J = Estimated Value

Figure 3
Outfall 17
Inline Solids Samples
Metals
Sample Date: 9/28/04 & 9/29/04

Source: City of Portland BES Aerial photo 2004	Environmental Services City of Portland 1120 SW Fifth Avenue, Room 1000 Portland Oregon, 97204-1912
File Name: s:\gis\outfalls\outfalls_17\of17_figure2_021305_sg.mxd	Program Manager: Dawn Sanders Portland Harbor Superfund
Sheet No. 1 OF 1	Date Printed: 02/13/2006 Prepared by: Sara Gardner





Legend

- Storm Inlets
- Storm Pipe
- Combined Pipe
- Manhole
- Taxlots
- Sample Location

0 250 500 1000 Feet

Note: Only detected constituents are shown.

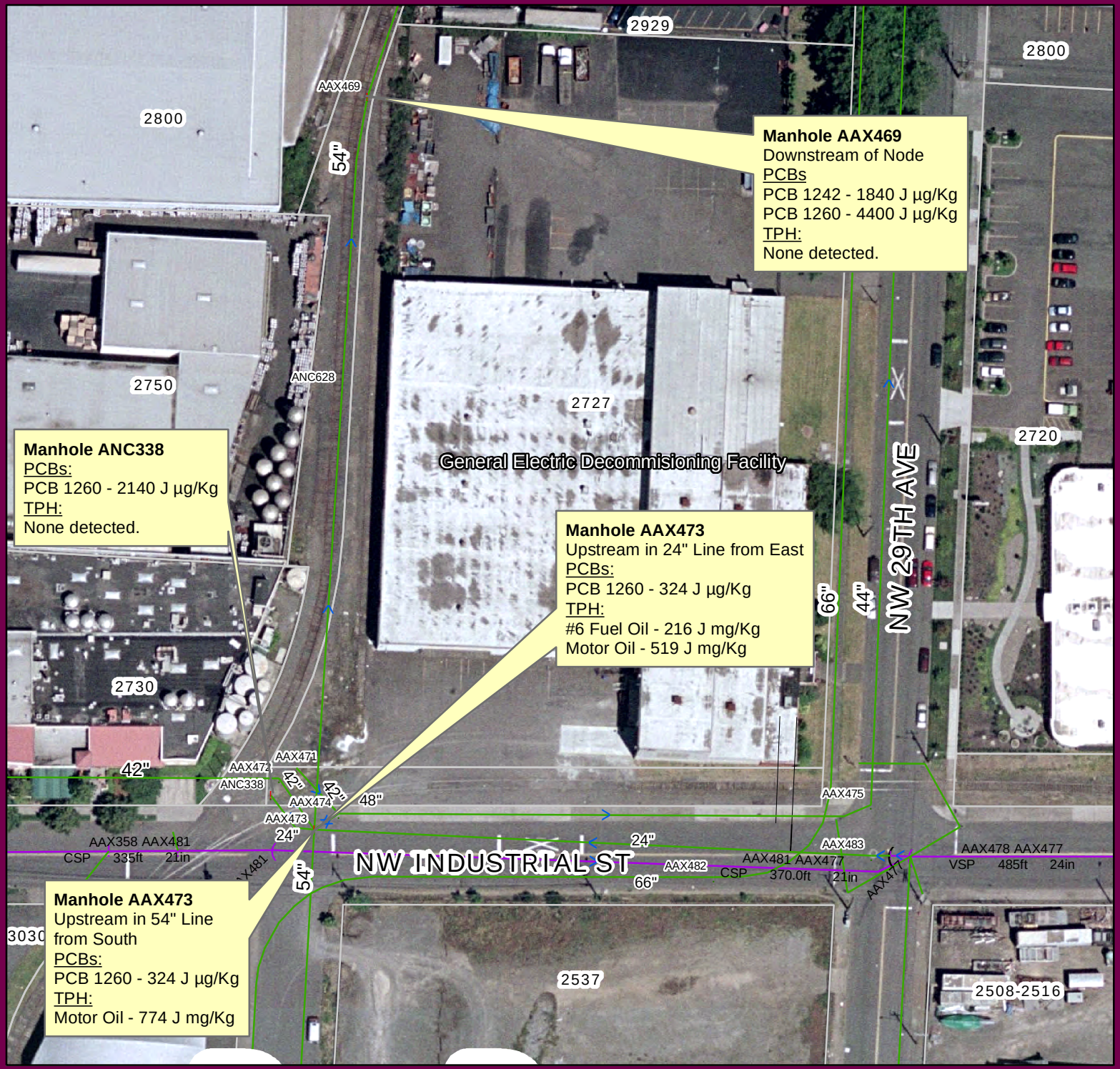
µg/Kg = micrograms/Kilogram dry weight

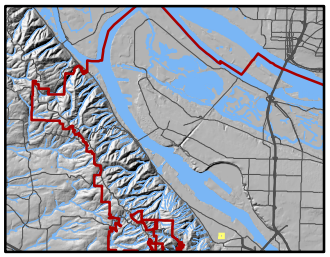
DEQ Environmental Cleanup Sites (ECSI) sites shown on map

J = Estimated Value

Figure 4
Outfall 17
Inline Solids Samples
SVOCs
Sample Date: 9/28/04 & 9/29/04

Source: City of Portland BES Aerial photo 2004	Environmental Services City of Portland 1120 SW Fifth Avenue, Room 1000 Portland Oregon, 97204-1912
File Name: s:\gis\outfalls\outfalls_17\of17_figure2_021305_sg.mxd	Program Manager: Dawn Sanders Portland Harbor Superfund
Sheet No. 1 OF 1	Date Printed: 02/13/2006 Prepared by: Sara Gardner





Legend

- Storm Inlets
- Storm Pipe
- Combined Pipe
- Manhole
- Taxlots
- Sample Location

0 250 500 1000 Feet

Note: Only detected constituents are shown.

µg/Kg = micrograms/Kilogram dry weight

mg/Kg = milligrams/Kilogram

DEQ Environmental Cleanup Sites (ECSI) sites shown on map

J = Estimated Value

Figure 5
Outfall 17
Inline Solids Samples
PCBs and Total Petroleum Hydrocarbons (TPH)
Sample Date: 9/28/04 & 9/29/04

Source: City of Portland BES Aerial photo 2004	Environmental Services City of Portland 1120 SW Fifth Avenue, Room 1000 Portland Oregon, 97204-1912
File Name: s:\gis\outfalls\outfalls_17\ of17_figure4_021305_sg.mxd	**Program Manager:** Dawn Sanders Portland Harbor Superfund
Sheet No. 1 OF 1	**Date Printed:** 02/13/2006 **Prepared by:** Sara Gardner

Attachment A
Field Photographs

Attachment A:
Field Photographs

Photo 1 (September, 2004). Sampling location for solids collected from this 54-inch-diameter line upstream of manhole AAX473. The line runs from the south (NW 30th Avenue) to the river.

Photo 2 (September, 2004). Solids collected from the 54-inch line upstream of node AAX473.

Photo 3 (September, 2004). Incoming 24-inch-diameter line at node AAX473; this line enters the 54-inch-diameter line shown in Photo 1 from the east. Solids were collected from this line.

Photo 4 (September, 2004). Solids collected from the 24-inch line, upstream from the connection to the 54-inch line at node AAX473.

Photo 5 (September, 2004). Location of node ANC338.

Photo 6 (September, 2004). Incoming 12-inch-diameter line at node ANC338; this line enters the manhole from the west. The sampling crew noted that the line is in poor condition. Solids were collected from 12-inch-diameter line.

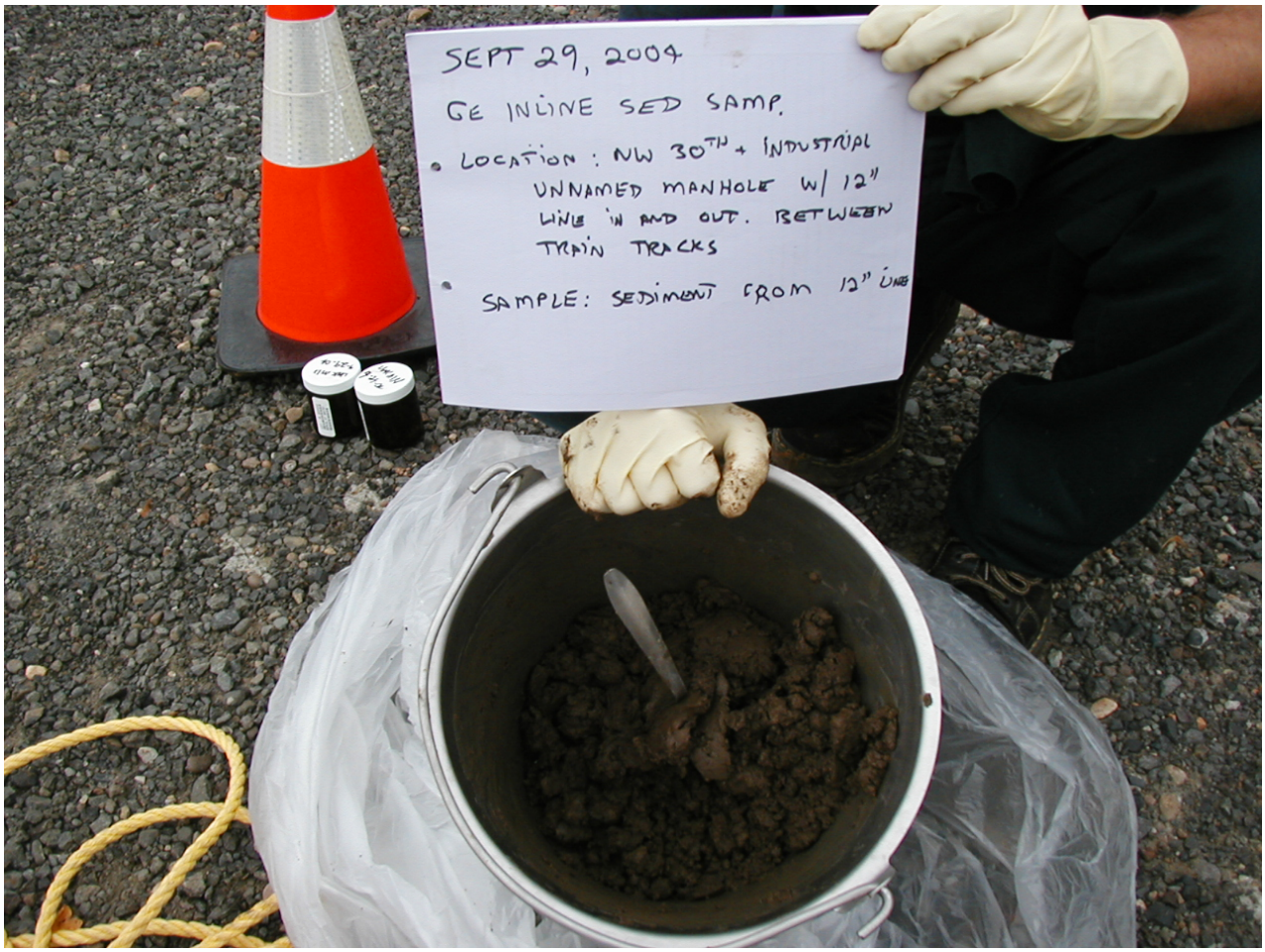


Photo 7 (September, 2004). Solids collected from the 12-inch line at node ANC338.

Photo 8 (September, 2004). Location of node AAX469.

Photo 9 (September, 2004). Solids were collected from the line at node AAX469. Debris (paint chips, metal chips and a drowned rat) was noted in the water.

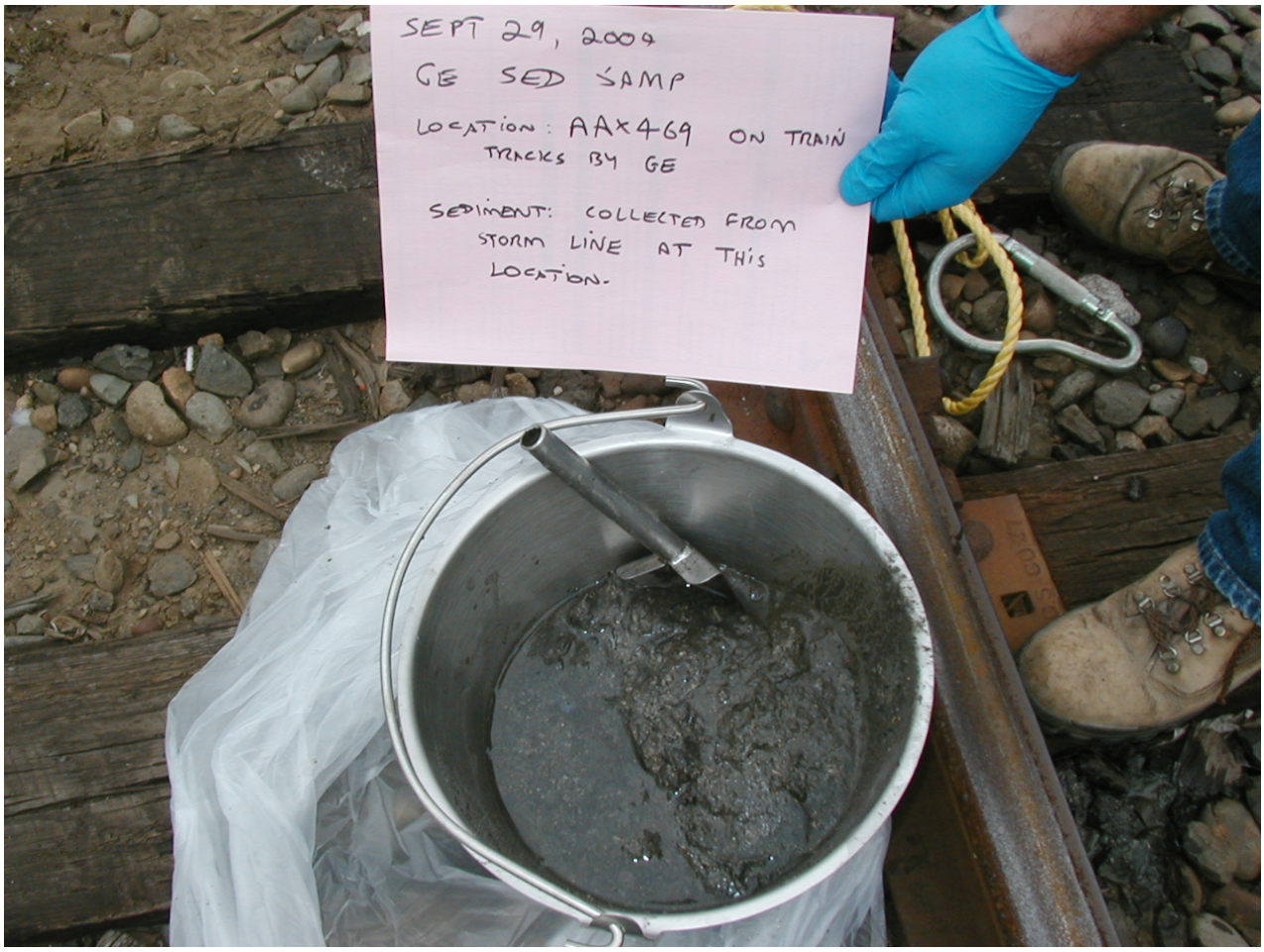


Photo 10 (September, 2004). Sample collected from the line at node AAX469.

Attachment B
Field Notes

Attachment B
Field Notes

City of Portland
Environmental Services

DAILY FIELD REPORT

Page 1 of 3

Project GE INLINE SED SAMPLING — Project No. 1020.002
Location NW INDUSTRIAL PORTLAND — Date 9-28-04
Subject FIELD NOTES — By MJH

9:00 Meet, AMEC JOE BASSIO.
PROCEED TO ABB738 AS DIRECTED BY JOE. THIS IS ONE OF THE TWO MOST UPSTREAM SITES.

9:19 NO SEDS.

9:25 MOVE DOWN STREET TO NEXT MH AAX 485.
NO SEDIMENTS AT THIS LOCATION.

9:40 MOVE down to intersection of NW 28TH + INDUSTRIAL.
NODE: AAX478
NO SEDS

1010 MOVE UP ROAD (INDUSTRIAL) TO AAX479.
SMALL AMOUNTS OF SEDS. BEST EFFORTS COLLECTED ABOUT 3 oz OF MATERIAL. SAMPLE COLLECTED INTO 4 oz JAR BY AMEC. CITY OF PORTLAND HAS NO SAMPLE AT THIS SITE DUE TO LACK OF MATERIAL IN LINE.

1059 MOVE TO AAX481. THIS is LOCATED ON NW INDUSTRIAL AT THE INTERSECTION OF NW 30TH AVE. (NEAR PORTLAND BREWING.
SMALL AMOUNT OF SAMPLE-ABLE SEDS AT THIS LOCATION.
USED BEST EFFORTS TO COLLECT AS MUCH AS POSSIBLE.
SAMPLE FILLED 1¼ 4-OZ SAMPLE JARS. SAMPLE KEPT BY AMEC - NO SAMPLE KEPT BY US.

1130 MOVE TO AAX 473 ENTER AND INVESTIGATE
DESCRIPTION OF PIPING OBSERVED IN AAX473 -
AT BOTTOM OF M.H. IS A 54" BASKET HANDLE SHAPED LINE RUNNING FROM 30TH AVE

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project GE SEDIMENT SAMPLING
Project No. 1020.002
Location NW PORTLAND
Date 9-28-09
Subject FIELD NOTES
By MJH

UNDER THE TRAIN TRACKS. THE FLOW IS GOING TOWARD THE RIVER (~~EA~~ LINE RUNS FROM SOUTH TO THE NORTH).
ALSO AT BOTTOM OF MH IS A 24" LINE UNDER NW INDUSTRIAL WAY RUNNING FROM THE EAST RUNNING INTO THE MH. THERE IS ALSO A 12" LINE RUNNING INTO THE MH FROM THE WEST.
ABOUT 6 FEET ABOVE THE FLOOR OF THE MH IS A 36" LINE RUNNING DIAGONALLY NORTH AND EAST, AND THIS LINE GOES TO AAX474 ABOUT 10' DOWN. THIS LINE IS SLOPED TO RUN INTO AAX-474.
LASTLY → AT AAX 474 ONE LINE WAS OBSERVED RUNNING OUT TO THE EAST ALONG NW INDUSTRIAL WAY AND TWO LINES RUN INTO IT, ONE FROM AAX 473 (AS DESCRIBED PREVIOUSLY, AND ONE LINE FROM MH AAX 471.

AFTER MUCH DISCUSSION AND INVESTICATION WE BELIEVE WE UNDERSTAND THE PIPE LAYOUT HERE.
JOE DIRECTS US TO COLLECT A SEDIMENT SAMPLE FROM UPSTREAM OF AAX473 IN BOTH THE 54" and 24" LINE.

1243 COLLECTED SAMPLE FROM 54" LINE
1245 COLLECTED SAMPLE FROM 24" LINE.
TOOK pictures OF BOTH SAMPLES. SEDIMENTS WERE HOMOGINIZED AND COLLECTED INTO GLASS SAMPLE CONTAINERS. SAMPLE CONTAINERS WERE MARKED

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project GE SEDIMENT SAMPLING
Project No. 1020.002
Location NW PORTLAND
Date 9-28-04
Subject FIELD NOTES
By MJH

WITH A UNIQUE ID AND PLACED IN CHILLED COOLER. THERE WAS ENOUGH SAMPLE AT BOTH LOCATIONS FOR THE CITY AND AMEC TO GET SAMPLE.

NOTE ON SEDIMENTS: SEDS FROM 54" LINE WERE A GRAVELLY-SANDY MIXTURE, HOWEVER SEDS IN THE 24" LINE WERE A BRIGHT ORANGE FINE GRAINED MATERIAL, THAT WE IDENTIFIED AT PREVIOUS LOCATIONS AS A PRECIPITATE FROM GROUNDWATER INFILTRATE.

1:10 BREAK FOR LUNCH. DECIDE TO RECONVENE HERE TOMORROW AT 8:00.

Attachments

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

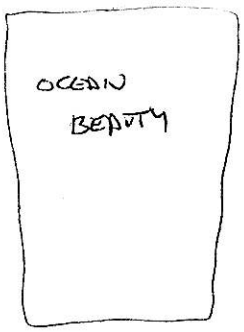
SEDIMENT SAMPLING FIELD DATA SHEET

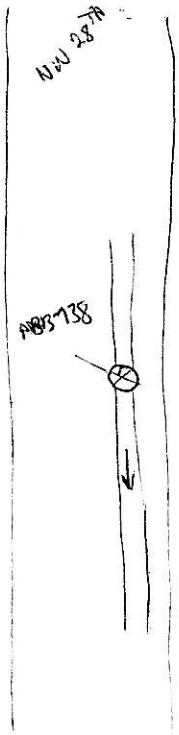
Date: 9-28-04	Time: 0916	Current Weather conditions: SUNNY 70's
Sampling Team Present: MJN / MKS / JDN		
Basin:	Node: ABB738	Subbasin:
Sampling Location Description/Address: MIDDLE OF NW 28TH ST ACROSS FROM OCEAN BEAUTY		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	½" SANITARY / or I+I
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	VERY MINOR
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





CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

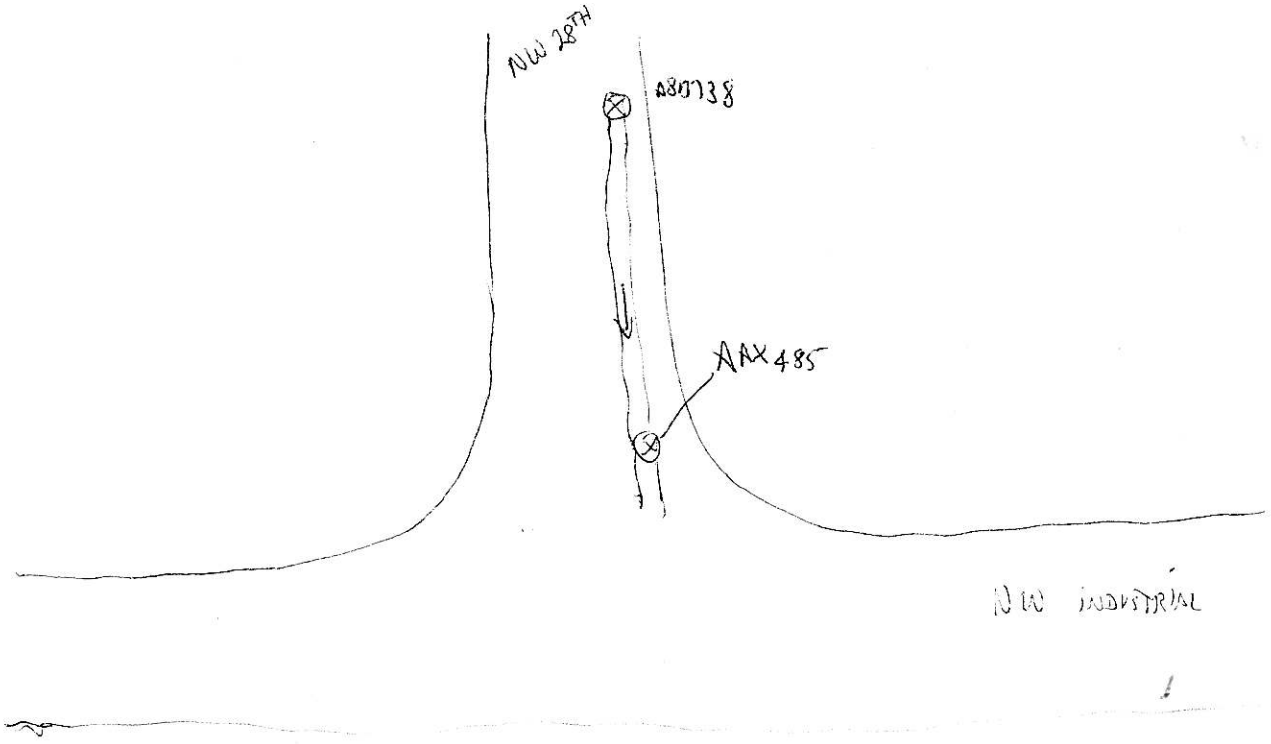
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9/28/04	Time: 0934	Current Weather conditions: SUNNY 70's
Sampling Team Present: MJH/MKS/DJD		
Basin:	Node: AAX 485	Subbasin:
Sampling Location Description/Address: INTERSECTION OF NW 28TH + NW INDUSTRIAL		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	½" FLOW
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



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

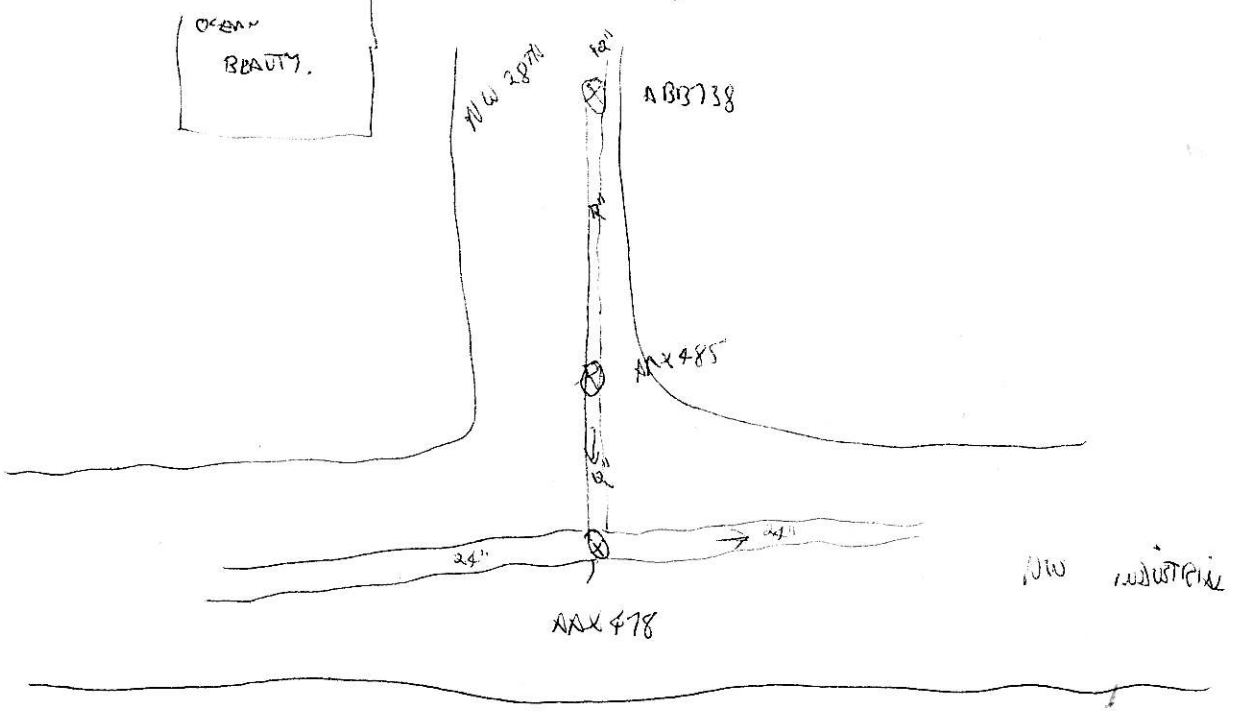
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9/28/04	Time: 0954	Current Weather conditions: SUNNY 70's
Sampling Team Present: MJH / MKS / DJH		
Basin:	Node: AAX 478	Subbasin:
Sampling Location Description/Address: INTERSECTION OF NW 28TH + INDUSTRIAL - MH IS ON INDUSTRIAL		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	SANITARY + I+I
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES - VERY MINOR
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



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ENVIRONMENTAL SERVICES

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

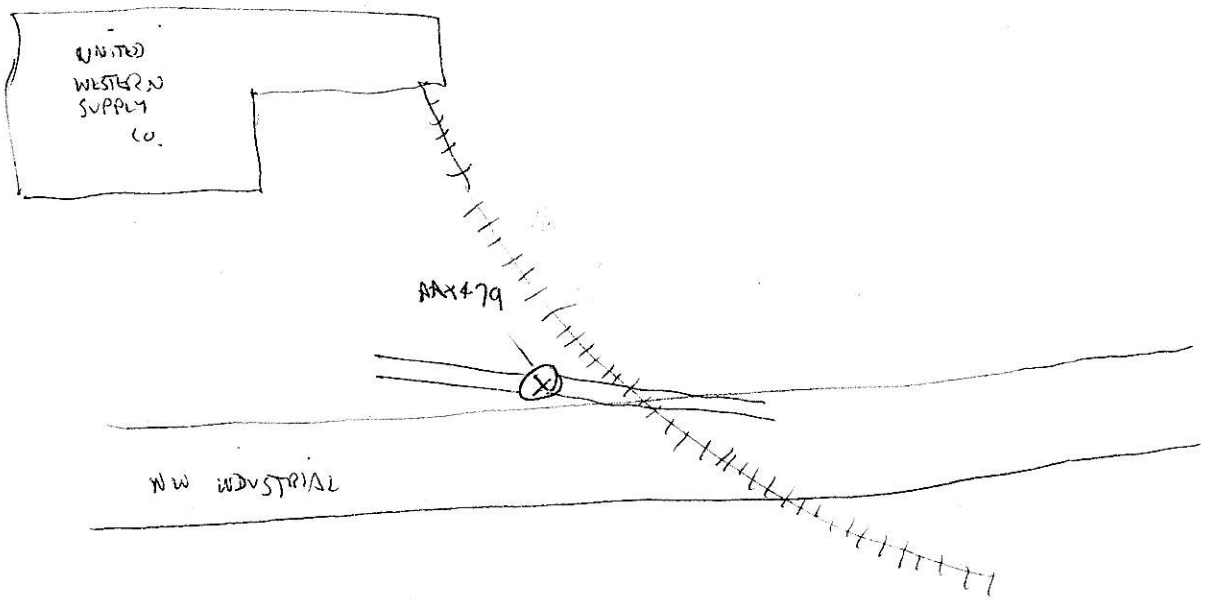
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9/28/04	Time:	Current Weather conditions: SUNNY 70's
Sampling Team Present: MJH / MKS / DJH		
Basin:	Node: AAX ~~444~~ 479	Subbasin:
Sampling Location Description/Address: ON NW INDUSTRIAL BY TRAIN TRACKS AT UNITED WESTERN SUPPLY CO		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	6" OF BARELY STANDING WATER. 18" DIA LINE
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:	PRESENT IN NODE. PRESUMED THAT THEY EXTEND FURTHER BUT COULD NOT SEE.

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



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AAX 479

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☒ Per SOP7.01a ☐ Other (Describe)
Sample date: 9-28-04	Sample time: 1035
Sample Identification: (IL-XX-NNNNNN-mmyy)	
Sample location description: (number of feet from node of entry)	AT NODE AAX 479
Sample collection technique:	SAMPLE COLLECTED INTO SS BUCKET USING SS SPOON.
Describe Color of sample:	BLACK + WHITE GRAINS
Describe Texture/Particle size:	SANDY W/ CHIPS OF PAINT + METAL.
Describe visual or olfactory evidence of contamination:	NO
Desacribe depth of solids in area where sample collected:	1/8"
Describe amount and type of debris in sample:	—
Compositing notes:	— ALL SAMPLE COLLECTED INTO 1 4oz JAR

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	Lab ID Number:
Describe any deviations from standard procedures:	SMALL AMOUNT OF SAMPLE COLLECTED INTO 1 4oz JAR. THAT JAR IS IN CUSTODY OF AMEC. COP BEES DID NOT HAVE A SAMPLE.

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

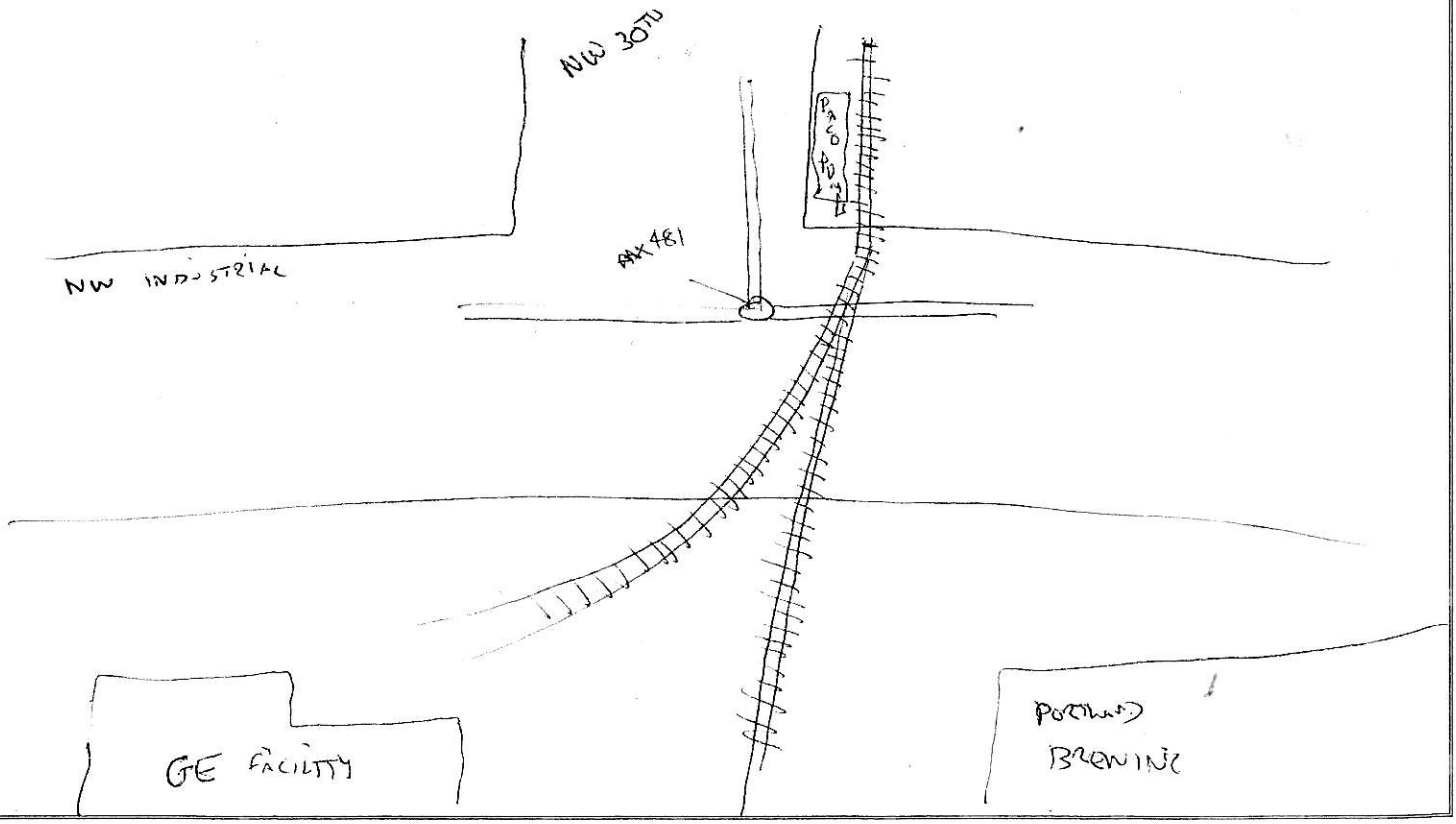
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9/25/02	Time: 1103	Current Weather conditions: SUNNY 70'S
Sampling Team Present: MJH | MKS | DJP		
Basin:	Node: ADX481	Subbasin:
Sampling Location Description/Address: AT INTERSECTION OF NW INDUSTRIAL + NW 30TH, BY PORTLAND BREWING		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	1 to 3" OF FLOW IN NODE
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO.
Are sediments observed in the line?	YES - UPSTREAM OF NODE IN MAIN LINE
Are sample-able quantities of sediments present in the line?	YES - BUT NOT ENOUGH FOR FULL VOLUME
Describe lateral extent of sample-able sediments present in the line:	ABOUT 1' JUST UPSTREAM OF MH.

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



SECTION 2 - SAMPLE COLLECTION REPORT

Node: MH 481

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☐ Per SOP7.01a ☐ Other (Describe)
Sample date: 9-28-04	Sample time: 1120
Sample Identification: (IL-XX-NNNNNN-mmyy)	
Sample location description: (number of feet from node of entry)	JUST UPSTREAM OF MH
Sample collection technique:	SEDIMENTS COLLECTED INTO SS BUCKET USING SS SPOON
Describe Color of sample:	BLACK
Describe Texture/Particle size:	GRAVEL + SAND.
Describe visual or olfactory evidence of contamination:	NONE
Desacribe depth of solids in area where sample collected:	1/4"
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	Lab ID Number:
Describe any deviations from standard procedures:	SMALL AMOUNT OF SEDS @ THIS LOCATION. SEDS COLLECTED INTO 1/4 4-OZ SOIL JARS. SAMPLE KEPT BY DMEC.

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

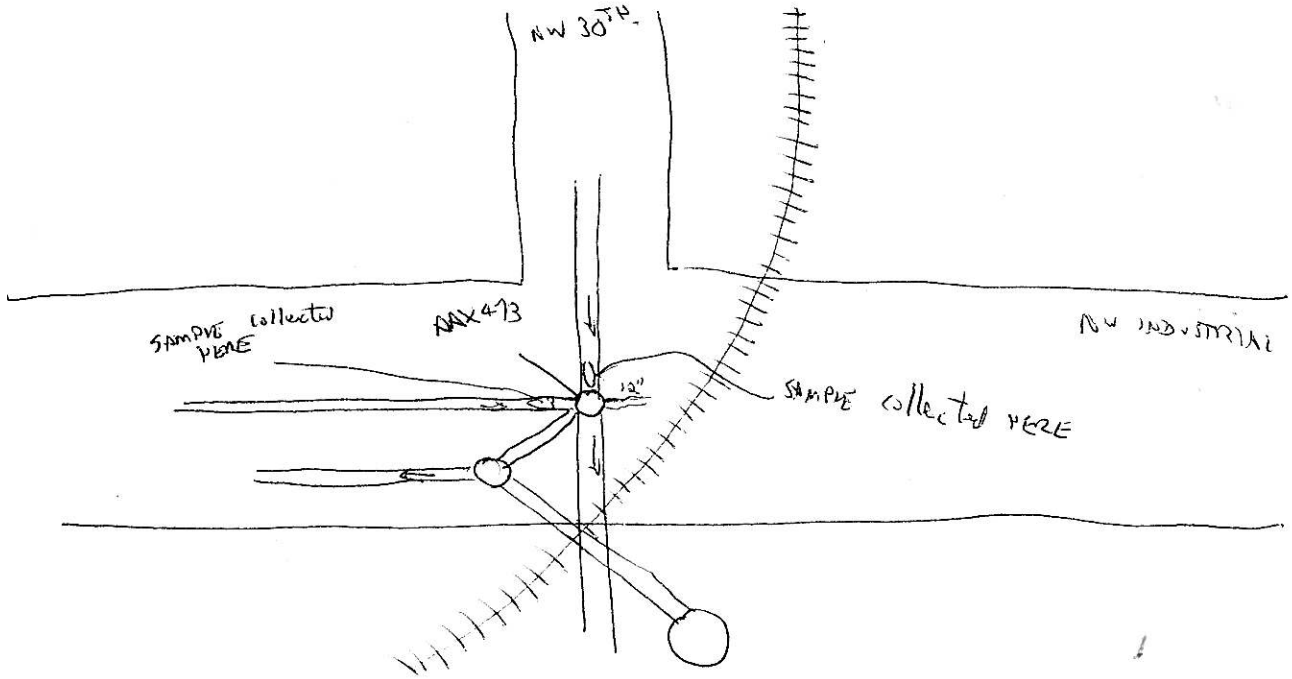
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9/28/04	Time: 1130	Current Weather conditions:	SUNNY 70's
Sampling Team Present:	MJH / MKS / DJH		
Basin:	Node: NAX 473	Subbasin:	
Sampling Location Description/Address:	INTERSECTION OF NW 30TH + INDUSTRIAL		
54" LINE			

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	5th OF STANDING WATER	1/4 IS OF 24 IN FLOWING
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES	NO
Are sediments observed in the line?	YES	YES - GROUNDWATER PRESENT
Are sample-able quantities of sediments present in the line?	YES	YES
Describe lateral extent of sample-able sediments present in the line:	ALONG ENTIRE LINE 0-10"	AT LEAST 20' UPSTREAM 2"-6" DEEP

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



CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9/25/04	Time: 1130	Current Weather conditions: SUNNY 70's
Sampling Team Present: MJH / MKS / DJH		
Basin:	Node: AAX 473	Subbasin:
Sampling Location Description/Address: INTERSECTION OF NW 30TH + INDUSTRIAL 24" LINE		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	4" OF I+I
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	YES - GW PRECIP
Are sample-able quantities of sediments present in the line?	YES
Describe lateral extent of sample-able sediments present in the line:	AT LEAST 20' UPSTREAM 2" - 6" DEEP

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

SEE SHEET FOR AAX 473 - 54" LINE

SECTION 2 - SAMPLE COLLECTION REPORT

Node: AAX473

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☒ Per SOP7.01a ☐ Other (Describe)
Sample date: 9-28-04	Sample time: 1245
Sample Identification: (IL-XX-NNNNNN-mmyy)	IL-17-AAX473 - 24" LINE - 0904
Sample location description: (number of feet from node of entry)	UPSTREAM FROM NODE IN 24" LINE
Sample collection technique:	SS SPOON USED TO COLLECT SAMPLE INTO SS BUCKET
Describe Color of sample:	Lt BROWN
Describe Texture/Particle size:	Lt Brow clay. Similar to GROUNDWATER PRECIPITATE
Describe visual or olfactory evidence of contamination:	NO
Desacribe depth of solids in area where sample collected:	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	Lab ID Number:
Describe any deviations from standard procedures:	

SECTION 2 - SAMPLE COLLECTION REPORT

Node: AAx473

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☒ Per SOP7.01a ☐ Other (Describe)
Sample date: 9-28-04	Sample time: 1243
Sample Identification: (IL-XX-NNNNNN-mmyy) IL-17-AAx473-54"LINE-0904	
Sample location description: (number of feet from node of entry)	UPSTREAM FROM NODE IN 54" LINE
Sample collection technique:	SS SPOON USED TO SCOOP SEDIMENTS INTO SS BUCKET. BUCKET RAISED TO SURFACE.
Describe Color of sample:	BLACK
Describe Texture/Particle size:	Gravelly w/ sand
Describe visual or olfactory evidence of contamination:	NO
Desacribe depth of solids in area where sample collected:	10"
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?	YES (BY AMEC)
Duplicate sample fictitious identification # on COC:	N/A
Samples placed in chilled cooler? (Y)/N	
Samples delivered to lab? Y/N	Lab ID Number:
Describe any deviations from standard procedures:	

City of Portland
Environmental Services

DAILY FIELD REPORT

Project GE SED SAMP
Project No. 1020.002
Location NW INDUSTRIAL
Date 9-29-04
Subject FIELD NOTES
By MJH

800 MEET JOE AT NW 30TH + INDUSTRIAL. TO CONTINUE SED SAMPLING.

OBSERVED PIPES DO NOT MATCH MAPS. INVESTIGATE TO INCREASE UNDERSTANDING. WE ENTER ALL OF THE MH'S AND HERE IS A COMPLETE DISCRIPTION OF THE PIPING IN THIS AREA.

THERE ARE SIX NODES AT THE INTERSECTION OF NW 29TH + INDUSTRIAL, ALTHOUGH THE MAP ONLY SHOWS FIVE. YESTERDAY (9/28) WE WENT DOWN AAX 481, AAX 473 AND AAX 474. AAX 481 IS A SANITARY LINE RUNNING EAST ALONG NW INDUSTRIAL, WITH A LINE COMING INTO IT FROM THE SOUTH ALONG NW 30TH. AAX 473 HAS A LARGE 54" LINE RUNNING NORTH TO THE RIVER, AND HAS A 24" LINE RUNNING INTO IT FROM THE EAST, AND A 12" LINE COMING IN FROM THE WEST. (THESE ARE ALL AT THE BOTTOM OF THE NODE). ABOUT 6' ABOVE THAT IS A 36" LINE RUNNING NW INTO AAX 474. AAX 474 RECIEVES THE LINE FROM AAX 473, AND HAS A LINE RUNNING OUT TO THE EAST ALONG NW INDUSTRIAL. THERE IS ALSO A LINE COMING IN FROM THE NORTH EAST FROM AAX 471.

AAX 471 HAS THE LINE RUNING OUT TO AAX 474 BUT THERE IS ALSO A PLUGGED LINE ON THE WEST SIDE OF THE MH. (THIS DIFFERS FROM THE MAP THAT SHOWS A LINE FROM AAX 472 TO AAX 471)

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project GE SED SAMPLING. Project No. 1020.002

Location _____ Date 9-29-04

Subject FIELD NOTES By MH

NODE AAX472 HAS A LINE COMING IN FROM THE WEST, AND HAS A LINE COMING OUT TO THE SOUTH WEST GOING TOWARD AAX473.
TO THE SOUTH EAST OF AAX472 IS AN UNMAPPED MH. THERE IS A 12" LINE RUNNING INTO THIS FROM THE WEST AND RUNS OUT TO THE SOUTH EAST. IT IS ASSUMED JUST THIS RUNS INTO AAX473. THE CONDITION OF THE 12" LINE WAS POOR.

9:40 ENTER ~~FALL~~ UNMAPPED MH TO GET SEDIMENT SAMPLE AS DIRECTED BY AMEC. SEDIMENT COLLECTED FROM LINE AND IN NODE.

10:00 WE NOW MOVE OPERATIONS TO THE INTERSECTION OF NW INDUSTRIAL AND NW 29TH, DUE TO TRAFFIC CONTROL CONSIDERATIONS
DJN ARRIVES AT THE SITE.

10:20 ENTER AAX477. NODE IS DIFFERENT THAN MAPPED. THE MAP SHOWS A SANITARY LINE GOING EAST ALONG INDUSTRIAL AND THEN ANGLING INTO THE DIVERSION. THIS IS INCORRECT. THE SANITARY LINE CONTINUES EAST UNTIL IT HITS THE 12" LINE JUST UPSTREAM OF AAX477. FLOW ENTS AAX477 TO THE WEST INTO AAX484, A DIVERSION STRUCTURE. THE DIVERSION LEADS TO THE SANITARY LINE THAT RUNS NORTH ALONG NW 29TH.

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project GE SED SAMPLING
Project No. 1020-002
Location NW INDUSTRIAL,
Date 9-29-09
Subject FIELD NOTES
By MJH

WHEN THE DIVERSION OVERFLOWS, IT GOES TO AAX483. AT AAX483 THERE IS A HINGED VALVE HATCH THAT WOULD ALLOW FLOW FROM AAX484 TO PASS THROUGH, HOWEVER IT WOULD CLOSE IF THE LINE FROM AAX483 WERE TO BACK UP.
NO SEDIMENT IN AAX477.

1040 MOVE TO AAX483.
OBSERVE A HINGED VALVE COVER OVER LINE FROM AAX484 (SEE DISCUSSION ABOVE).
MINOR SEDIMENTS OBSERVED IN THIS LINE. COLLECTED ABOUT 3 oz.

1130 MOVE TO AAX469 - ON TRAIN TRACKS BETWEEN GE & PORTLAND BREWING.
NOTE - THERE IS UNMAPPED NOTE DIRECTLY BETWEEN GE & PORTLAND BREWING.
WE PROCEED FURTHER DOWN TRACK, PAST PORTLAND BREWING TO AAX469, WHICH IS SITUATED DIRECTLY ON THE TRACK
ALSO NOTE - CONTACTED BURLINGTON NORTHERN TO CONFIRM THAT TRACK IS NOT IN USE TODAY.
BILL FROM BN (Cell# 360-772-0721) IS PRESENT. HE ALIGNS THE SWITCH ON NW INDUSTRIAL TO DIVERT ANY TRAINS OFF OF OUR LINE. PURELY AS A SAFETY MEASURE,

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project GE SED SAMPLING
Project No. 1020.002
Location NW INDUSTRIAL
Date 9-29-04
Subject FIELD NOTES
By MTJJ

BECAUSE NO TRAINS ARE EXPECTED, WE STANDBY BY WHILE LINE WORK.

1202 ENTER MH 469. COLLECT SEDIMENT SAMPLE.

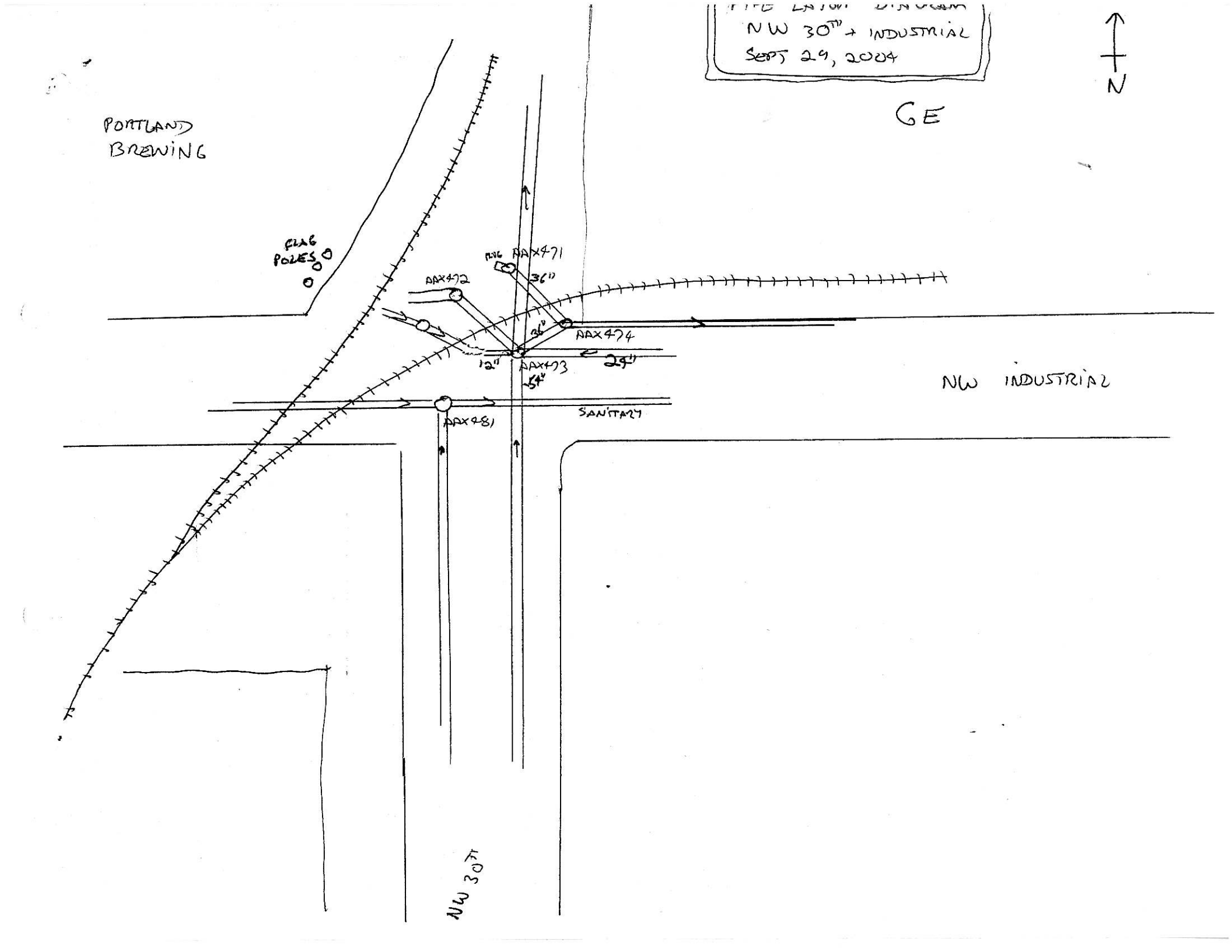
1230 I HAVE TO LEAVE FOR A MEETING, MATT JAM AND JOE CONTINUE ON.

THE PROCEED TO MH UPSTREAM FROM MH 477. CAR IS PARKED OVER MANHOLE, RESTRICTING ACCESS. VISUAL OBSERVATIONS SHOW NO SEDIMENT IN THE LINE.

THEY THEN PROCEED TO NEXT MH UP THE LINE. THIS IS THE BEGINING OF THE LINE. NO SEDIMENT THERE EITHER.

CREW calls it a DAY AND RETURNS TO THE LAB.

Attachments


NW 30TH + INDUSTRIAL
SEPT 29, 2004
N
GE
PORTLAND BREWING
FLAG POLES
MH
AAX471
36"
AAX472
36"
AAX474
12"
AAX473
54"
29"
NW INDUSTRIAL
SANITARY
AAX481
NW 30TH

PIPE LAYOUT DIAGRAM
NW 29TH + INDUSTRIAL
SEPT 29, 2004

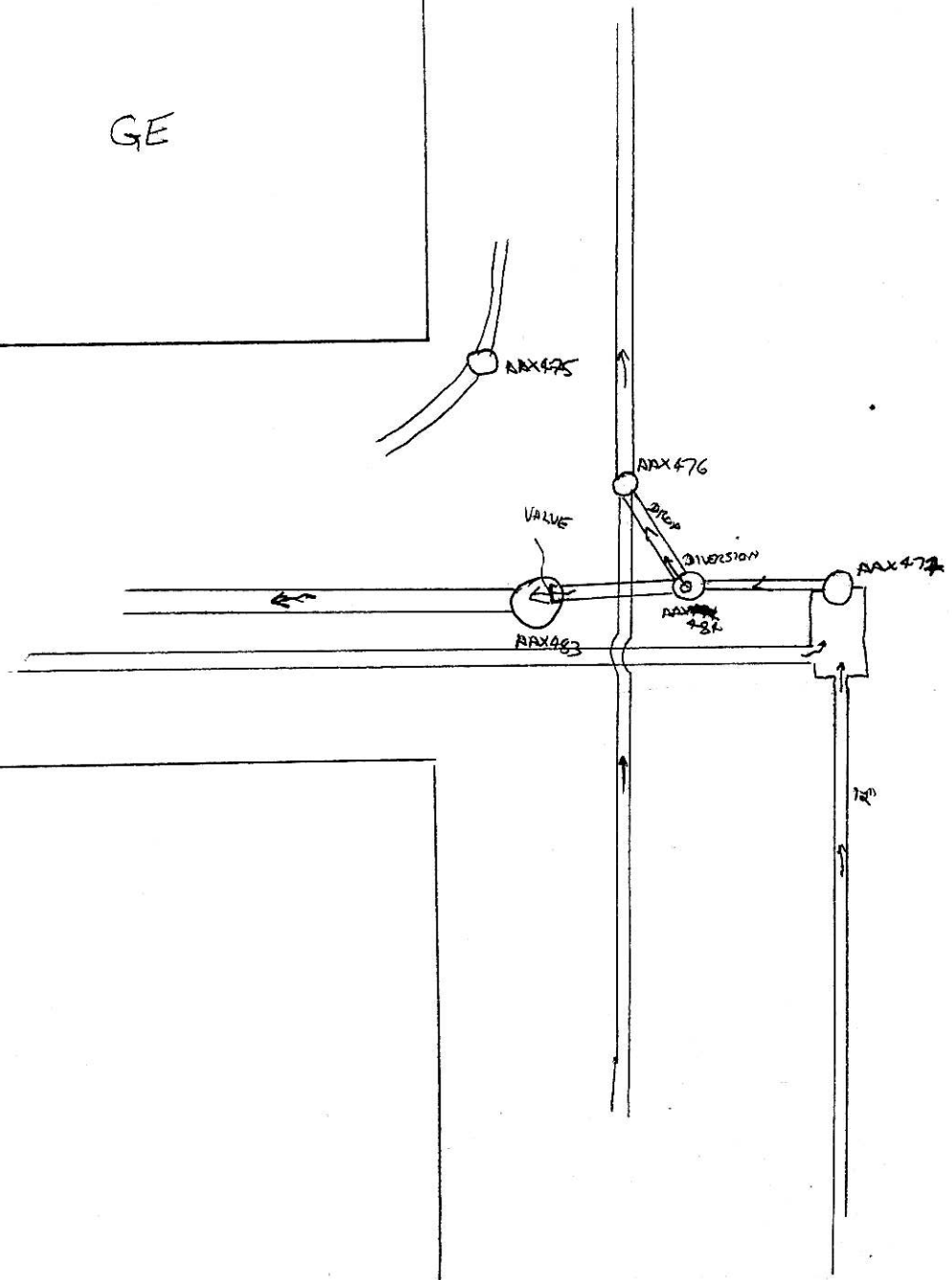
N

NW 29TH

GE

POWELLS

NW 30TH



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ENVIRONMENTAL SERVICES

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

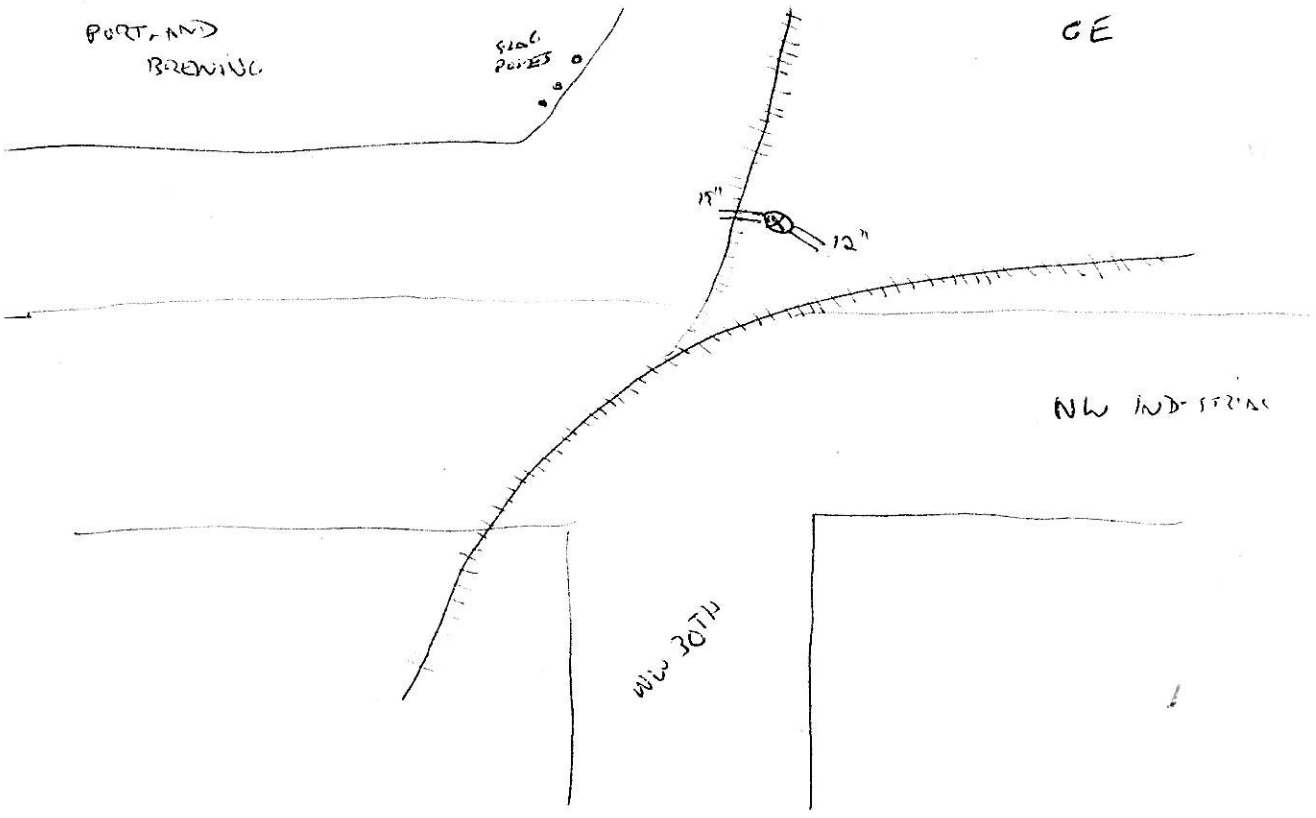
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9-29-04	Time: 0943	Current Weather conditions: OVERCAST 60's
Sampling Team Present: MJW | JAM | MJS		
Basin:	Node: UNIC	Subbasin:
Sampling Location Description/Address: NW 30TH + NW INDUSTRIAL. UNNAMED MH BETWEEN TRAIN TRACKS CLOSEST TO THE 3 FLAG POLES AT PORTLAND BREWING		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	MINOR FLOWING WATER
Does river appear to back up to this location? Describe rate/color/odor of flow:	SIGNS OF SURCHARGING
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:	SEDS OCCUR UPSTREAM AS FAR AS VISIBLE. ACCUMULATED SEDS IN MH ALSO

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



SECTION 2 - SAMPLE COLLECTION REPORT	Node: UNK

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☒ Per SOP7.01a ☐ Other (Describe)
Sample date: 9-24-04	Sample time: 0950
Sample Identification: (IL-XX-NNNNNN-mmyy) IL-17 — UN NAMED MH (9/24) - 0904	
Sample location description: (number of feet from node of entry)	
Sample collection technique:	SS SPOON USED TO COLLECT SEDIMENT INTO S.S. BUCKET. SAMPLE HOMOGENIZED
Describe Color of sample:	DK BROWN
Describe Texture/Particle size:	CLAY
Describe visual or olfactory evidence of contamination:	NONE
Desacribe depth of solids in area where sample collected:	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	Lab ID Number:
Describe any deviations from standard procedures:	

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

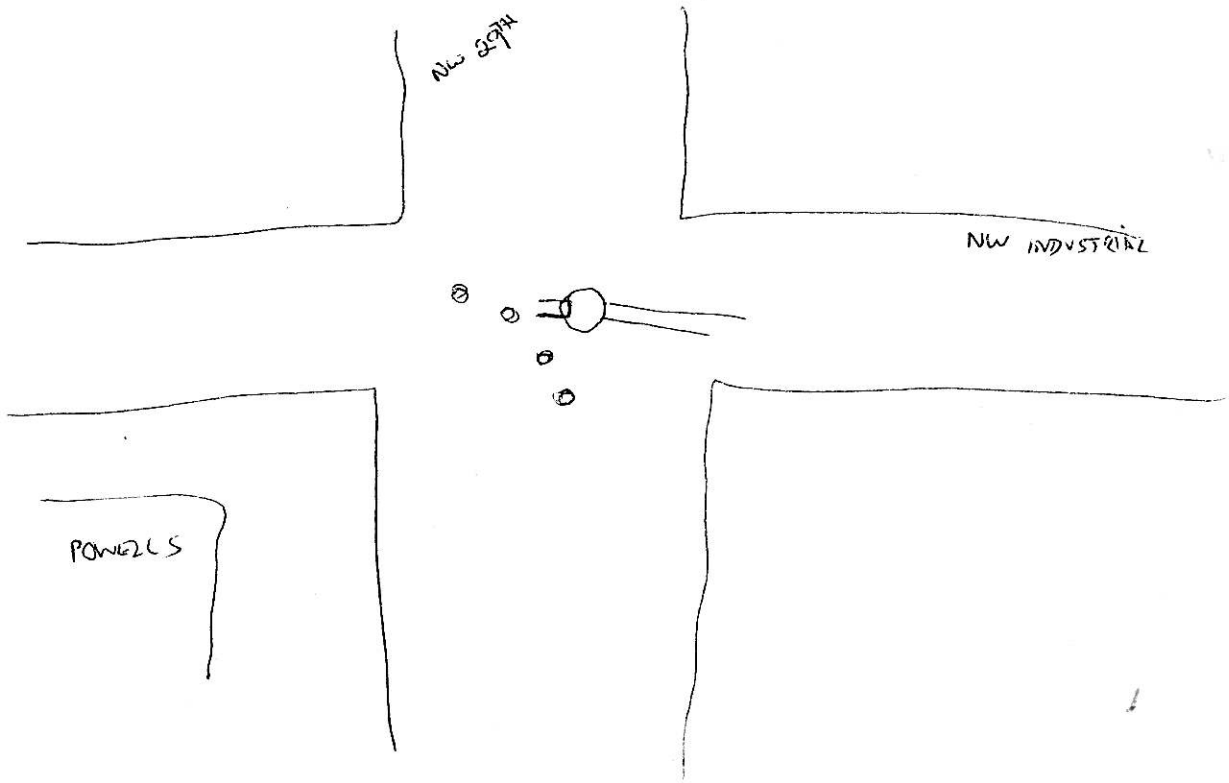
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9-29-04	Time: 1115	Current Weather conditions: CLOUDY 70'S
Sampling Team Present: MJN / MJS / JAM		
Basin:	Node: AAT 483	Subbasin:
Sampling Location Description/Address: INTERSECTION OF NW ~~20TH~~ + 29TH + INDUSTRIAL		

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:	~~X~~ UNKNOWN
Are sediments observed in the line?	YES
Are sample-able quantities of sediments present in the line?	BARELY
Describe lateral extent of sample-able sediments present in the line:	IN LINE DOWN FROM NODE ABOUT 6'.

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
6543 N. Burlington Ave.,
Portland, OR 97203-5452

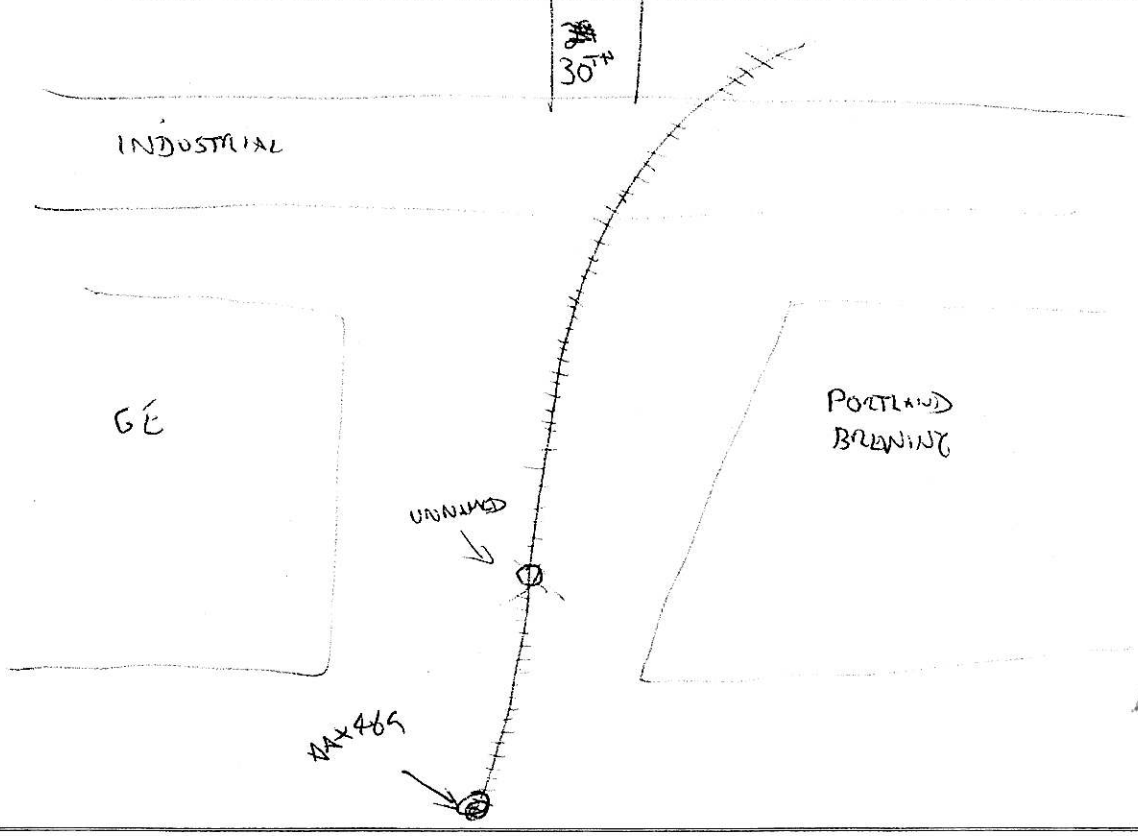
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9-29-09	Time: 1142	Current Weather conditions: CLOUDY 70'S
Sampling Team Present:		
Basin:	Node: AAX 469	Subbasin:
Sampling Location Description/Address: TRAIN TRACKS BETWEEN GE AND PORTLAND BREWING		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	15" STANDING WATER W/ FLOATERS
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES
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:	EXTEND UP AND DOWN

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



SECTION 2 - SAMPLE COLLECTION REPORT

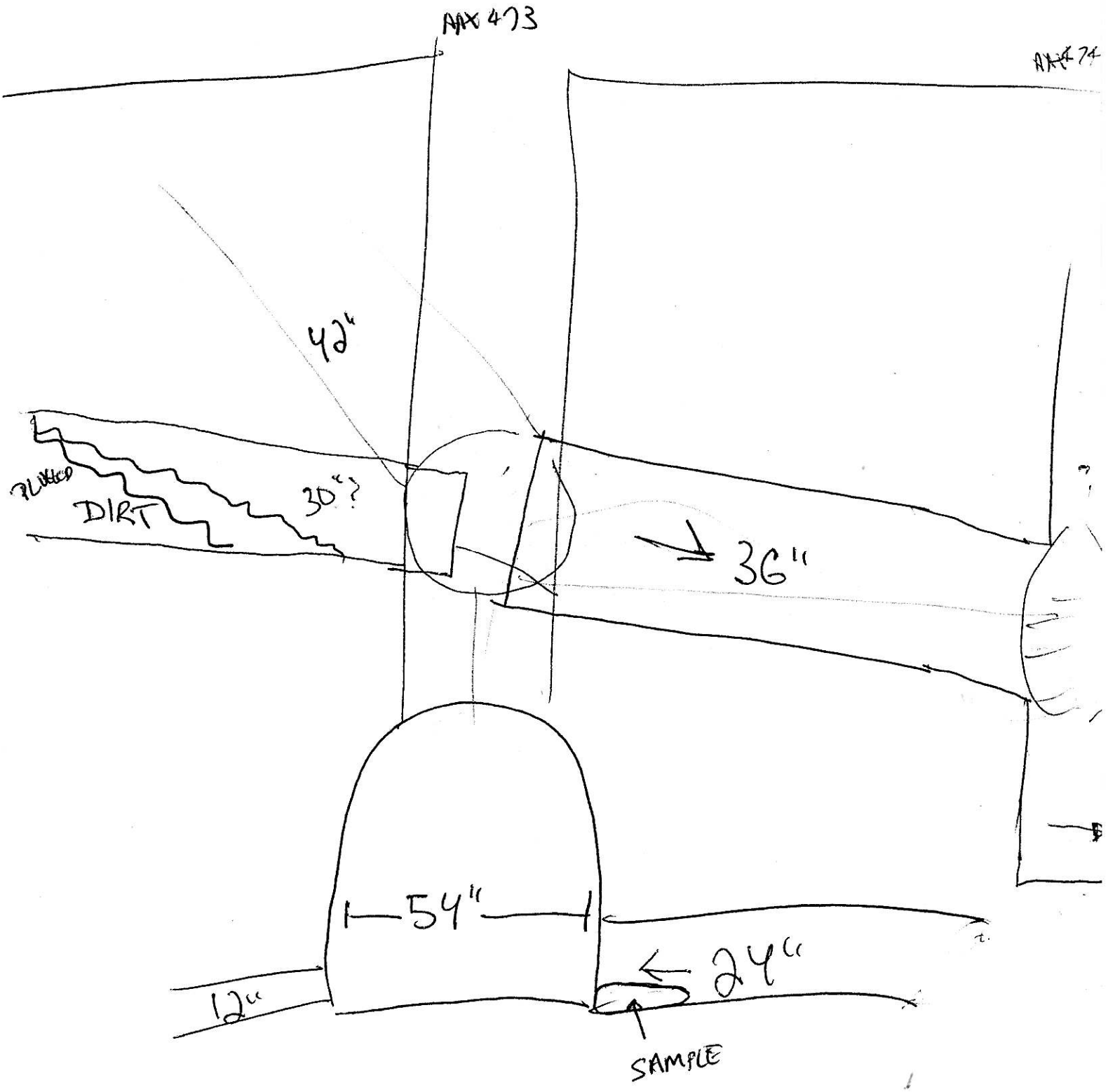
Node: AAx469

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☒ Per SOP7.01a ☐ Other (Describe)
Sample date: 9-29-04	Sample time: 1149
Sample Identification: (IL-XX-NNNNNN-mmyy) IL-17- AAx469 -0904	
Sample location description: (number of feet from node of entry)	AT, AND DOWNSTREAM OF NODE
Sample collection technique:	SS spoon used to collected sample into bucket
Describe Color of sample:	Dark gray
Describe Texture/Particle size:	Sand, silt.
Describe visual or olfactory evidence of contamination:	
Desacribe depth of solids in area where sample collected:	8" - 12"
Describe amount and type of debris in sample:	paint chips, metal chips
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	Lab ID Number:
Describe any deviations from standard procedures:	


AAX 473
42"
PLUGGED
DIRT
30"?
36"
54"
24"
12"
SAMPLE

City of Portland
Environmental Services

COMMUNICATION RECORD

Project GE INLINE SED SAMP
Person JOE FASSTO
Firm AMEC
Subject
Distribution: ☐ ☐ ☐ ☐ ☐ ☐ ☐ File

Project No.
Date 9/27/04
Tele. No.
Time
By DJH

JOE IS FIELD ~~LEAD~~ LEAD

MEET @ 0900 CORNER NW INDUSTRIAL + NW 29TH (ON TUESDAY 9/27/04)

JOE'S CELL 503-781-0266

City of Portland
Environmental Services

DAILY FIELD REPORT

Page _____ of _____

Project GE SED SAMP

Location _____

Subject NOTE TO FILE

Project No. _____

Date 9-30-04

By MSH

THESE SAMPLES HAVE BEEN PLACED IN THE FIELD OPS FREEZER FOR STORAGE UNTIL FURTHER NOTICE:

AAX 469.		2 JARS
AAX 473	54" LINE	2 JARS
AAX 473	24" LINE	2 JARS
UNNAMED MH (9/29)		2 JARS

Attachments

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 17

To: File

From: Walter Burt, RG – GSI

Robyn Cook, GSI

Date: January 4, 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 17. The results of the sampling and analysis are presented in the January 2006, Technical Memorandum No. OF 17-1.

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

- BES Laboratory
  - Metals (EPA Method 6020)
  - Total Petroleum Hydrocarbons – Diesel Range Extended (NWTPH-Dx Method)
  - Total Petroleum Hydrocarbons – Identification (NWTPH-HCID Method)
- STL Laboratory
  - Metals (EPA Method 7471)
  - Semivolatile Organics (EPA Method 8270-SIM)
  - Polychlorinated Biphenyls (EPA Method 8082)
  - Total Petroleum Hydrocarbons – Gasoline Range Extended (NWTPH-Gx Method)

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 below.

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

All Analyses

All samples were collected in September 2004 and preserved. The analyses were completed in June 2005, resulting in all samples exceeding the required holding times. All reported data has been qualified as estimates by flagging detected compounds with a "J." Reporting limits are also qualified as estimates and are flagged with a "UJ."

Method Blanks

Method blanks were processed during the laboratory analysis of SVOCs, PCBs, Total Petroleum Hydrocarbons, metals and mercury. No chemicals were detected in the method blanks associated with SVOCs, PCBs, Total Petroleum Hydrocarbons, metals or mercury.

Surrogate Recoveries

Surrogate recoveries were completed during the laboratory analysis of SVOCs, PCBs, Total Petroleum Hydrocarbons. Surrogate recoveries were within laboratory control limits for the SVOC, PCB, Total Petroleum Hydrocarbons analyses.

Laboratory Control Sample Recoveries

Laboratory control samples were processed during the laboratory analyses of SVOCs, PCBs, Total Petroleum Hydrocarbons, metals and mercury. All laboratory blank spike recoveries were within laboratory control limits.

Laboratory Control Sample Duplicates

Laboratory blank spike duplicates and laboratory matrix spike duplicates were processed during the laboratory analyses of SVOCs, PCBs and Total Petroleum Hydrocarbons. All laboratory blank spike duplicate and matrix spike duplicate recoveries were within laboratory control limits.

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

Submitted for analysis 6/9/05

Date: 9/29/04
Page: 1 of 1
Collected By: MJH

PORTLAND HARBOR INLINE

Project Name: ~~GE INLINE SED SAMP~~ SAMP
File Number: 1020.0071 Matrix: SEDIMENT

HOLD ALL SAMPLES until 6/9/05
*PCB & SVOC's analysis will be perforemd by Severn Trent Laboratory, ~~routed through Northcreek.~~
'Run NWTPH-Dx if detect on NWTPH-HCID

Requested Analyses

WPCL Sample I.D.	See Field Comments Location	Point Code	Sample Date	Sample Time	Sample Type	General: PCBs* (low Level) – STL	General: Semi-Volatiles-STL	General: NWTPH-HCID'	General: NWTPH-Gx	Metals: Total Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Ag, Zn)	Field Comments
FO 050633	~~IL-17-AAX473-24"line-0904~~ NW 30th & Industrial		9/28/04	1245	G	●	●	●		●	IL-17-AAX473-0904-E NW 30th & Industrial, East
FO 050634	~~IL-17-AAX473-54" line0904~~ NW 30TH & INDUSTRIAL		9/28/04	1243	G	●	●	●	X	●	IL-17-AAX473-0904-S NW 30th & Industrial - South Gx added 6/17/05
FO 050635	~~'L-17-unnamed mh(9/29)-0904~~ NW 30th & INDUSTRIAL		9/29/04	0950	G	●	●	●		●	IL-17-ANC338-0904 NW 30th & Industrial
FO 050636	IL-17-AAX469-0904 Traintracks west of GE		9/29/04	1149	G	●	●	●		●	

Changes made per customers request 6/9/05 by PHA.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature: [signature] Time: 1600	Signature: FIELD OPS FREEZER Time:	Signature: [signature] Time: 10:30	Signature: Time:
Printed Name: MICHELE HARKER Date: 9/29/04	Printed Name: Date:	Printed Name: Peter Adams Date: 6/9/05	Printed Name: Date:
Received By: 1.	Received By: 2.	Received By: 3.	Received By: 4.
Signature: FIELD OPS ~~MJ~~ FREEZER Time: 1600	Signature: [signature] Time: 10:30	Signature: [signature] Time: 1030	Signature: Time:
Printed Name: — Date: 9/29/04	Printed Name: Peter Adams Date: 6/9/05	Printed Name: C. Christensen Date: 6/9/05	Printed Name: Date:

s:\eid\1000\1020.001\Sampdoc\GE Inline Sed 9-16-04COC.xls

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:45 **System ID** AJ05594 **Sample ID** **FO050633**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-E
NW 30TH & INDUSTRIAL EAST

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_1
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
METALS				
ANTIMONY	1.56	mg/Kg dry wt	0.10	EPA 6020
ARSENIC	11.8	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	1.30	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	82.2	mg/Kg dry wt	0.50	EPA 6020
COPPER	54.5	mg/Kg dry wt	0.25	EPA 6020
LEAD	71.3	mg/Kg dry wt	0.10	EPA 6020
MERCURY	0.14	mg/Kg dry wt	0.010	EPA 6020
NICKEL	35.2	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.23	mg/Kg dry wt	0.10	EPA 6020
ZINC	26600	mg/Kg dry wt	0.50	EPA 6020
POLYCHLORINATED BIPHENYLS (PCB) - NCA				
PCB 1016	<17.8	µg/Kg dry wt	17.8	EPA 8082
PCB 1221	<17.8	µg/Kg dry wt	17.8	EPA 8082
PCB 1232	<17.8	µg/Kg dry wt	17.8	EPA 8082
PCB 1242	<17.8	µg/Kg dry wt	17.8	EPA 8082
PCB 1248	<17.8	µg/Kg dry wt	17.8	EPA 8082
PCB 1254	<17.8	µg/Kg dry wt	17.8	EPA 8082
PCB 1260	324	µg/Kg dry wt	17.8	EPA 8082
SEMI-VOLATILE ORGANICS - STL				
1,2,4-Trichlorobenzene	<94	µg/Kg dry wt	94	EPA 8270-SIM
1,2-Dichlorobenzene	<94	µg/Kg dry wt	94	EPA 8270-SIM
1,3-Dichlorobenzene	<94	µg/Kg dry wt	94	EPA 8270-SIM
1,4-Dichlorobenzene	<94	µg/Kg dry wt	94	EPA 8270-SIM
2,4,5-Trichlorophenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
2,4,6-Trichlorophenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
2,4-Dichlorophenol	<94	µg/Kg dry wt	94	EPA 8270-SIM

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:45 **System ID** AJ05594 **Sample ID** **FO050633**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-E
NW 30TH & INDUSTRIAL EAST

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_1
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
2,4-Dimethylphenol	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
2,4-Dinitrophenol	<940	µg/Kg dry wt	940	EPA 8270-SIM
2,4-Dinitrotoluene	<188	µg/Kg dry wt	188	EPA 8270-SIM
2,6-Dinitrotoluene	<94	µg/Kg dry wt	94	EPA 8270-SIM
2-Chloronaphthalene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
2-Chlorophenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
2-Methylnaphthalene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
2-Methylphenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
2-Nitroaniline	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
2-Nitrophenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
3- & 4-Methylphenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
3,3'-Dichlorobenzidine	<376	µg/Kg dry wt	376	EPA 8270-SIM
3-Nitroaniline	<188	µg/Kg dry wt	188	EPA 8270-SIM
4,6-Dinitro-2-methylphenol	<188	µg/Kg dry wt	188	EPA 8270-SIM
4-Bromophenylphenyl ether	<188	µg/Kg dry wt	188	EPA 8270-SIM
4-Chloro-3-methylphenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
4-Chloroaniline	<188	µg/Kg dry wt	188	EPA 8270-SIM
4-Chlorophenylphenyl ether	<188	µg/Kg dry wt	188	EPA 8270-SIM
4-Nitroaniline	<376	µg/Kg dry wt	376	EPA 8270-SIM
4-Nitrophenol	<940	µg/Kg dry wt	940	EPA 8270-SIM
Acenaphthene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Acenaphthylene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Anthracene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Benzo(a)anthracene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Benzo(a)pyrene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Benzo(g,h,i)perylene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Benzofluoranthenes	<75.2	µg/Kg dry wt	75.2	EPA 8270-SIM
Benzoic acid	<1130	µg/Kg dry wt	1130	EPA 8270-SIM
Benzyl alcohol	<94	µg/Kg dry wt	94	EPA 8270-SIM

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:45 **System ID** AJ05594 **Sample ID** **FO050633**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-E
NW 30TH & INDUSTRIAL EAST

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_1
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
Benzyl butyl phthalate	<376	µg/Kg dry wt	376	EPA 8270-SIM
Bis(2-chloroethoxy) methane	<188	µg/Kg dry wt	188	EPA 8270-SIM
Bis(2-chloroethyl) ether	<188	µg/Kg dry wt	188	EPA 8270-SIM
Bis(2-chloroisopropyl) ether	<470	µg/Kg dry wt	470	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	397	µg/Kg dry wt	376	EPA 8270-SIM
Chrysene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Dibenzo(a,h)anthracene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Dibenzofuran	<94	µg/Kg dry wt	94	EPA 8270-SIM
Diethyl phthalate	<188	µg/Kg dry wt	188	EPA 8270-SIM
Dimethyl phthalate	<188	µg/Kg dry wt	188	EPA 8270-SIM
Di-n-butyl phthalate	<188	µg/Kg dry wt	188	EPA 8270-SIM
Di-n-octyl phthalate	<376	µg/Kg dry wt	376	EPA 8270-SIM
Fluoranthene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Fluorene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Hexachlorobenzene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Hexachlorobutadiene	<94	µg/Kg dry wt	94	EPA 8270-SIM
Hexachlorocyclopentadiene	<94	µg/Kg dry wt	94	EPA 8270-SIM
Hexachloroethane	<94	µg/Kg dry wt	94	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Isophorone	<188	µg/Kg dry wt	188	EPA 8270-SIM
Naphthalene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Nitrobenzene	<188	µg/Kg dry wt	188	EPA 8270-SIM
N-Nitrosodi-n-propylamine	<94	µg/Kg dry wt	94	EPA 8270-SIM
N-Nitrosodiphenylamine	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Pentachlorophenol	<188	µg/Kg dry wt	188	EPA 8270-SIM
Phenanthrene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM
Phenol	<94	µg/Kg dry wt	94	EPA 8270-SIM
Pyrene	<37.6	µg/Kg dry wt	37.6	EPA 8270-SIM

NWTPH-Dx

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

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:45 **System ID** AJ05594 **Sample ID** **FO050633**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-E
NW 30TH & INDUSTRIAL EAST

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_1
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
#6 FUEL OIL	216	mg/Kg dry wt	50	NWTPH-Dx
DIESEL	<25	mg/Kg dry wt	25	NWTPH-Dx
KEROSENE	<25	mg/Kg dry wt	25	NWTPH-Dx
MOTOR OIL	519	mg/Kg dry wt	50	NWTPH-Dx
NWTPH-HCID				
DIESEL	<50	mg/Kg dry wt	50	NWTPH-HCID
GASOLINE	<20	mg/Kg dry wt	20	NWTPH-HCID
HEAVY FUEL OIL	DET	mg/Kg dry wt	100	NWTPH-HCID
LUBE OIL	DET	mg/Kg dry wt	100	NWTPH-HCID
OTHER	<100	mg/Kg dry wt	100	NWTPH-HCID
Surrogate Recovery (%)	99	mg/Kg dry wt		NWTPH-HCID

End of Report for Sample ID: FO050633

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

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:43 **System ID** AJ05595 **Sample ID** **FO050634**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-S
NW 30TH & INDUSTRIAL SOUTH

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_2
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some matrix spike recoveries for Semi-volatile Organics and PCB analysis were outside control limits due to matrix interferences.

Test Parameter	Result	Units	MRL	Method
METALS				
ANTIMONY	1.15	mg/Kg dry wt	0.10	EPA 6020
ARSENIC	7.02	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	1.34	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	65.1	mg/Kg dry wt	0.50	EPA 6020
COPPER	95.8	mg/Kg dry wt	0.25	EPA 6020
LEAD	170	mg/Kg dry wt	0.10	EPA 6020
MERCURY	3.64	mg/Kg dry wt	0.010	EPA 6020
NICKEL	30.7	mg/Kg dry wt	0.25	EPA 6020
SILVER	2.46	mg/Kg dry wt	0.10	EPA 6020
ZINC	3780	mg/Kg dry wt	0.50	EPA 6020
NWTPH-Gx - NCA				
GASOLINE RANGE HYDROCARBONS	7.66	mg/Kg dry wt	4.26	NWTPH-Gx
POLYCHLORINATED BIPHENYLS (PCB) - NCA				
PCB 1016	<10.8	µg/Kg dry wt	10.8	EPA 8082
PCB 1221	<10.8	µg/Kg dry wt	10.8	EPA 8082
PCB 1232	<10.8	µg/Kg dry wt	10.8	EPA 8082
PCB 1242	<10.8	µg/Kg dry wt	10.8	EPA 8082
PCB 1248	<10.8	µg/Kg dry wt	10.8	EPA 8082
PCB 1254	<10.8	µg/Kg dry wt	10.8	EPA 8082
PCB 1260	324	µg/Kg dry wt	10.8	EPA 8082
SEMI-VOLATILE ORGANICS - STL				
1,2,4-Trichlorobenzene	<547	µg/Kg dry wt	547	EPA 8270-SIM
1,2-Dichlorobenzene	<547	µg/Kg dry wt	547	EPA 8270-SIM
1,3-Dichlorobenzene	<547	µg/Kg dry wt	547	EPA 8270-SIM
1,4-Dichlorobenzene	610	µg/Kg dry wt	547	EPA 8270-SIM
2,4,5-Trichlorophenol	<547	µg/Kg dry wt	547	EPA 8270-SIM

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:43 **System ID** AJ05595 **Sample ID** **FO050634**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-S

NW 30TH & INDUSTRIAL SOUTH

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_2
IMS File/Invoice #: 1020.001

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some matrix spike recoveries for Semi-volatile Organics and PCB analysis were outside control limits due to matrix interferences.

Test Parameter	Result	Units	MRL	Method
2,4,6-Trichlorophenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
2,4-Dichlorophenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
2,4-Dimethylphenol	<219	µg/Kg dry wt	219	EPA 8270-SIM
2,4-Dinitrophenol	<5470	µg/Kg dry wt	5470	EPA 8270-SIM
2,4-Dinitrotoluene	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
2,6-Dinitrotoluene	<547	µg/Kg dry wt	547	EPA 8270-SIM
2-Chloronaphthalene	<219	µg/Kg dry wt	219	EPA 8270-SIM
2-Chlorophenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
2-Methylnaphthalene	<219	µg/Kg dry wt	219	EPA 8270-SIM
2-Methylphenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
2-Nitroaniline	<219	µg/Kg dry wt	219	EPA 8270-SIM
2-Nitrophenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
3- & 4-Methylphenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
3,3'-Dichlorobenzidine	<2190	µg/Kg dry wt	2190	EPA 8270-SIM
3-Nitroaniline	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
4,6-Dinitro-2-methylphenol	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
4-Bromophenylphenyl ether	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
4-Chloro-3-methylphenol	<547	µg/Kg dry wt	547	EPA 8270-SIM
4-Chloroaniline	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
4-Chlorophenylphenyl ether	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
4-Nitroaniline	<2190	µg/Kg dry wt	2190	EPA 8270-SIM
4-Nitrophenol	<5470	µg/Kg dry wt	5470	EPA 8270-SIM
Acenaphthene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Acenaphthylene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Anthracene	497	µg/Kg dry wt	219	EPA 8270-SIM
Benzo(a)anthracene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Benzo(a)pyrene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Benzo(g,h,i)perylene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Benzofluoranthenes	<437	µg/Kg dry wt	437	EPA 8270-SIM

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:43 **System ID** AJ05595 **Sample ID** **FO050634**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-S
NW 30TH & INDUSTRIAL SOUTH

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_2
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some matrix spike recoveries for Semi-volatile Organics and PCB analysis were outside control limits due to matrix interferences.

Test Parameter	Result	Units	MRL	Method
Benzoic acid	<6560	µg/Kg dry wt	6560	EPA 8270-SIM
Benzyl alcohol	<547	µg/Kg dry wt	547	EPA 8270-SIM
Benzyl butyl phthalate	<2190	µg/Kg dry wt	2190	EPA 8270-SIM
Bis(2-chloroethoxy) methane	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Bis(2-chloroethyl) ether	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Bis(2-chloroisopropyl) ether	<2730	µg/Kg dry wt	2730	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	2630	µg/Kg dry wt	2190	EPA 8270-SIM
Chrysene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Dibenzo(a,h)anthracene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Dibenzofuran	<547	µg/Kg dry wt	547	EPA 8270-SIM
Diethyl phthalate	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Dimethyl phthalate	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Di-n-butyl phthalate	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Di-n-octyl phthalate	<2190	µg/Kg dry wt	2190	EPA 8270-SIM
Fluoranthene	895	µg/Kg dry wt	219	EPA 8270-SIM
Fluorene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Hexachlorobenzene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Hexachlorobutadiene	<547	µg/Kg dry wt	547	EPA 8270-SIM
Hexachlorocyclopentadiene	<547	µg/Kg dry wt	547	EPA 8270-SIM
Hexachloroethane	<547	µg/Kg dry wt	547	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Isophorone	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Naphthalene	<219	µg/Kg dry wt	219	EPA 8270-SIM
Nitrobenzene	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
N-Nitrosodi-n-propylamine	<547	µg/Kg dry wt	547	EPA 8270-SIM
N-Nitrosodiphenylamine	<219	µg/Kg dry wt	219	EPA 8270-SIM
Pentachlorophenol	<1090	µg/Kg dry wt	1090	EPA 8270-SIM
Phenanthrene	903	µg/Kg dry wt	219	EPA 8270-SIM
Phenol	<547	µg/Kg dry wt	547	EPA 8270-SIM

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/28/2004 12:43 **System ID** AJ05595 **Sample ID** **FO050634**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX473-0904-S
NW 30TH & INDUSTRIAL SOUTH

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_2
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some matrix spike recoveries for Semi-volatile Organics and PCB analysis were outside control limits due to matrix interferences.

Test Parameter	Result	Units	MRL	Method
Pyrene	779	µg/Kg dry wt	219	EPA 8270-SIM
NWTPH-Dx				
#6 FUEL OIL	<500	mg/Kg dry wt	500	NWTPH-Dx
DIESEL	<250	mg/Kg dry wt	250	NWTPH-Dx
KEROSENE	<250	mg/Kg dry wt	250	NWTPH-Dx
MOTOR OIL	774	mg/Kg dry wt	500	NWTPH-Dx
NWTPH-HCID				
DIESEL	<50	mg/Kg dry wt	50	NWTPH-HCID
GASOLINE	DET	mg/Kg dry wt	20	NWTPH-HCID
HEAVY FUEL OIL	<100	mg/Kg dry wt	100	NWTPH-HCID
LUBE OIL	DET	mg/Kg dry wt	100	NWTPH-HCID
OTHER	<100	mg/Kg dry wt	100	NWTPH-HCID
Surrogate Recovery (%)	108	mg/Kg dry wt		NWTPH-HCID

End of Report for Sample ID: FO050634

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

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 9:50 **System ID** AJ05596 **Sample ID** **FO050635**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-ANC338-0904
NW 30TH & INDUSTRIAL

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_3
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
METALS				
ANTIMONY	0.75	mg/Kg dry wt	0.10	EPA 6020
ARSENIC	2.52	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	0.50	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	33.9	mg/Kg dry wt	0.50	EPA 6020
COPPER	33.6	mg/Kg dry wt	0.25	EPA 6020
LEAD	80.9	mg/Kg dry wt	0.10	EPA 6020
MERCURY	0.12	mg/Kg dry wt	0.010	EPA 6020
NICKEL	20.6	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.22	mg/Kg dry wt	0.10	EPA 6020
ZINC	363	mg/Kg dry wt	0.50	EPA 6020
POLYCHLORINATED BIPHENYLS (PCB) - NCA				
PCB 1016	<122	µg/Kg dry wt	122	EPA 8082
PCB 1221	<122	µg/Kg dry wt	122	EPA 8082
PCB 1232	<122	µg/Kg dry wt	122	EPA 8082
PCB 1242	<122	µg/Kg dry wt	122	EPA 8082
PCB 1248	<122	µg/Kg dry wt	122	EPA 8082
PCB 1254	<122	µg/Kg dry wt	122	EPA 8082
PCB 1260	2140	µg/Kg dry wt	122	EPA 8082
SEMI-VOLATILE ORGANICS - STL				
1,2,4-Trichlorobenzene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
1,2-Dichlorobenzene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
1,3-Dichlorobenzene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
1,4-Dichlorobenzene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
2,4,5-Trichlorophenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
2,4,6-Trichlorophenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
2,4-Dichlorophenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 9:50 **System ID** AJ05596 **Sample ID** **FO050635**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-ANC338-0904
NW 30TH & INDUSTRIAL

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_3
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
2,4-Dimethylphenol	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
2,4-Dinitrophenol	<565	µg/Kg dry wt	565	EPA 8270-SIM
2,4-Dinitrotoluene	<113	µg/Kg dry wt	113	EPA 8270-SIM
2,6-Dinitrotoluene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
2-Chloronaphthalene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
2-Chlorophenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
2-Methylnaphthalene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
2-Methylphenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
2-Nitroaniline	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
2-Nitrophenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
3- & 4-Methylphenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
3,3'-Dichlorobenzidine	<226	µg/Kg dry wt	226	EPA 8270-SIM
3-Nitroaniline	<113	µg/Kg dry wt	113	EPA 8270-SIM
4,6-Dinitro-2-methylphenol	<113	µg/Kg dry wt	113	EPA 8270-SIM
4-Bromophenylphenyl ether	<113	µg/Kg dry wt	113	EPA 8270-SIM
4-Chloro-3-methylphenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
4-Chloroaniline	<113	µg/Kg dry wt	113	EPA 8270-SIM
4-Chlorophenylphenyl ether	<113	µg/Kg dry wt	113	EPA 8270-SIM
4-Nitroaniline	<226	µg/Kg dry wt	226	EPA 8270-SIM
4-Nitrophenol	<565	µg/Kg dry wt	565	EPA 8270-SIM
Acenaphthene	36.3	µg/Kg dry wt	22.6	EPA 8270-SIM
Acenaphthylene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
Anthracene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
Benzo(a)anthracene	39.8	µg/Kg dry wt	22.6	EPA 8270-SIM
Benzo(a)pyrene	56.9	µg/Kg dry wt	22.6	EPA 8270-SIM
Benzo(g,h,i)perylene	66.2	µg/Kg dry wt	22.6	EPA 8270-SIM
Benzofluoranthenes	88.1	µg/Kg dry wt	45.2	EPA 8270-SIM
Benzoic acid	<678	µg/Kg dry wt	678	EPA 8270-SIM
Benzyl alcohol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 9:50 **System ID** AJ05596 **Sample ID** **FO050635**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-ANC338-0904
NW 30TH & INDUSTRIAL

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_3
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
Benzyl butyl phthalate	<226	µg/Kg dry wt	226	EPA 8270-SIM
Bis(2-chloroethoxy) methane	<113	µg/Kg dry wt	113	EPA 8270-SIM
Bis(2-chloroethyl) ether	<113	µg/Kg dry wt	113	EPA 8270-SIM
Bis(2-chloroisopropyl) ether	<282	µg/Kg dry wt	282	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	267	µg/Kg dry wt	226	EPA 8270-SIM
Chrysene	52.2	µg/Kg dry wt	22.6	EPA 8270-SIM
Dibenzo(a,h)anthracene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
Dibenzofuran	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
Diethyl phthalate	<113	µg/Kg dry wt	113	EPA 8270-SIM
Dimethyl phthalate	<113	µg/Kg dry wt	113	EPA 8270-SIM
Di-n-butyl phthalate	<113	µg/Kg dry wt	113	EPA 8270-SIM
Di-n-octyl phthalate	<226	µg/Kg dry wt	226	EPA 8270-SIM
Fluoranthene	101	µg/Kg dry wt	22.6	EPA 8270-SIM
Fluorene	25.9	µg/Kg dry wt	22.6	EPA 8270-SIM
Hexachlorobenzene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
Hexachlorobutadiene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
Hexachlorocyclopentadiene	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
Hexachloroethane	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	42.5	µg/Kg dry wt	22.6	EPA 8270-SIM
Isophorone	<113	µg/Kg dry wt	113	EPA 8270-SIM
Naphthalene	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
Nitrobenzene	<113	µg/Kg dry wt	113	EPA 8270-SIM
N-Nitrosodi-n-propylamine	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
N-Nitrosodiphenylamine	<22.6	µg/Kg dry wt	22.6	EPA 8270-SIM
Pentachlorophenol	<113	µg/Kg dry wt	113	EPA 8270-SIM
Phenanthrene	63.2	µg/Kg dry wt	22.6	EPA 8270-SIM
Phenol	<56.5	µg/Kg dry wt	56.5	EPA 8270-SIM
Pyrene	127	µg/Kg dry wt	22.6	EPA 8270-SIM

NWTPH-HCID

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 9:50 **System ID** AJ05596 **Sample ID** **FO050635**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-ANC338-0904
NW 30TH & INDUSTRIAL
Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_3
IMS File/Invoice #: 1020.001

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED
Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
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 (%)	100	mg/Kg dry wt		NWTPH-HCID

End of Report for Sample ID: FO050635

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

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 11:49 **System ID** AJ05597 **Sample ID** **FO050636**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX469-0904
TRAIN TRACKS WEST OF GE

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_4
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
METALS				
ANTIMONY	0.78	mg/Kg dry wt	0.10	EPA 6020
ARSENIC	3.61	mg/Kg dry wt	0.50	EPA 6020
CADMIUM	1.26	mg/Kg dry wt	0.10	EPA 6020
CHROMIUM	39.5	mg/Kg dry wt	0.50	EPA 6020
COPPER	85.6	mg/Kg dry wt	0.25	EPA 6020
LEAD	113	mg/Kg dry wt	0.10	EPA 6020
MERCURY	0.13	mg/Kg dry wt	0.010	EPA 6020
NICKEL	24.4	mg/Kg dry wt	0.25	EPA 6020
SILVER	0.40	mg/Kg dry wt	0.10	EPA 6020
ZINC	7010	mg/Kg dry wt	0.50	EPA 6020
POLYCHLORINATED BIPHENYLS (PCB) - NCA				
PCB 1016	<152	µg/Kg dry wt	152	EPA 8082
PCB 1221	<152	µg/Kg dry wt	152	EPA 8082
PCB 1232	<152	µg/Kg dry wt	152	EPA 8082
PCB 1242	1840	µg/Kg dry wt	152	EPA 8082
PCB 1248	<152	µg/Kg dry wt	152	EPA 8082
PCB 1254	<152	µg/Kg dry wt	152	EPA 8082
PCB 1260	4400	µg/Kg dry wt	152	EPA 8082
SEMI-VOLATILE ORGANICS - STL				
1,2,4-Trichlorobenzene	3440	µg/Kg dry wt	80.8	EPA 8270-SIM
1,2-Dichlorobenzene	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
1,3-Dichlorobenzene	345	µg/Kg dry wt	80.8	EPA 8270-SIM
1,4-Dichlorobenzene	400	µg/Kg dry wt	80.8	EPA 8270-SIM
2,4,5-Trichlorophenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
2,4,6-Trichlorophenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
2,4-Dichlorophenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 11:49 **System ID** AJ05597 **Sample ID** **FO050636**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX469-0904
TRAIN TRACKS WEST OF GE

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_4
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
2,4-Dimethylphenol	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
2,4-Dinitrophenol	<808	µg/Kg dry wt	808	EPA 8270-SIM
2,4-Dinitrotoluene	<162	µg/Kg dry wt	162	EPA 8270-SIM
2,6-Dinitrotoluene	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
2-Chloronaphthalene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
2-Chlorophenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
2-Methylnaphthalene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
2-Methylphenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
2-Nitroaniline	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
2-Nitrophenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
3- & 4-Methylphenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
3,3'-Dichlorobenzidine	<323	µg/Kg dry wt	323	EPA 8270-SIM
3-Nitroaniline	<162	µg/Kg dry wt	162	EPA 8270-SIM
4,6-Dinitro-2-methylphenol	<162	µg/Kg dry wt	162	EPA 8270-SIM
4-Bromophenylphenyl ether	<162	µg/Kg dry wt	162	EPA 8270-SIM
4-Chloro-3-methylphenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
4-Chloroaniline	<162	µg/Kg dry wt	162	EPA 8270-SIM
4-Chlorophenylphenyl ether	<162	µg/Kg dry wt	162	EPA 8270-SIM
4-Nitroaniline	<323	µg/Kg dry wt	323	EPA 8270-SIM
4-Nitrophenol	<808	µg/Kg dry wt	808	EPA 8270-SIM
Acenaphthene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Acenaphthylene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Anthracene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Benzo(a)anthracene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Benzo(a)pyrene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Benzo(g,h,i)perylene	75.9	µg/Kg dry wt	32.3	EPA 8270-SIM
Benzofluoranthenes	<64.6	µg/Kg dry wt	64.6	EPA 8270-SIM
Benzoic acid	<970	µg/Kg dry wt	970	EPA 8270-SIM
Benzyl alcohol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 11:49 **System ID** AJ05597 **Sample ID** **FO050636**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX469-0904
TRAIN TRACKS WEST OF GE

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_4
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
Benzyl butyl phthalate	<323	µg/Kg dry wt	323	EPA 8270-SIM
Bis(2-chloroethoxy) methane	<162	µg/Kg dry wt	162	EPA 8270-SIM
Bis(2-chloroethyl) ether	<162	µg/Kg dry wt	162	EPA 8270-SIM
Bis(2-chloroisopropyl) ether	<404	µg/Kg dry wt	404	EPA 8270-SIM
Bis(2-ethylhexyl) phthalate	1630	µg/Kg dry wt	323	EPA 8270-SIM
Chrysene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Dibenzo(a,h)anthracene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Dibenzofuran	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
Diethyl phthalate	<162	µg/Kg dry wt	162	EPA 8270-SIM
Dimethyl phthalate	<162	µg/Kg dry wt	162	EPA 8270-SIM
Di-n-butyl phthalate	172	µg/Kg dry wt	162	EPA 8270-SIM
Di-n-octyl phthalate	<323	µg/Kg dry wt	323	EPA 8270-SIM
Fluoranthene	125	µg/Kg dry wt	32.3	EPA 8270-SIM
Fluorene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Hexachlorobenzene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Hexachlorobutadiene	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
Hexachlorocyclopentadiene	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
Hexachloroethane	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
Indeno(1,2,3-cd)pyrene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Isophorone	<162	µg/Kg dry wt	162	EPA 8270-SIM
Naphthalene	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Nitrobenzene	<162	µg/Kg dry wt	162	EPA 8270-SIM
N-Nitrosodi-n-propylamine	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
N-Nitrosodiphenylamine	<32.3	µg/Kg dry wt	32.3	EPA 8270-SIM
Pentachlorophenol	<162	µg/Kg dry wt	162	EPA 8270-SIM
Phenanthrene	106	µg/Kg dry wt	32.3	EPA 8270-SIM
Phenol	<80.8	µg/Kg dry wt	80.8	EPA 8270-SIM
Pyrene	116	µg/Kg dry wt	32.3	EPA 8270-SIM

NWTPH-HCID

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

Report Date: 1/18/2006

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/29/2004 11:49 **System ID** AJ05597 **Sample ID** **FO050636**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-17-AAX469-0904
TRAIN TRACKS WEST OF GE

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: 17_4
IMS File/Invoice #: 1020.001

Date Received: 6/9/2005
Sample Status: COMPLETE AND VALIDATED

Sample Type: GRAB
Sample Matrix: SEDIMENT
Collected By: MJH

Comments: QA/QC: The reported results should be considered estimates. This sample was collected and received on 9/28/04 and stored frozen until 6/9/05. EPA-established holding times were exceeded for all analyses. Except as follows, other analytical QA/QC criteria were met for this sample including calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Surrogate recovery for PCB analysis was not determined due to required dilution of the sample extract.

Test Parameter	Result	Units	MRL	Method
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: FO050636

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

Report Date: 1/18/2006

Validated By: Signature on File

128326

SEVERN TRENT 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: June 23, 2005

TO: Peter Abrams
City of Portland Environmental Services
6543 N. Burlington Ave.
Portland, OR 97203-5452

PROJECT: Portland Harbor Inline Sed Samp 1020.001

REPORT NUMBER: 128326

TOTAL NUMBER OF PAGES: 26

Enclosed are the test results for four samples received at STL Seattle on June 10, 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.

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

Sincerely,

Tom Coyner
Project Manager

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
128326-1	FO 050633	09-28-04 12:45	solid
128326-2	FO 050634	09-28-04 12:43	solid
128326-3	FO 050635	09-28-04 09:50	solid
128326-4	FO 050636	09-28-04 11:49	solid

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050633
Lab ID:	128326-01
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
% Solids	51.37
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2 - Fluorophenol	117		36	145
Phenol - d5	120		38	149
Nitrobenzene - d5	101		38	141
2 - Fluorobiphenyl	96.1		42	140
2,4,6 - Tribromophenol	106		28	143
p - Terphenyl - d14	129		42	151

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**RL**	**Flags**
Phenol	ND	94	
bis(2-Chloroethyl)ether	ND	188	
2-Chlorophenol	ND	94	
1,3-Dichlorobenzene	ND	94	
1,4-Dichlorobenzene	ND	94	
Benzyl Alcohol	ND	94	
1,2-Dichlorobenzene	ND	94	
2-Methylphenol	ND	94	
bis(2-Chloroisopropyl)ether	ND	470	
3-&4-Methylphenol	ND	94	
N-nitroso-di-n-propylamine	ND	94	
Hexachloroethane	ND	94	
Nitrobenzene	ND	188	
Isophorone	ND	188	
2-Nitrophenol	ND	94	
2,4-Dimethylphenol	ND	37.6	
Benzoic Acid	ND	1130	
bis(2-Chloroethoxy)methane	ND	188	
2,4-Dichlorophenol	ND	94	
1,2,4-Trichlorobenzene	ND	94	
Naphthalene	ND	37.6	
4-Chloroaniline	ND	188	
Hexachlorobutadiene	ND	94	
4-Chloro-3-methylphenol	ND	94	
2-Methylnaphthalene	ND	37.6	
Hexachlorocyclopentadiene	ND	94	

STL Seattle

Semivolatile Organics by EPA Method 8270 data for 128326-01 continued...

Analyte		Result (ug/kg)	RL	Flags
2,4,6-Trichlorophenol	ND		94	
2,4,5-Trichlorophenol	ND		94	
2-Chloronaphthalene	ND		37.6	
2-Nitroaniline	ND		37.6	
Dimethylphthalate	ND		188	
Acenaphthylene	ND		37.6	
2,6-Dinitrotoluene	ND		94	
3-Nitroaniline	ND		188	
Acenaphthene	ND		37.6	
2,4-Dinitrophenol	ND		940	
4-Nitrophenol	ND		940	
Dibenzofuran	ND		94	
2,4-Dinitrotoluene	ND		188	
Diethylphthalate	ND		188	
4-Chlorophenylphenylether	ND		188	
Fluorene	ND		37.6	
4-Nitroaniline	ND		376	
4,6-Dinitro-2-methylphenol	ND		188	
N-Nitrosodiphenylamine	ND		37.6	
4-Bromophenylphenylether	ND		188	
Hexachlorobenzene	ND		37.6	
Pentachlorophenol	ND		188	
Phenanthrene	ND		37.6	
Anthracene	ND		37.6	
Di-n-butylphthalate	ND		188	
Fluoranthene	ND		37.6	
Pyrene	ND		37.6	
Butylbenzylphthalate	ND		376	
3,3'-Dichlorobenzidine	ND		376	
Benzo(a)anthracene	ND		37.6	
Chrysene	ND		37.6	
bis(2-Ethylhexyl)phthalate		397	376	
Di-n-octylphthalate	ND		376	
Benzofluoranthenes	ND		75.2	
Benzo(a)pyrene	ND		37.6	
Indeno(1,2,3-cd)pyrene	ND		37.6	
Dibenz(a,h)anthracene	ND		37.6	
Benzo(g,h,i)perylene	ND		37.6	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050634
Lab ID:	128326-02
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
% Solids	87.63
Dilution Factor	10

Semivolatile Organics by EPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2 - Fluorophenol	82.3		36	145
Phenol - d5	127		38	149
Nitrobenzene - d5	87.8		38	141
2 - Fluorobiphenyl	103		42	140
2,4,6 - Tribromophenol	72.6		28	143
p - Terphenyl - d14	123		42	151

Sample results are on a dry weight basis.

		Result			
Analyte		**(ug/kg)**		**RL**	**Flags**
Phenol	ND			547	
bis(2-Chloroethyl)ether	ND			1090	
2-Chlorophenol	ND			547	
1,3-Dichlorobenzene	ND			547	
1,4-Dichlorobenzene			610	547	
Benzyl Alcohol	ND			547	
1,2-Dichlorobenzene	ND			547	
2-Methylphenol	ND			547	
bis(2-Chloroisopropyl)ether	ND			2730	
3-&4-Methylphenol	ND			547	
N-nitroso-di-n-propylamine	ND			547	
Hexachloroethane	ND			547	
Nitrobenzene	ND			1090	
Isophorone	ND			1090	
2-Nitrophenol	ND			547	
2,4-Dimethylphenol	ND			219	
Benzoic Acid	ND			6560	
bis(2-Chloroethoxy)methane	ND			1090	
2,4-Dichlorophenol	ND			547	
1,2,4-Trichlorobenzene	ND			547	
Naphthalene	ND			219	
4-Chloroaniline	ND			1090	
Hexachlorobutadiene	ND			547	
4-Chloro-3-methylphenol	ND			547	
2-Methylnaphthalene	ND			219	
Hexachlorocyclopentadiene	ND			547	

STL Seattle

Semivolatile Organics by EPA Method 8270 data for 128326-02 continued...

Analyte		Result (ug/kg)	RL	Flags
2,4,6-Trichlorophenol	ND		547	
2,4,5-Trichlorophenol	ND		547	
2-Chloronaphthalene	ND		219	
2-Nitroaniline	ND		219	
Dimethylphthalate	ND		1090	
Acenaphthylene	ND		219	
2,6-Dinitrotoluene	ND		547	
3-Nitroaniline	ND		1090	
Acenaphthene	ND		219	
2,4-Dinitrophenol	ND		5470	
4-Nitrophenol	ND		5470	
Dibenzofuran	ND		547	
2,4-Dinitrotoluene	ND		1090	
Diethylphthalate	ND		1090	
4-Chlorophenylphenylether	ND		1090	
Fluorene	ND		219	
4-Nitroaniline	ND		2190	
4,6-Dinitro-2-methylphenol	ND		1090	
N-Nitrosodiphenylamine	ND		219	
4-Bromophenylphenylether	ND		1090	
Hexachlorobenzene	ND		219	
Pentachlorophenol	ND		1090	
Phenanthrene		903	219	
Anthracene		497	219	
Di-n-butylphthalate	ND		1090	
Fluoranthene		895	219	
Pyrene		779	219	
Butylbenzylphthalate	ND		2190	
3,3'-Dichlorobenzidine	ND		2190	
Benzo(a)anthracene	ND		219	
Chrysene	ND		219	
bis(2-Ethylhexyl)phthalate		2630	2190	
Di-n-octylphthalate	ND		2190	
Benzofluoranthenes	ND		437	
Benzo(a)pyrene	ND		219	
Indeno(1,2,3-cd)pyrene	ND		219	
Dibenz(a,h)anthracene	ND		219	
Benzo(g,h,i)perylene	ND		219	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050635
Lab ID:	128326-03
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
% Solids	79.55
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2 - Fluorophenol	116		36	145
Phenol - d5	121		38	149
Nitrobenzene - d5	98		38	141
2 - Fluorobiphenyl	110		42	140
2,4,6 - Tribromophenol	118		28	143
p - Terphenyl - d14	124		42	151

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**RL**	**Flags**
Phenol	ND	56.5	
bis(2-Chloroethyl)ether	ND	113	
2-Chlorophenol	ND	56.5	
1,3-Dichlorobenzene	ND	56.5	
1,4-Dichlorobenzene	ND	56.5	
Benzyl Alcohol	ND	56.5	
1,2-Dichlorobenzene	ND	56.5	
2-Methylphenol	ND	56.5	
bis(2-Chloroisopropyl)ether	ND	282	
3-&4-Methylphenol	ND	56.5	
N-nitroso-di-n-propylamine	ND	56.5	
Hexachloroethane	ND	56.5	
Nitrobenzene	ND	113	
Isophorone	ND	113	
2-Nitrophenol	ND	56.5	
2,4-Dimethylphenol	ND	22.6	
Benzoic Acid	ND	678	
bis(2-Chloroethoxy)methane	ND	113	
2,4-Dichlorophenol	ND	56.5	
1,2,4-Trichlorobenzene	ND	56.5	
Naphthalene	ND	22.6	
4-Chloroaniline	ND	113	
Hexachlorobutadiene	ND	56.5	
4-Chloro-3-methylphenol	ND	56.5	
2-Methylnaphthalene	ND	22.6	
Hexachlorocyclopentadiene	ND	56.5	

STL Seattle

Semivolatile Organics by EPA Method 8270 data for 128326-03 continued...

Analyte		Result (ug/kg)	RL	Flags
2,4,6-Trichlorophenol	ND		56.5	
2,4,5-Trichlorophenol	ND		56.5	
2-Chloronaphthalene	ND		22.6	
2-Nitroaniline	ND		22.6	
Dimethylphthalate	ND		113	
Acenaphthylene	ND		22.6	
2,6-Dinitrotoluene	ND		56.5	
3-Nitroaniline	ND		113	
Acenaphthene		36.3	22.6	
2,4-Dinitrophenol	ND		565	
4-Nitrophenol	ND		565	
Dibenzofuran	ND		56.5	
2,4-Dinitrotoluene	ND		113	
Diethylphthalate	ND		113	
4-Chlorophenylphenylether	ND		113	
Fluorene		25.9	22.6	
4-Nitroaniline	ND		226	
4,6-Dinitro-2-methylphenol	ND		113	
N-Nitrosodiphenylamine	ND		22.6	
4-Bromophenylphenylether	ND		113	
Hexachlorobenzene	ND		22.6	
Pentachlorophenol	ND		113	
Phenanthrene		63.2	22.6	
Anthracene	ND		22.6	
Di-n-butylphthalate	ND		113	
Fluoranthene		101	22.6	
Pyrene		127	22.6	
Butylbenzylphthalate	ND		226	
3,3'-Dichlorobenzidine	ND		226	
Benzo(a)anthracene		39.8	22.6	
Chrysene		52.2	22.6	
bis(2-Ethylhexyl)phthalate		267	226	
Di-n-octylphthalate	ND		226	
Benzofluoranthenes		88.1	45.2	
Benzo(a)pyrene		56.9	22.6	
Indeno(1,2,3-cd)pyrene		42.5	22.6	
Dibenz(a,h)anthracene	ND		22.6	
Benzo(g,h,i)perylene		66.2	22.6	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050636
Lab ID:	128326-04
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
% Solids	60.32
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2 - Fluorophenol	88.9		36	145
Phenol - d5	104		38	149
Nitrobenzene - d5	105		38	141
2 - Fluorobiphenyl	89.1		42	140
2,4,6 - Tribromophenol	106		28	143
p - Terphenyl - d14	123		42	151

Sample results are on a dry weight basis.

		Result		
Analyte		**(ug/kg)**	**RL**	**Flags**
Phenol	ND		80.8	
bis(2-Chloroethyl)ether	ND		162	
2-Chlorophenol	ND		80.8	
1,3-Dichlorobenzene		345	80.8	
1,4-Dichlorobenzene		400	80.8	
Benzyl Alcohol	ND		80.8	
1,2-Dichlorobenzene	ND		80.8	
2-Methylphenol	ND		80.8	
bis(2-Chloroisopropyl)ether	ND		404	
3-&4-Methylphenol	ND		80.8	
N-nitroso-di-n-propylamine	ND		80.8	
Hexachloroethane	ND		80.8	
Nitrobenzene	ND		162	
Isophorone	ND		162	
2-Nitrophenol	ND		80.8	
2,4-Dimethylphenol	ND		32.3	
Benzoic Acid	ND		970	
bis(2-Chloroethoxy)methane	ND		162	
2,4-Dichlorophenol	ND		80.8	
1,2,4-Trichlorobenzene		3440	80.8	
Naphthalene	ND		32.3	
4-Chloroaniline	ND		162	
Hexachlorobutadiene	ND		80.8	
4-Chloro-3-methylphenol	ND		80.8	
2-Methylnaphthalene	ND		32.3	
Hexachlorocyclopentadiene	ND		80.8	

STL Seattle

Semivolatile Organics by EPA Method 8270 data for 128326-04 continued...

Analyte		Result (ug/kg)	RL	Flags
2,4,6-Trichlorophenol	ND		80.8	
2,4,5-Trichlorophenol	ND		80.8	
2-Chloronaphthalene	ND		32.3	
2-Nitroaniline	ND		32.3	
Dimethylphthalate	ND		162	
Acenaphthylene	ND		32.3	
2,6-Dinitrotoluene	ND		80.8	
3-Nitroaniline	ND		162	
Acenaphthene	ND		32.3	
2,4-Dinitrophenol	ND		808	
4-Nitrophenol	ND		808	
Dibenzofuran	ND		80.8	
2,4-Dinitrotoluene	ND		162	
Diethylphthalate	ND		162	
4-Chlorophenylphenylether	ND		162	
Fluorene	ND		32.3	
4-Nitroaniline	ND		323	
4,6-Dinitro-2-methylphenol	ND		162	
N-Nitrosodiphenylamine	ND		32.3	
4-Bromophenylphenylether	ND		162	
Hexachlorobenzene	ND		32.3	
Pentachlorophenol	ND		162	
Phenanthrene		106	32.3	
Anthracene	ND		32.3	
Di-n-butylphthalate		172	162	
Fluoranthene		125	32.3	
Pyrene		116	32.3	
Butylbenzylphthalate	ND		323	
3,3'-Dichlorobenzidine	ND		323	
Benzo(a)anthracene	ND		32.3	
Chrysene	ND		32.3	
bis(2-Ethylhexyl)phthalate		1630	323	
Di-n-octylphthalate	ND		323	
Benzofluoranthenes	ND		64.6	
Benzo(a)pyrene	ND		32.3	
Indeno(1,2,3-cd)pyrene	ND		32.3	
Dibenz(a,h)anthracene	ND		32.3	
Benzo(g,h,i)perylene		75.9	32.3	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050633
Lab ID:	128326-01
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
% Solids	51.37
Dilution Factor	1

PCBs by EPA Method 8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	87.7		60	123
Decachlorobiphenyl	79.6		65	126

Sample results are on a dry weight basis.

		Result		
Analyte		**(mg/kg)**	**RL**	**Flags**
Aroclor 1016	ND		0.0178	
Aroclor 1221	ND		0.0178	
Aroclor 1232	ND		0.0178	
Aroclor 1242	ND		0.0178	
Aroclor 1248	ND		0.0178	
Aroclor 1254	ND		0.0178	
Aroclor 1260		0.324	0.0178	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050634
Lab ID:	128326-02
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
% Solids	87.63
Dilution Factor	1

PCBs by EPA Method 8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	85.1		60	123
Decachlorobiphenyl	81.4		65	126

Sample results are on a dry weight basis.

Analyte		**Result (mg/kg)**	**RL**	**Flags**
Aroclor 1016	ND		0.0108	
Aroclor 1221	ND		0.0108	
Aroclor 1232	ND		0.0108	
Aroclor 1242	ND		0.0108	
Aroclor 1248	ND		0.0108	
Aroclor 1254	ND		0.0108	
Aroclor 1260		0.324	0.0108	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050635
Lab ID:	128326-03
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
% Solids	79.55
Dilution Factor	10

PCBs by EPA Method 8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	-	X8	60	123
Decachlorobiphenyl	-	X8	65	126

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**RL**	**Flags**
Aroclor 1016	ND	0.122	
Aroclor 1221	ND	0.122	
Aroclor 1232	ND	0.122	
Aroclor 1242	ND	0.122	
Aroclor 1248	ND	0.122	
Aroclor 1254	ND	0.122	
Aroclor 1260	2.14	0.122	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050636
Lab ID:	128326-04
Date Received:	6/10/2005
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
% Solids	60.32
Dilution Factor	10

PCBs by EPA Method 8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	-	X8	60	123
Decachlorobiphenyl	-	X8	65	126

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**RL**	**Flags**
Aroclor 1016	ND	0.152	
Aroclor 1221	ND	0.152	
Aroclor 1232	ND	0.152	
Aroclor 1242	1.84	0.152	
Aroclor 1248	ND	0.152	
Aroclor 1254	ND	0.152	
Aroclor 1260	4.4	0.152	

STL Seattle

Client Name:	City of Portland Environmental Services
Client ID:	FO 050634
Lab ID:	128326-02
Date Received:	6/10/2005
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	87.63
Dilution Factor	1

Gasoline Range Organics by Method NWTPH-Gx

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Trifluorotoluene	106		50	150
1-Chloro-3-fluorobenzene	106		50	150
Bromofluorobenzene	122		50	150
Pentafluorobenzene	92.5		50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**RL**	**Flags**
Gasoline by NWTPH-G	7.66	4.26	

STL Seattle

Lab ID:	Method Blank - SS1440
Date Received:	-
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
% Solids	
Dilution Factor	1

Semivolatile Organics by EPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2 - Fluorophenol	97.2		36	145
Phenol - d5	98.7		38	149
Nitrobenzene - d5	82.8		38	141
2 - Fluorobiphenyl	94.3		42	140
2,4,6 - Tribromophenol	72		28	143
p - Terphenyl - d14	117		42	151

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**RL**	**Flags**
Phenol	ND	50	
bis(2-Chloroethyl)ether	ND	100	
2-Chlorophenol	ND	50	
1,3-Dichlorobenzene	ND	50	
1,4-Dichlorobenzene	ND	50	
Benzyl Alcohol	ND	50	
1,2-Dichlorobenzene	ND	50	
2-Methylphenol	ND	50	
bis(2-Chloroisopropyl)ether	ND	250	
3-&4-Methylphenol	ND	50	
N-nitroso-di-n-propylamine	ND	50	
Hexachloroethane	ND	50	
Nitrobenzene	ND	100	
Isophorone	ND	100	
2-Nitrophenol	ND	50	
2,4-Dimethylphenol	ND	20	
Benzoic Acid	ND	600	
bis(2-Chloroethoxy)methane	ND	100	
2,4-Dichlorophenol	ND	50	
1,2,4-Trichlorobenzene	ND	50	
Naphthalene	ND	20	
4-Chloroaniline	ND	100	
Hexachlorobutadiene	ND	50	
4-Chloro-3-methylphenol	ND	50	
2-Methylnaphthalene	ND	20	
Hexachlorocyclopentadiene	ND	50	

STL Seattle

Semivolatile Organics by EPA Method 8270 data for SS1440 continued...

Analyte		Result (ug/kg)	RL	Flags
2,4,6-Trichlorophenol	ND		50	
2,4,5-Trichlorophenol	ND		50	
2-Chloronaphthalene	ND		20	
2-Nitroaniline	ND		20	
Dimethylphthalate	ND		100	
Acenaphthylene	ND		20	
2,6-Dinitrotoluene	ND		50	
3-Nitroaniline	ND		100	
Acenaphthene	ND		20	
2,4-Dinitrophenol	ND		500	
4-Nitrophenol	ND		500	
Dibenzofuran	ND		50	
2,4-Dinitrotoluene	ND		100	
Diethylphthalate	ND		100	
4-Chlorophenylphenylether	ND		100	
Fluorene	ND		20	
4-Nitroaniline	ND		200	
4,6-Dinitro-2-methylphenol	ND		100	
N-Nitrosodiphenylamine	ND		20	
4-Bromophenylphenylether	ND		100	
Hexachlorobenzene	ND		20	
Pentachlorophenol	ND		100	
Phenanthrene	ND		20	
Anthracene	ND		20	
Di-n-butylphthalate	ND		100	
Fluoranthene	ND		20	
Pyrene	ND		20	
Butylbenzylphthalate	ND		200	
3,3'-Dichlorobenzidine	ND		200	
Benzo(a)anthracene	ND		20	
Chrysene	ND		20	
bis(2-Ethylhexyl)phthalate	ND		200	
Di-n-octylphthalate	ND		200	
Benzofluoranthenes	ND		40	
Benzo(a)pyrene	ND		20	
Indeno(1,2,3-cd)pyrene	ND		20	
Dibenz(a,h)anthracene	ND		20	
Benzo(g,h,i)perylene	ND		20	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SS1440
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
QC Batch ID:	SS1440

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
Phenol	0	750	618	82.4	704	93.9	13	
2-Chlorophenol	0	750	728	97	804	107	9.8	
1,4-Dichlorobenzene	0	500	571	114	584	117	2.6	
N-nitroso-di-n-propylamine	0	500	488	97.7	405	80.9	-19	
1,2,4-Trichlorobenzene	0	500	479	95.7	499	99.8	4.2	
4-Chloro-3-methylphenol	0	750	683	91	641	85.4	-6.3	
Acenaphthene	0	500	609	122	558	112	-8.5	
4-Nitrophenol	0	750	546	72.7	481	64.1	-13	
2,4-Dinitrotoluene	0	500	317	63.5	240	48.1	-28	
Pentachlorophenol	0	750	413	55.1	352	47	-16	
Pyrene	0	500	610	122	555	111	-9.4	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	FO 050634
Lab ID:	128326-02
Date Prepared:	6/15/2005
Date Analyzed:	6/16/2005
QC Batch ID:	SS1440

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
Phenol	0	783	795	102	926	114	11	
2-Chlorophenol	0	783	958	122	1140	141	14	X7
1,4-Dichlorobenzene	610	522	1070	87.7	1220	113	25	
N-nitroso-di-n-propylamine	0	522	608	116	637	118	1.7	
1,2,4-Trichlorobenzene	0	522	508	97.3	678	125	25	
4-Chloro-3-methylphenol	0	783	738	94.2	736	90.6	-3.9	
Acenaphthene	0	522	657	126	743	137	8.4	
4-Nitrophenol	0	783	605	77.2	927	114	38	X7
2,4-Dinitrotoluene	0	522	447	85.5	420	77.5	-9.8	
Pentachlorophenol	0	783	477	60.9	449	55.2	-9.8	
Pyrene	780	522	641	0	997	40.3	200	X7a

STL Seattle

Lab ID:	Method Blank - PB0971
Date Received:	-
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
% Solids	
Dilution Factor	1

PCBs by EPA Method 8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	93.3		60	123
Decachlorobiphenyl	84.6		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:	PB0971
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
QC Batch ID:	PB0971

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	0.112	112	0.116	116	3.5	
Aroclor 1260	0	0.1	0.12	120	0.119	119	-0.84	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	FO 050634
Lab ID:	128326-02
Date Prepared:	6/15/2005
Date Analyzed:	6/20/2005
QC Batch ID:	PB0971

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	0.112	0.111	99.3	0.111	104	4.6	
Aroclor 1260	0.32	0.112	0.402	69.1	0.292	0	-200	X7

STL Seattle

Lab ID:	Method Blank - GB5191
Date Received:	-
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	
Dilution Factor	1

Gasoline Range Organics by Method NWTPH-Gx

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Trifluorotoluene	121		50	150
1-Chloro-3-fluorobenzene	133		50	150
Bromofluorobenzene	156	N	50	150
Pentafluorobenzene	104		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	RL	Flags
Gasoline by NWTPH-G	ND	4	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	GB5191
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
QC Batch ID:	GB5191

Gasoline Range Organics by Method NWTPH-Gx

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Gasoline by NWTPH-G	0	50	54.3	109	53.5	107	-1.9	

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

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DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

RL: Reporting Limit

N: See analytical narrative

ND: Not Detected

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

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

128376

Date: 6/9/05
Page: 1 of 1
Collected By: MJH

Project Name: Portland Harbor Inline Sed Samp
File Number: 1020.001 **Matrix:** Sediment

Contact Peter Abrams at (503) 823-5533 with any questions.

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: PCBs (low-level)	General: Semi-Volatiles	Metals	Micro	Nutrients	Field
FO 050633			9/28/04	1245		X	X				
FO 050634			9/28/04	1243		X	X				
FO 050635			9/28/04	0950		X	X				
FO 050636			9/28/04	1149		X	X				

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature:	Signature:	Signature:	Signature:
Time: 11:02	Time:	Time:	Time:
Printed Name: Peter Abrams	Printed Name:	Printed Name:	Printed Name:
Date: 6/9/05	Date:	Date:	Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature:	Signature:	Signature:	Signature:
Time: 945 6/10/05	Time:	Time:	Time:
Printed Name: Jeanelle Domanski	Printed Name:	Printed Name:	Printed Name:
Date:	Date:	Date:	Date: