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

TECHNICAL MEMORANDUM No. OFM3-1

City Outfall Basin M-3
Dry-Weather Flow Sampling

TO: Mike Romero, DEQ, Northwest Region Cleanup & Portland Harbor Section

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

COPIES: Tom Roick, DEQ, Northwest Region Cleanup & Portland Harbor Section
Kristine Koch, EPA, Office of Environmental Cleanup
Bruce Brody-Heine, GSI

DATE: June 16, 2006

SUBJECT: **Portland Harbor Source Control Investigation**

Introduction

This technical memorandum summarizes the results of the City of Portland (City) Bureau of Environmental Services' (BES) investigation of dry-weather flow entering the Outfall Basin M-3 stormwater conveyance system. Outfall Basin M-3 collects stormwater from the southern portion of North Basin Avenue, a portion of North Lagoon Avenue, and several private lines and portions of adjoining properties at the south end of Swan Island. This investigation, conducted in July and September 2005, is part of the City's ongoing source control program associated with the Portland Harbor City of Portland Outfalls Project. The City is submitting these investigation results pursuant to the August 13, 2003, Intergovernmental Agreement (IGA) between the Oregon Department of Environmental Quality (DEQ) and the City.

Purpose and Objectives

The purpose of this investigation is to identify potential sources of metals detected during the Illicit Discharge Elimination Program (IDEP) dry-weather flow sampling conducted at Outfall M-3 in September 2002. Based on the IDEP results, the City collected dry-weather flow samples (and attempted to collect inline solids) from the stormwater conveyance system in July and September 2005 to identify portions of the outfall basin where dry-weather flow may indicate a source for the detected metals.

Background

The City IDEP program collected a dry-weather flow sample from Outfall M-3 in September 2002 in support of the City's MS4 NPDES stormwater permit. Concentrations of copper, lead and zinc detected in the IDEP sample exceeded the DEQ Ambient Water Quality Criteria (AWQC), which preceded the more restrictive DEQ/EPA Joint Source Control Strategy (JSCS) screening level values (SLVs) established in 2005 (DEQ/EPA, 2005).[1] The results of IDEP sampling are summarized below.

Total Metals (µg/L)	OF M-3 Sept. 19, 2002	JSCS Screening Level Values (Ecological Receptors)	
		EPA's 2004 NRWQC (chronic)[1]	DEQ's 2004 AWQC (chronic)
Arsenic	0.98	150	--
Cadmium	0.33	0.0969	0.38
Chromium	<0.4	27.7	11
Copper	29	2.85	3.6
Lead	4.14	0.545	0.54
Mercury	<0.01	0.77	0.012
Nickel	1.5	16.1	49
Zinc	66.6	37	33

[1]All values shown, with the exception of arsenic and mercury, have been converted from EPA's Chronic National Recommended Water Quality Criteria (NRWQC) for dissolved metals, based on EPA guidance.

Figure 1 shows the location of the City Outfall M-3 stormwater conveyance system. The system consists of a 48-inch-diameter main line and associated catchment systems, and several branch and lateral lines. The elevation of the M-3 outfall and adjacent conveyance system is at a level that allows the Willamette River to back up into the lower portion of this system during much of the year.

A significant source of dry-weather flow to this system is from the Freightliner Truck Manufacturing Plant II (DEQ Environmental Cleanup Site Inventory [ECSI] No. 115) located on North Basin Avenue. Under an NPDES 100-J permit issued in 1992, the Freightliner facility discharges non-contact cooling water to an 18-inch-diameter City stormwater line upstream of the outfall. The 100-J discharge monitoring report for the month of July 2005 documented discharge volumes of 17,000 to 23,000 gallons per day from this facility (DEQ, 2005). Additional sources of dry-weather flow exist in the basin, including the Cummins Northwest Inc. facility at 4700 N. Basin. In 2005, this facility submitted an application for a NPDES 100-J permit to DEQ for approval of intermittent discharges of non-contact cooling water to the City storm sewer on N. Basin Ave.

Based on the IDEP sample results, the City conducted the sampling summarized in this document.

Field Activities

The City coordinated with DEQ regarding this source control investigation prior to conducting this work. The dry-weather flow sampling locations are shown in Figure 2.

[1] For the purposes of evaluating inline dry-weather flow data, the JSCS Ecological Receptors SLVs were determined to be the most relevant for comparison. Detected inline concentrations may also exceed JSCS Human Health SLVs.

The City sampling team initially attempted to obtain samples of inline solids and dry-weather flow from the system on June 21, 2005. However, the lower portion of the basin was flooded by the high river stage and inline solids were not found at upstream locations.

The sampling team returned on July 28, 2005 and collected three dry-weather flow samples – two from the main line on N. Basin Ave. and one from the Freightliner stormwater sampling manhole "SW SMH #01." Again, no solids were observed in the line, and the lower section of the main line remained flooded. No flow was observed in the next upstream manhole on the main line (AAQ118).

The sampling team returned on September 1, 2005 in a final attempt to collect samples from the manholes that had remained flooded during earlier attempts. Due to visual observations of floating paint chips at the downstream manhole (AAQ003) the field crew collected an additional dry-weather flow sample from flowing water upstream of manhole AAQ004 at approximately 1:00 p.m. Paint particles were also noted in the dry-weather flow, though no inline solids were observed at this sample location, and upstream manhole AAQ118 did not contain flow. No measurable precipitation occurred at the site on either of the sampling days, or during the two-day periods preceding the sampling events.

A total of four dry-weather flow samples were obtained from the system. The sampling locations, representing what can be referred to in this investigation as the "northeast branch" and "south branch" of the M-3 conveyance system, are summarized as follows:

Northeast Branch

Sample SW SMH #01: This sample was obtained in July from the stormwater sampling manhole referred to as the "East Outfall" in the Freightliner NPDES 1200-Z permit. The line entering this manhole is part of the system that discharges non-contact cooling water from the facility. The sample therefore represents dry-weather flow and non-contact cooling water discharged to the City's conveyance system at the southwest portion of the site.

Sample AAQ004(N): This sample was obtained in July from the 18-inch-diameter line entering manhole AAQ004 from the northeast. The dry-weather flow from this line was slightly turbid during sampling. Upstream from this location, the 18-inch line is fed by five laterals discharging to manhole AAP976. Two laterals convey flow from the Freightliner "East" and "West" outfalls. Two laterals connect to catch basins on North Basin Ave. The fifth lateral is a private storm line on N. Emerson Street that includes discharges from the eastern portion of the Freightliner facility as well as surface runoff.

South Branch

Sample AAQ005: This sample was obtained in July from the 48-inch-diameter main line at manhole AAQ005 and represents dry-weather flow entering the City's system upstream of where discharges from the Freightliner site and North Emerson Street enter the system.

Sample AAQ004*:* This sample was obtained in September approximately 15 feet upstream of manhole AAQ004 in the City's main line. As with Sample AAQ005, this sample represents dry-weather flow entering the system upstream of where discharges from the Freightliner site and North Emerson Street enter the system. The sampling team collected this sample because the crew observed bright green paint globs in the main line at this location during sampling.

The river had backed up into manholes AAQ003 and AAQ004 during the June and July sampling attempts, preventing sampling from the main line at these locations. In addition, dry-weather flow either was not present or was insufficient to obtain samples in the portion of the system upstream of manhole AAQ005 during both the July and September sampling events.

Photographs showing sampling locations are included in Attachment A. Notes from the field sampling are provided in Attachment B.

Summary of Results

The dry-weather flow samples were analyzed for total copper, lead and zinc. Analytical results are summarized on Table 1 and shown on Figure 2. The laboratory analytical results and validation report are provided in Attachment C.

Results were compared to the JSCS SLVs for Ecological Receptors. Use of these SLVs provides a conservative screening of sampling results since it is unlikely that receptors would be living in the stormwater pipes and therefore be exposed to the concentrations detected in the dry-weather flow. An ecological receptor in the river system near the outfall would potentially be exposed to a mixture of dry-weather flow and river water.

The results of this Outfall M-3 basin investigation indicate that copper concentrations in all four samples exceeded the JSCS SLVs for copper. In addition, two of the samples (AAQ004 and AAQ005) exceeded the lead and zinc JSCS SLVs.

Conclusions and Recommendations

Analytical results for the dry-weather flow samples from the basin indicate that copper, lead and zinc are present in dry-weather flow discharging through Outfall M-3 at concentrations that exceed JSCS SLVs.

The copper concentration in dry-weather flow sampled from the Freightliner site exceeded JSCS SLVs. Concentrations of copper, lead and zinc in the dry-weather flow in the main line upstream of the Freightliner site also exceeded JSCS SLVs. A source of these metals in the main line has not been identified; field crews did not observe flow in the main line, upstream of these sampling locations and downstream of the Cummins facility. It is unclear whether metals present in this dry-weather flow were associated with additional non-stormwater discharges from industrial facilities or with fine-grained suspended/resuspended solids in the system, or were dissolved and potentially associated with groundwater infiltration.

The City requests that DEQ require Freightliner to further investigate their site conditions to ascertain the source and migration pathway of copper detected in dry-weather flow discharged to the City stormwater conveyance system, and to identify appropriate control mechanisms to address this source.

The City will continue to evaluate dry-weather flow in the M-3 stormwater basin to identify potential contaminant sources. Current industrial source control programs include the issuance of environmental surveys to new facilities within the basin and subsequent referrals to the industrial stormwater inspectors where appropriate. The City will review the current facility list for Outfall Basin M-3 to identify any additional survey or inspection needs.

References

DEQ. 2005. 100-J Discharge Monitoring Report – Truck Manufacturing Plant 2 July 2005. Submitted by Freightliner to DEQ, August 2005.

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

Tables

Table 1 – *Summary of Chemical Analytical Results, Dry-Weather Flow Sampling*

Figures

Figure 1 – *Outfall M-3, Basin Overview*
Figure 2 – *Outfall M-3, Dry-Weather Flow Sampling, Total Metals*

Attachments

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

Table 1
Summary of Chemical Analytical Results
Dry-Weather Flow Sampling
City Outfall Basin M-3

			---------- Northeast Branch ----------		---------- South Branch ----------			
			SWSMH #01	AAQ004 (N)	AAQ005	AAQ004	JSCS	
			IL-M3-SWSMH02-0705	IL-M3-AAQ004-0705-N	IL-M3-AAQ005-0705	IL-M3-AAQ004-0905	Screening Level Values	
Class	**Analyte**	Units	7/28/2005	7/28/2005	7/28/2005	9/1/2005	(Ecological Receptors)	
							EPA's 2004 NRWQC (chronic)[1]	DEQ's 2004 AWQC (chronic)[2]
Total Metals (EPA 200.8)								
	Copper	µg/L	48.8	43.7	38.5	39.4	2.85	3.6
	Lead	µg/L	0.32	0.30	7.06	3.60	0.545	0.54
	Zinc	µg/L	2.22	3.60	146	87.3	37	33

Notes:

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

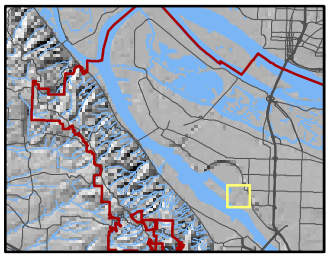
The detected concentration exceeds the applied JSCS Screening Level Value.

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

[1]All values shown have been converted from EPA's Chronic National Recommended Water Quality Criteria (NRWQC) for dissolved metals, based on EPA guidance

[2]DEQ's 2004 AWQC Screening Levels for total recoverable metals.

See Attachment C for laboratory sheets.



Legend

- Storm Pipe
- Manhole
- Taxlots
- M-3 Basin Boundary

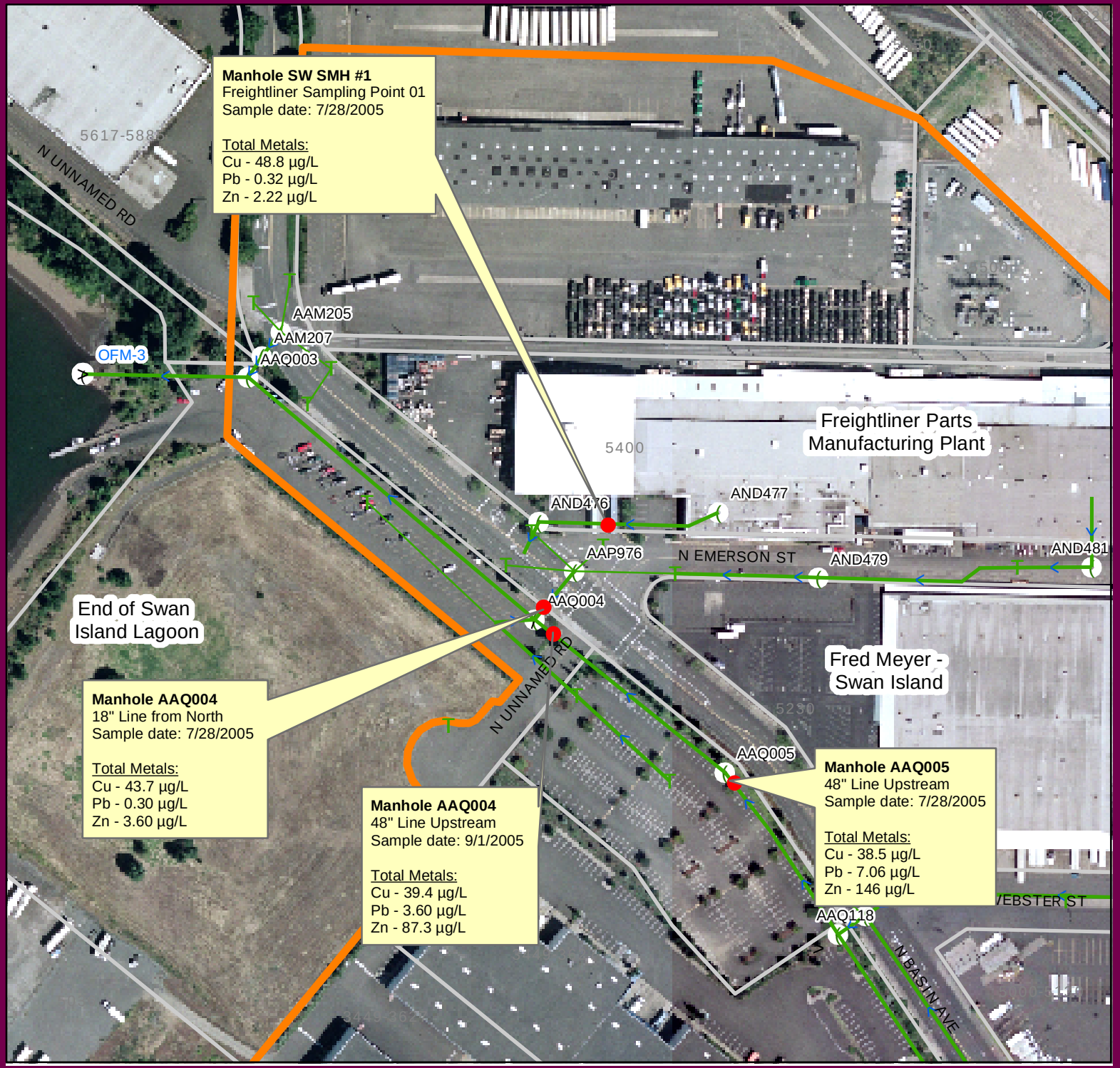
0 250 500 1000 Feet

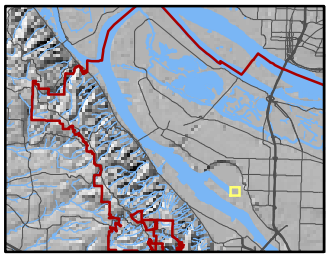
DEQ Environmental Cleanup Sites are shown

No warranty is made by the City of Portland Environmental Services as to the accuracy, reliability, or completeness of these data. Although care was applied in the compilation of the data from the various original data sources, quality assurance on those original data was not performed, except in specific instances. This product was developed through digital means and may be updated without notification. Data shown are to be used for reference purposes only; maps should not to be used to determine jurisdictional authority, ownership, or operations and maintenance responsibilities.

Figure 1
Outfall M-3
Basin Overview

Source: City of Portland BES Aerial photo 2005	Environmental Services City of Portland 1120 SW Fifth Avenue, Room 1000 Portland Oregon, 97204-1912
File Name: s:\gis\outfalls\outfalls_M3\ figure1.mxd	**Program Manager:** Dawn Sanders Portland Harbor Superfund
Sheet No. 1 OF 1	**Date Printed:** 01/13/2006 **Prepared by:** Sara Gardner





Legend

- Storm Pipe
- Manhole
- Storm Inlets
- Taxlots
- M-3 Basin Boundary

0 250 500 1000 Feet

DEQ Environmental Cleanup Sites are shown

Note: Only detected constituents are shown.

µg/L = micrograms/liter

No warranty is made by the City of Portland Environmental Services as to the accuracy, reliability, or completeness of these data. Although care was applied in the compilation of the data from the various original data sources, quality assurance on those original data was not performed, except in specific instances. This product was developed through digital means and may be updated without notification. Data shown are to be used for reference purposes only; maps should not to be used to determine jurisdictional authority, ownership, or operations and maintenance responsibilities.

Figure 2
Outfall M-3
Dry-Weather Flow Sampling
Total Metals
Sample Dates: 7/28/2005 & 9/1/2005

Source: City of Portland BES Aerial photo 2005	Environmental Services City of Portland 1120 SW Fifth Avenue, Room 1000 Portland Oregon, 97204-1912
File Name: s:\gis\outfalls\outfalls_M3\figure2.mxd	Program Manager: Dawn Sanders Portland Harbor Superfund
Sheet No. 1 OF 1	Date Printed: 05/19/2006 Prepared by: Sara Gardner

Attachment A
Field Photographs

Photo 1 (May, 2005). Aboveground location of node AAQ004, where an 18-inch incoming lateral was sampled in July and the main line was sampled in September.

Photo 2 (May, 2005). Aboveground location of node AAQ005, where the main line was sampled in July.

Photo 3 (July, 2005). Outfall M-3.

Attachment B
Field Notes

City of Portland
Environmental Services

DAILY FIELD REPORT

Project INLINE SEDIMENT SAMPLING
Project No. 7020.00)
Location NW FRONT AVE
Date 6-21-05
Subject FIELD NOTES
By MJH

7:30 PREPARE EQUIPMENT FOR TODAYS SAMPLING EVENT. STAINLESS STEEL SPOONS + BUCKETS. DECONNED PER SOP 2.01a BY MJS.
ASSEMBLE SAMPLE BOTTLES, COC'S, PAPERWORK, TODAYS WORK WILL INCLUDE 1 WATER SAMPLE + MULTIPLE SED SAMPLE.

8:30 DJH NOTIFIES L. SCHEFFLER THAT WE ARE PROCEEDING TO FIRST SAMPLE SITE.

9:00 ARRIVE AT 5909 NW 61ST (AMJ653). SET UP TRAFFIC CONTROL. MH is IN MIDDLE OF ROAD.

9:10 DJH ENTERS MH TO INSPECT SAMPLING LOCATION.

915 REPORTS PRESENCES OF 0.5 GPM COMING FROM LATERAL 65' UP FROM MH AMJ653.

0920 DJH BEGINS TO COLLECT SAMPLE FROM ABOVE LOCATION USING S.S. BEAKER.

0945 RELINQUISH WATER SAMPLE TO PETE. FOR PETE TO DELIVER TO THE LAB.

0951 MOVE TO AMW708. THIS IS A CATCH BASIN ABOUT 20' TO THE NORTH OF THE ROAD.

1000 COLLECTING SEDIMENT FROM CATCH BASIN.

1012 MOVE TO AMJ879. WATER IN CATCH BASIN.

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project INLINE SEDIMENT SAMPLING
Location NW RDY
Subject FIELD NOTES

Project No. 1020.001
Date 6-21-05
By MJH

1020 SAMPLE COLLECTED FROM CATCH BASIN. WATER IN C.B. SANDY SEDIMENTS IN CB. SANDY SEDS OBSERVED IN AREA AROUND CB.

1031 MOVE TO AND 878. THIS IS ANOTHER CB NORTH OF ~~NW SIDE OF FRONT AVE~~ S OF SOME TRAIN TRACKS. GENTLEMAN WALKS UP TO US AND TALKS W/ LINDA. LARRY?

1038 SAMPLE COLLECTED FROM CATCH BASIN. LOTS OF CRAWLER

1121 ARRIVE AT SWAN ISLAND. START AT AAQ004 BECAUSE IT HAS AN ALTERNATE. DSP ENTER MH. RIVER BACKED UP. NO SEDIMENTS IN ANY OF THE LINES AT THIS LOCATION.

1147 MOVE TO MH AAQ003. DSP ENTERS. WATER 5' DEEP AT THIS LOCATION. NO SEDS IN THE BOTTOM.

1155 AAQ118 - COULD NOT GET MH OPEN - DESPITE BEST EFFORTS

1210 AAQ005 - NOT FLOODED. THERE IS MINOR FLOW AT THIS LOCATION. DID NOT ENTER

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Project IN LINE SED SAMP
Project No. 1020.001
Location
Date 6-21-05
Subject FIELD NOTES
By MJD

1210 BASIN M3 - DUE TO LACK OF SUCCESS WE ARE SUSPENDING OPS HERE TODAY.. WILL RETURN LATER IN THE SUMMER WHEN RIVER LEVELS ARE LOWER AND TRY AGAIN

1220 PETE ENTERS AAGR003. MINOR FLOW, NO SEDIMENTS 48" DIA LINE

1230 LUNCH

1:30 ARRIVE AT OREGON STEEL MILLS. NODE AM 111 STANDING WATER IN THE LINE SEDIMENT ALSO PRESENT. SEDIMENT IS A CEMENTED FINE SEDS.

1425 SAMPLES RETURNED TO OWRL + SUBMITTED TO LAB UNDER CHAIN OF CUSTODY. SAMPLES HAVE BEEN IN CHILLED COOLER ALL DAY

Attachments

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001

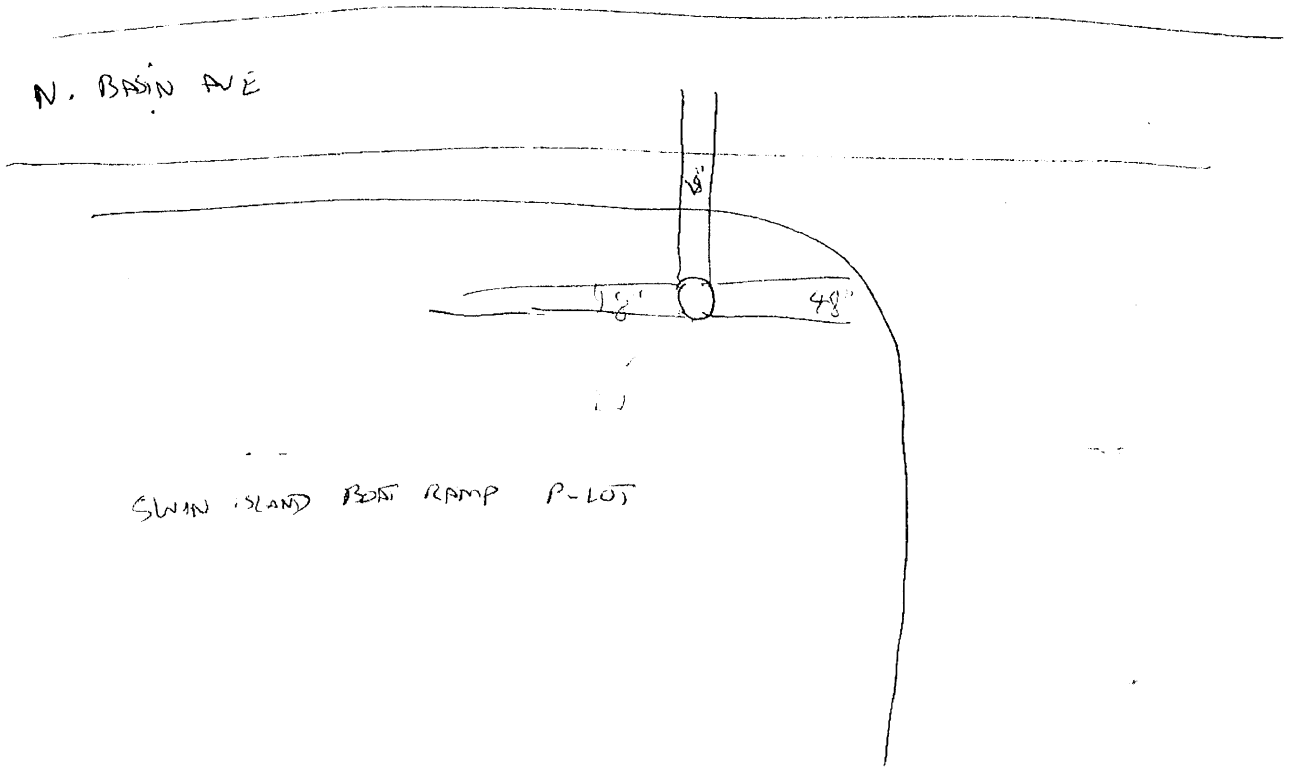
FIELD DATA SHEET

Date: 6-21-05	Time: 1132	Current Weather conditions:	Lt CLOUDS 70's
Sampling Team Present:	MJW / PNA / DJJ		
Basin: M3	Node: AAQ005	Subbasin:	
Address:	SWAN ISLAND BOAT RAMP - PARKING LOT		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	STANDING WATER - RIVER BACKED UP.
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES
Are sediments observed in the line?	NO
Is there enough sediment in the line to collect a sample?	NO
Describe lateral extent and depth of sample-able sediments present in the line:	—

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



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AA0009

Sampling Equipment:	
Equipment Decontamination process:	Per FOps SOP 70.1a Other (Describe)
Sample date:	Sample time:
Sample Identification: (IL-XX-NNNNNN-mmyy)	
Sample location: (number of feet from node of entry)	
Sample collection technique:	
Color of sample:	
Texture/Particle size:	
Visual or olfactory evidence of contamination:	
Depth of solids in area where sample collected:	
Amount and type of debris:	
Compositing notes:	

No sample collected

	Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals			
	PAHs/SVOCs			
	PCBs			
	TPH (two jars)			
	TOC			

Duplicate sample collected?	
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 3 - PHOTOGRAPH LOG

Photograph Log	In-Pipe sample location	
	Homogenized sample	

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001

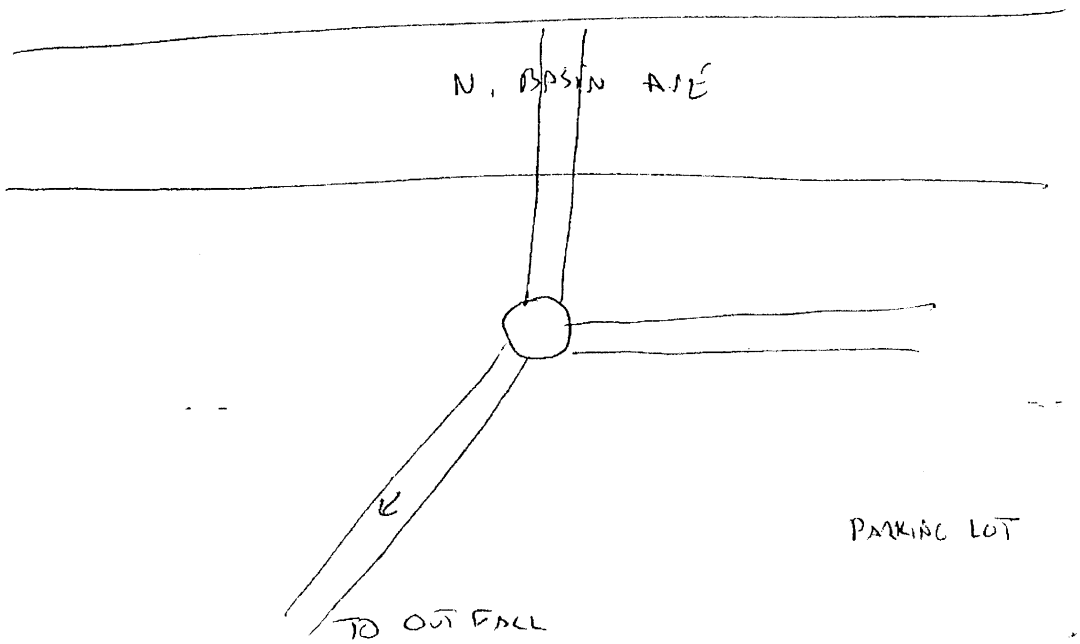
FIELD DATA SHEET

Date: 6-21-05	Time: 1200	Current Weather conditions:
Sampling Team Present:		
Basin: M3	Node: AAQ003	Subbasin:
Address:		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	STANDING WATER 5' DEEP
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES 5' DEEP AT THIS TIME
Are sediments observed in the line?	NO (SOUNDED BOTTOM W/ RIGID MEASURING LINE)
Is there enough sediment in the line to collect a sample?	NO
Describe lateral extent and depth of sample-able sediments present in the line:	—

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



SECTION 2 - SAMPLE COLLECTION REPORT

Node: NAQ003

Sampling Equipment:	
Equipment Decontamination process:	Per FOps SOP 70.1a Other (Describe)
Sample date:	Sample time:
Sample Identification: (IL-XX-NNNNNN-mmyy)	
Sample location: (number of feet from node of entry)	No
Sample collection technique:	SAMPLE COLLECTED
Color of sample:	
Texture/Particle size:	
Visual or olfactory evidence of contamination:	
Depth of solids in area where sample collected:	
Amount and type of debris:	
Compositing notes:	

If not enough sample to fill all of the jars, then fill jars in this order:	Sample Jars Collected			
	Metals			
	PAHs/SVOCs			
	PCBs			
	TPH (two jars)			
	TOC			

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:	

SECTION 3 - PHOTOGRAPH LOG

Photograph Log	In-Pipe sample location	
	Homogenized sample	

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001

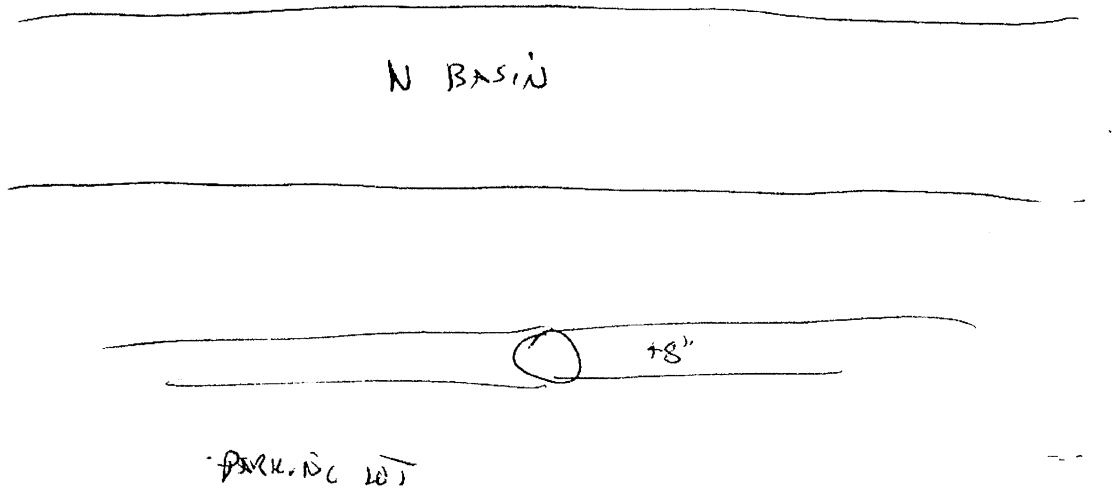
FIELD DATA SHEET

Date: 6-21-05	Time: 1214	Current Weather conditions: LT CLOUDS
Sampling Team Present: MSD | PHA | DOP		
Basin: M3	Node: AAQ005	Subbasin:
Address: N BASIN AVE		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	0.1"
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	NO
Is there enough sediment in the line to collect a sample?	NO
Describe lateral extent and depth of sample-able sediments present in the line:	—

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



SECTION 2 - SAMPLE COLLECTION REPORT

Node: AAQ005

Sampling Equipment:	
Equipment Decontamination process:	Per FOps SOP 70 1a Other (Describe)
Sample date:	Sample time:
Sample Identification: (IL-XX-NNNNNN-mmyy)	
Sample location: (number of feet from node of entry)	NO SAMPLE COLLECTED
Sample collection technique:	
Color of sample:	
Texture/Particle size:	
Visual or olfactory evidence of contamination:	
Depth of solids in area where sample collected:	
Amount and type of debris:	
Compositing notes:	

	Sample Jars Collected			
If not enough sample to fill all of the jars, then fill jars in this order:	Metals			
	PAHs/SVOCs			
	PCBs			
	TPH (two jars)			
	TOC			

Duplicate sample collected?	
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 3 - PHOTOGRAPH LOG

Photograph Log	In-Pipe sample location	
	Homogenized sample	

City of Portland
Environmental Services

DAILY FIELD REPORT

Page 1 of _____

Project PORTLAND HARBOR INLINE SED SAMP
Project No. 1020.001
Location _____
Date 7/28/05
Subject FIELD NOTES
By MJH, JJM

0850 ARRIVE AT N RAMSEY + N. RIVERGATE. BASIN 53A
ENTER MH AA0179. DISCREPANT MAP ON MAP.
THIS IS A 36", 24", 42" AND A CAPPED 4"
LINE COMING IN, AND A 48" OUT.
JJM SAMPLES FROM THE 3 INCOMING LINES.

1002 ARRIVE AT M3
AA0003 IS flooded w Willamette River water
NO SAMPS collected

AA0004 - GOOD FLOW
1020 AU collects water from flume SMH #04
1024 JJM collects water from 8" LINE INTO AA0004
1036 @ AA0005 MJH enters MH to collect grab from upstream side. Flow is moving towards the river
1034 AU OBSERVES NO FLOW IN AA0116. NO SAMPLE COLLECTED

1110 AT AAM104
20" IS DRY NO SAMPLE COLLECTED
1126 36" SAMPLED
1128 64 SAMPLED

1150 AT AAJ933

Attachments

City of Portland
Environmental Services

DAILY FIELD REPORT

Page 2 of 2

Project PDX HARBOR INLINE SED SAMP
Project No. 1020.001
Location
Date 7/28/05
Subject FIELD NOTES
By MJH

1500 ALL SAMPLES HAVE BEEN PLACED IN CHILLED COOLERS UPON COLLECTION

1523 Samples submitted to WPCL lab under chain of custody

Attachments

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ENVIRONMENTAL SERVICES

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

PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001

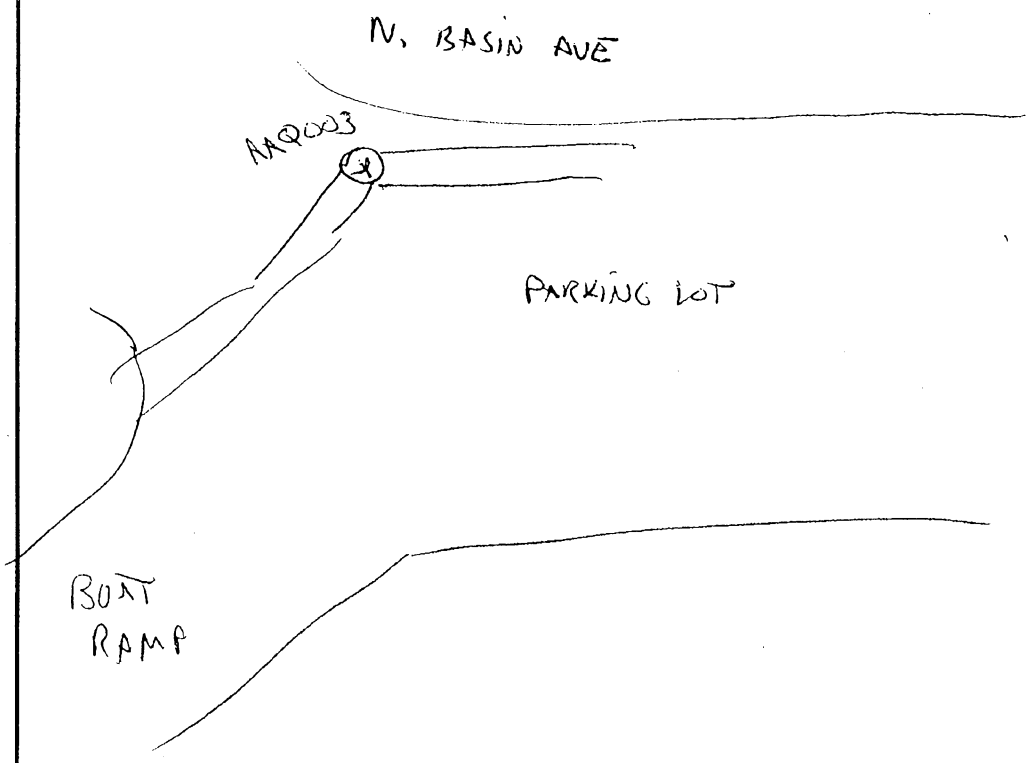
FIELD DATA SHEET

Date: 7/28/05	Time: 1010	Current Weather conditions:	SUNNY 80's
Sampling Team Present:	MJN / JJM / AD		
Basin:	Node: AAQ003	Subbasin:	
Address:	SWAN ISLAND BOAT RAMP		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	WILLAMETTE RIVER IS BACKED UP TO LINE
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES
Are sediments observed in the line?	N/A
Is there enough sediment in the line to collect a sample?	N/A
Describe lateral extent and depth 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

PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001
FIELD DATA SHEET

Date: 7/24	Time: 1015	Current Weather conditions: SUNNY 80's
Sampling Team Present: MJH / JJM / AD		
Basin: M3	Node: AAQ004	Subbasin:
Address: SWAN ISLAND BOAT RAM		

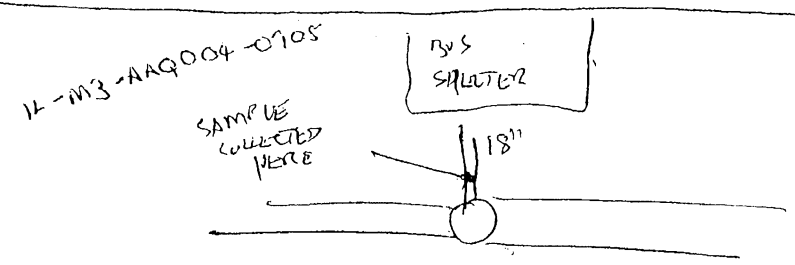
SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	RIVER BACKED UP IN MAIN LINE. GOOD FLOW IN 18" LINE FROM S LINER
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES
Are sediments observed in the line?	NO
Is there enough sediment in the line to collect a sample?	WATER SAMPLE collected FROM 8"
Describe lateral extent and depth of sampleable sediments present in the line:	NA

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

FREIGHTLINER

N. BASIN AVE



P-LOT

SECTION 2 - SAMPLE COLLECTION REPORT		Node: AAQ004
Sampling Equipment:	SS BEAKER	
Equipment Decontamination process:	(Per FOps SOP 70.1a)	Other (Describe)
Sample date: 7/28/08	Sample time: 1031	
Sample Identification: (IL-XX-NNNNNN-mmyy)	IL-M3-AAQ004-0705-N	PO 350783
Sample location: (number of feet from node of entry)	AT 18" LINE WHERE IT COMES INTO THE MAIN LINE	
Sample collection technique:	BEAKER USED TO FILL SAMPLE BOTTLE	
Color of sample:	SLIGHTLY TURBID	
Texture/Particle size:	N/A	
Visual or olfactory evidence of contamination:	~~No~~	
Depth of solids in area where sample collected:	—	
Amount and type of debris:	—	
Compositing notes:	~~N/A~~	

Sample Jars Collected				
If not enough sample to fill all of the jars, then fill jars in this order:	Metals			
	PAHs/SVOCs			
	PCBs			
	TPH (two jars)			
	TOC			
Duplicate sample collected?				
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 3 - PHOTOGRAPH LOG		
Photograph Log	In-Pipe sample location	
	Homogenized sample	

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

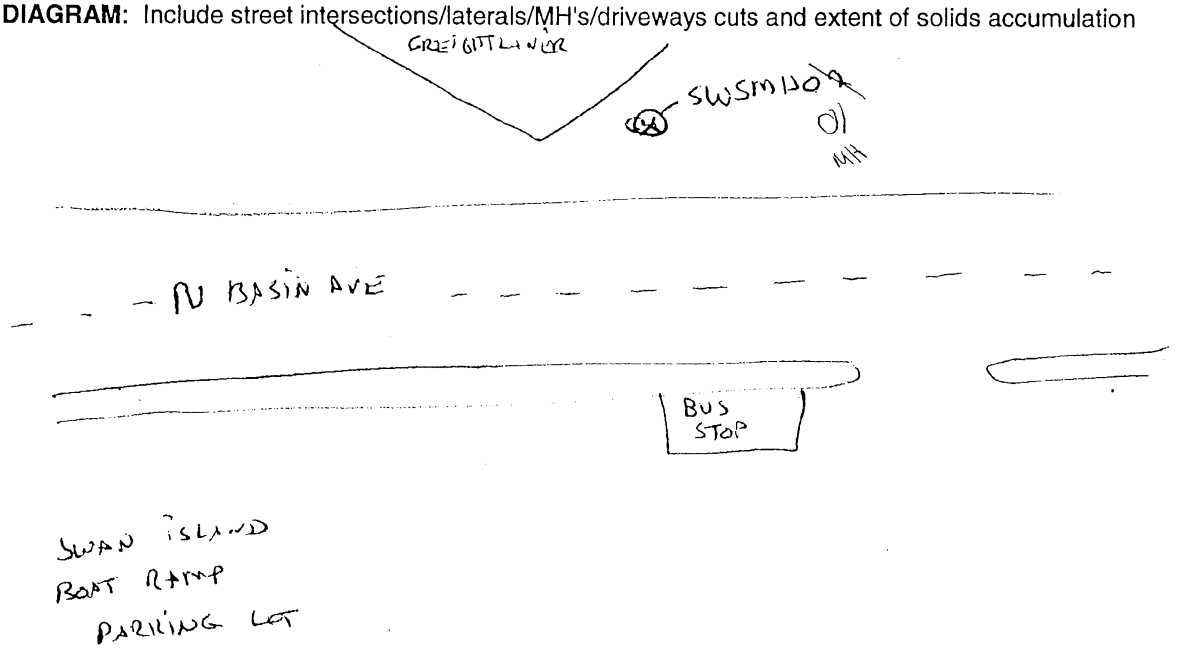
PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001
FIELD DATA SHEET

Date: 7/29/05 Time: 1020		Current Weather conditions:
Sampling Team Present: MTJH/JJM/AD		
Basin: M3	Node: SWSMH03 ~~01~~ MH	Subbasin:
Address: [redacted] FREIGHTLINER LOADING DOCK AREA OFF OF BASIN AVE		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	FLOWING WATER PRESENT
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	NO
Is there enough sediment in the line to collect a sample?	WATER SAMPLE - YES
Describe lateral extent and depth of sample-able sediments present in the line:	—

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



SECTION 2 - SAMPLE COLLECTION REPORT

Node: SWSMN02

Sampling Equipment:	SAMPLE CONTAINER FILLED DIRECTLY
Equipment Decontamination process:	Per FOps SOP 70.1a N/A Other (Describe)
Sample date: 7/28/05	Sample time: 1021
Sample Identification: (IL-XX-NNNNNN-mmyy)	IL-M3 SWSMH02-0705 PO 050785
Sample location: (number of feet from node of entry)	FREIGHTLINE STORMWATER SAMPLING M.H. AT LOADING DOCK CCL OF N. BASIN
Sample collection technique:	SAMPLE CONTAINER FILLED DIRECTLY
Color of sample:	CLEAR
Texture/Particle size:	—
Visual or olfactory evidence of contamination:	ND
Depth of solids in area where sample collected:	—
Amount and type of debris:	—
Compositing notes:	—

Sample Jars Collected				
If not enough sample to fill all of the jars, then fill jars in this order:	Metals			
	PAHs/SVOCs			
	PCBs			
	TPH (two jars)			
	TOC			

Duplicate sample collected?	
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 3 - PHOTOGRAPH LOG

Photograph Log	In-Pipe sample location	
	Homogenized sample	

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

Water Pollution control Laboratory
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Portland, OR 97203-5452

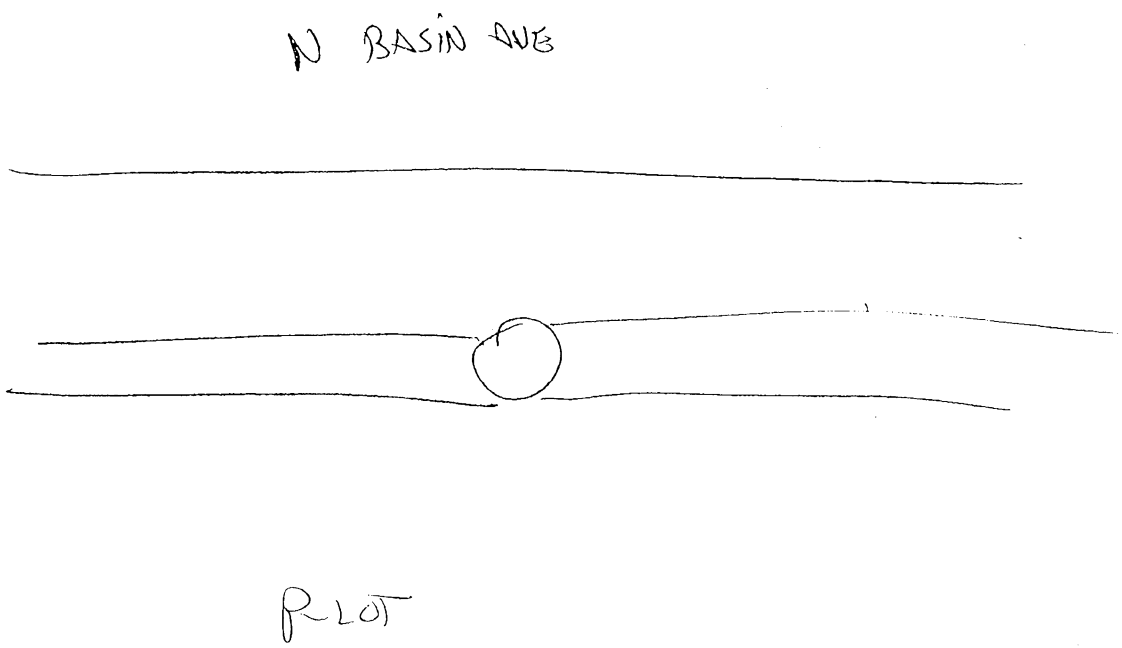
PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001
FIELD DATA SHEET

Date: 7/28/05	Time: 1035	Current Weather conditions:
Sampling Team Present: MJH / JJM / AD		
Basin: M3	Node: AAQ005	Subbasin:
Address: SWAN ISLAND BOAT RAMP PILOT		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	1/2" FLOWING WATER
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO TA THIS TIME.
Are sediments observed in the line?	NO
Is there enough sediment in the line to collect a sample?	WATER SAMPLE WAS collected
Describe lateral extent and depth of sample-able sediments present in the line:	—

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



SECTION 2 - SAMPLE COLLECTION REPORT		Node: AAQ 005
Sampling Equipment:	SS BEAKER	
Equipment Decontamination process:	Per FOps SOP 70.1a	Other (Describe)
Sample date: 7/28/05	Sample time: 1038	
Sample Identification: (IL-XX-NNNNNN-mmyy) IL-M3-AAQ005-0705 FO 050784		
Sample location: (number of feet from node of entry)	AT NODE	
Sample collection technique:	SS BEAKER USED TO FILL SAMPLE CONTAINER	
Color of sample:	CLEAR	
Texture/Particle size:	N/A	
Visual or olfactory evidence of contamination:	NO	
Depth of solids in area where sample collected:	—	
Amount and type of debris:	N/A	
Compositing notes:	—	

Sample Jars Collected				
If not enough sample to fill all of the jars, then fill jars in this order:	Metals			
	PAHs/SVOCs			
	PCBs			
	TPH (two jars)			
	TOC			
Duplicate sample collected?				
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 3 - PHOTOGRAPH LOG		
Photograph Log	In-Pipe sample location	
	Homogenized sample	

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PORTLAND HARBOUR INLINE SEDIMENT SAMPLING - 1020.001

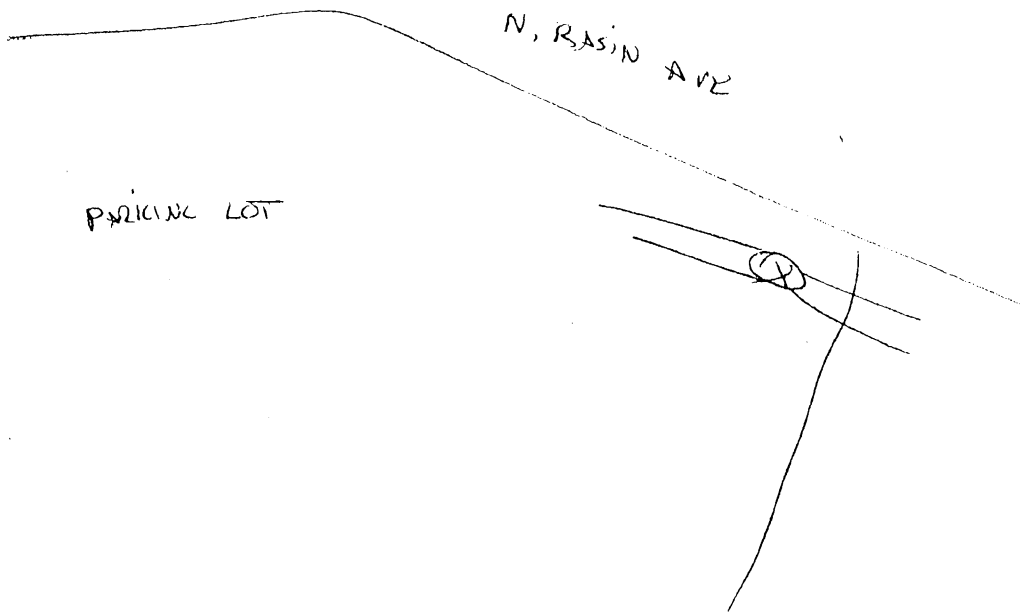
FIELD DATA SHEET

Date: 7/28/05	Time: 1040	Current Weather conditions: SUNNY 80's
Sampling Team Present: MJH / JJM / AD		
Basin: M3	Node: AAQ118	Subbasin:
Address: 5400 N. BASIN AVE		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	NO WATER IN LINE
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	NO
Is there enough sediment in the line to collect a sample?	NO
Describe lateral extent and depth 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
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Portland, OR 97203-5452

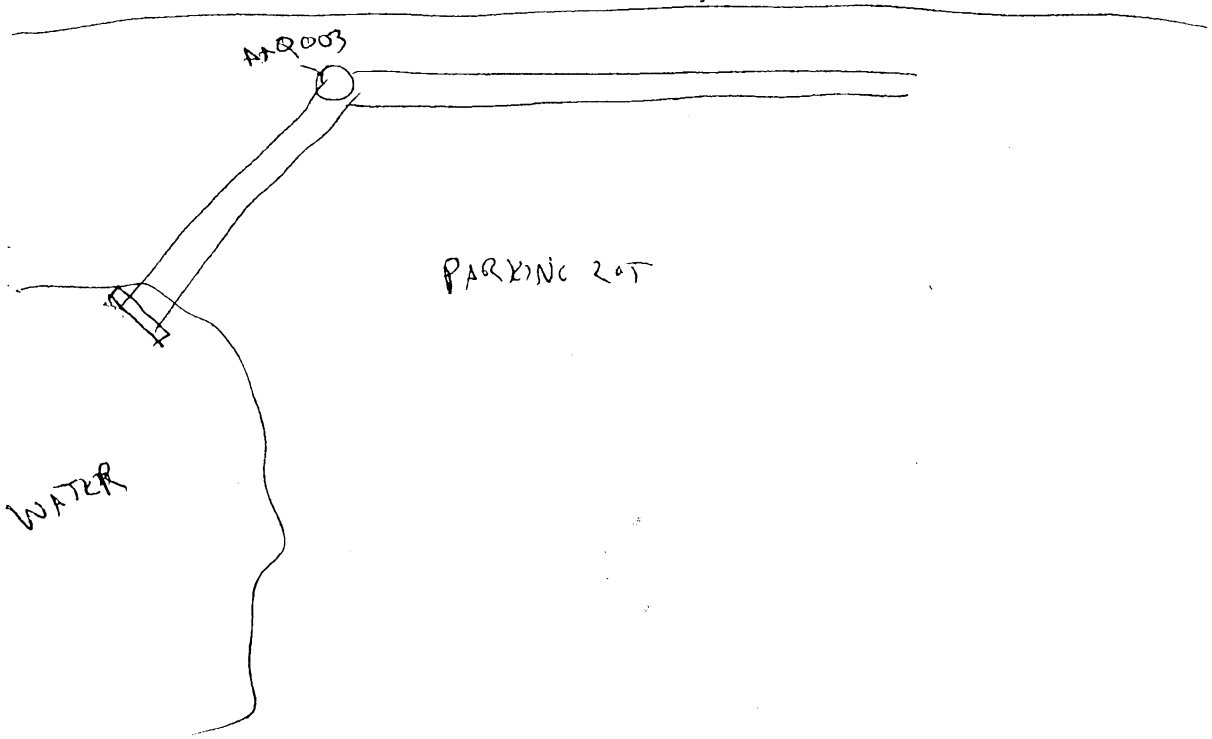
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 9-1-05	Time: 1235	Current Weather conditions: SUNNY
Sampling Team Present: MSH / RJS		
Basin: M3	Node: AAQ003	Subbasin:
Sampling Location Description/Address: SWAN ISLAND BOAT RAMP		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	RIVER BACKED UP INTO LINE MORE ALGAE OBSERVED
Does river appear to back up to this location? Describe rate/color/odor of flow:	YES
Are sediments observed in the line?	NO GREEN PAINT CHIPS OBSERVED FLOATING ON SURFACE
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

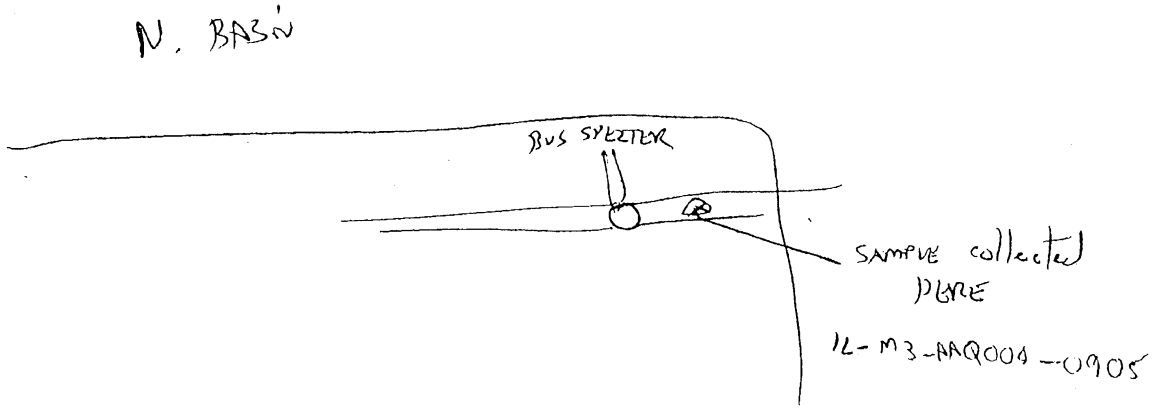
SEDIMENT SAMPLING FIELD DATA SHEET

Date: 6-1-05	Time: 1245	Current Weather conditions: SUNNY 80's
Sampling Team Present: MSP / RJS		
Basin: M3	Node: AAQ 004	Subbasin:
Sampling Location Description/Address: SWAN ISLAND BOAT RAMP		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	1/4" FLOWING WATER UPSTREAM FROM NODE
Does river appear to back up to this location? Describe rate/color/odor of flow:	NO
Are sediments observed in the line?	NOT UPSTREAM OF NODE
Are sample-able quantities of sediments present in the line?	NO
Describe lateral extent of sample-able sediments present in the line:	—

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



SECTION 2 - SAMPLE COLLECTION REPORT	Node: AAQ004
Sampling Equipment:	☐Stainless steel spoon & stainless steel bucket ☒Other (Describe) FILLED CONTAINER DIRECTLY
Equipment Decontamination process:	☐ Per SOP7.01a ☒ Other (Describe) N/A
Sample date: 9/1/05	Sample time: 1258
Sample Identification: (IL-XX-NNNNNN-mmyy)	IL-M3-AAQ004-0905
Sample location description: (number of feet from node of entry)	15' UP FROM AAQ004
Sample collection technique:	FILLED CONTAINER DIRECTLY
Describe Color of sample:	—
Describe Texture/Particle size:	—
Describe visual or olfactory evidence of contamination:	NONE
Desacribe depth of solids in area where sample collected:	PAINT GREEN ~~CHIPS~~ GLOBS IN PIPE
Describe amount and type of debris in sample:	BRIGHT GREEN PAINT GLOBS OBSERVED IN THE LINE INVERT AND ABOVE WATER LINE ON SIDE OF PIPE
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: [illegible]
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

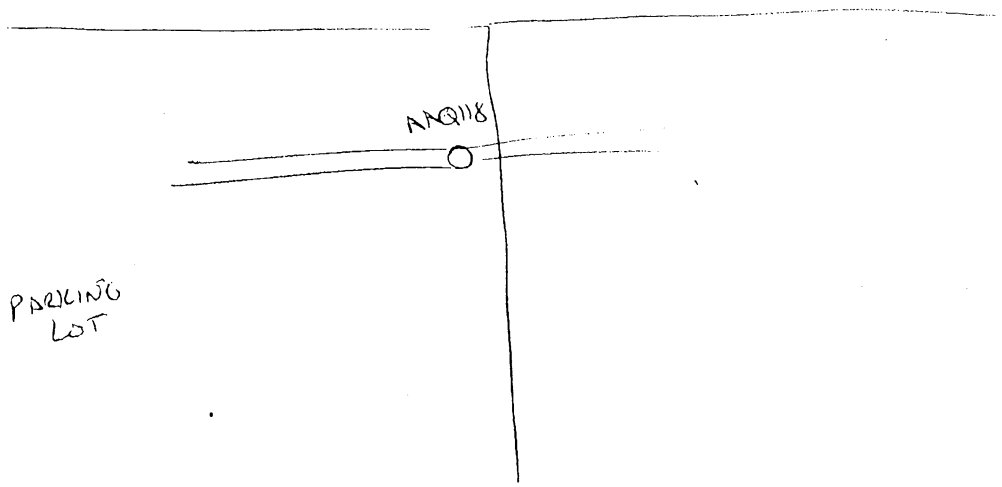
Date: 9/1/05	Time: 13:20	Current Weather conditions: Sunny 80's
Sampling Team Present: MJH / RJS		
Basin: M3	Node: AAQ118	Subbasin:
Sampling Location Description/Address: PARKING LOT JUST OFF OF N. BASIN AVE		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	NO WATER IN LINE
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

N BASIN



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 M3

To: File

From: Robyn Cook, GSI

Walter Burt, RG – GSI

Date: December 7, 2005

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 M3. The results of the sampling and analysis are presented in the Technical Memorandum No. OF M3-1.

The laboratory analysis for these source control program samples were completed by the City's BES laboratory. The Water Pollution Control Laboratory (WPCL) analyzed the dry-weather flow samples for total metals using EPA Method 200.8.

Attachment C of the Technical Memorandum No. OF M3-1 presents the BES laboratory LIMS summary report for the analyses associated with this Outfall Basin.

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

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

Metals Analyses
All samples were extracted and analyzed within the required holding times at both laboratories.

Method Blanks

Method blanks were processed during the laboratory analyses of metals. No chemicals were detected in the method blanks.

Matrix Spike Recoveries

Matrix spike recoveries were within the 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

Date: 7/28/05
Page: 1 of 1
Collected By: MJH/JJM/AJ

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

OUTFALL M-3

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General	Metals: Total Metals (Cu, Pb, Zn)	Field Comments
	IL-M3-AAQ003-0705 SWAN IS BOAT RAMP	M3_1W			G		●	LINE FLOODED BY WILL. RIVER
FO 050783	IL-M3-AAQ004-0705-N SWAN IS BOAT RAMP - N	M3_2W	7/28/05	1031	G		●	
	~~IL-M3-AAQ004-0705~~ SWAN IS BOAT RAMP - E	M3_4W			G		●	LINE FLOODED BY WILL. RIVER
FO 050784	IL-M3-AAQ005-0705 5400 N BASIN AVE	M3_3W	7/28/05	1038	G		●	
	IL-M3-AAQ118-0705 5400 N BASIN AVE	M3_5W			G		●	LINE WAS DRY
FO 050785	IL-M3-SWSMH02-0705 ~~NEW OUTFALL 5 RAMSEY~~	M3_6W	7/28/05	1021	G		●	
	FREIGHTLINER SWSMH 02 (3) MH							

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature:	Signature:	Signature:	Signature:
Time: 1524	Time:	Time:	Time:
Printed Name: MICHAEL HAUSER	Printed Name:	Printed Name:	Printed Name:
Date: 7-28-05	Date:	Date:	Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature:	Signature:	Signature:	Signature:
Time: 1524	Time:	Time:	Time:
Printed Name: KRIS PENNIS	Printed Name:	Printed Name:	Printed Name:
Date: 7/28/05	Date:	Date:	Date:

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 7/28/2005 10:31 **System ID** AJ07232 **Sample ID** **FO050783**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-M3-AAQ004-0705-N
SWAN ISLAND BOAT RAMP - N INLET

Date Received: 7/28/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: M3_2W
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/JJM

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

Test Parameter	Result	Units	MRL	Method
METALS BY ICP-MS (TOTAL) - 3				
COPPER	43.7	µg/L	0.2	EPA 200.8
LEAD	0.30	µg/L	0.1	EPA 200.8
ZINC	3.60	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO050783

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

Report Date: 8/10/2005

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 7/28/2005 10:38 **System ID** AJ07233 **Sample ID** **FO050784**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-M3-AAQ005-0705
5400 N BASIN AVE

Date Received: 7/28/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: M3_3W
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/JJM

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

Test Parameter	Result	Units	MRL	Method
METALS BY ICP-MS (TOTAL) - 3				
COPPER	38.5	µg/L	0.2	EPA 200.8
LEAD	7.06	µg/L	0.1	EPA 200.8
ZINC	146	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO050784

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

Report Date: 8/10/2005

Validated By: Signature on File

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 7/28/2005 10:21 **System ID** AJ07234 **Sample ID** **FO050785**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-M3-SWSMH01-0705
FREIGHTLINER SW SMH #01

Date Received: 7/28/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: M3_6W
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/JJM

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

Test Parameter	Result	Units	MRL	Method
METALS BY ICP-MS (TOTAL) - 3				
COPPER	48.8	µg/L	0.2	EPA 200.8
LEAD	0.32	µg/L	0.1	EPA 200.8
ZINC	2.22	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO050785

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Report Date: 4/26/2006

Validated By: Signature on File

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

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 9-1-05
Page: 1 of 1
Collected By: MJH/RJS

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

OUTFALL M-3

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General	Metals (T3R1 Metals (Cu, Pb, Zn))	Field Comments
FO 050930	IL-M3-AAQ004-0905 SWAN IS BOAT RAMP - E	M3_4W	9-1-05	1258	G		●	SAMPLE COLLECTED UP STREAM FROM NODE IN 48" LINE
2								
3								
4								
5								
6								
7								
8								
9								
10								

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature: [signature] Time: 1450	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: MICHAEL HAUSER Date: 9-1-05	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature: Time:	Signature: Time:	Signature: Time:	Signature: Time:
Date:	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:

City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report

Sample Date/Time 9/1/2005 12:58 **System ID** AJ08362 **Sample ID** **FO050930**

Page: 1

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-M3-AAQ004-0905
SWAN ISLAND BOAT RAMP - E INLET

Date Received: 9/1/2005
Sample Status: COMPLETE AND VALIDATED

Proj Subcategory: REGULATORY PLAN & EVAL
Sample Point Code: M3_4W
IMS File/Invoice #: 1020.001

Sample Type: GRAB
Sample Matrix: OTHER
Collected By: MJH/RJS

Comments: NOTE: Sample collected upstream of node in 48-inch line. QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
METALS BY ICP-MS (TOTAL) - 3				
COPPER	39.4	µg/L	0.2	EPA 200.8
LEAD	3.60	µg/L	0.1	EPA 200.8
ZINC	87.3	µg/L	0.5	EPA 200.8

End of Report for Sample ID: FO050930

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

Report Date: 9/16/2005

Validated By: Signature on File