Portland - Water Permits File
(PBT)

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

ROUTE TO:

HOH	CAB
WHB	CJS
TBS	LDS
CHW	SJD
DWD	JEB
GJS	BJ
MRD	ANS

June 23, 1990

Hall-Buck Marine, Inc.
Attention: Don Stewart
P.O. Box 35
Burnside, LA 70738

PERMIT TERMINATION

Re: NPDES Permit No. 100039
File No. 100025
Portland Bulk Terminal
Multnomah County

In response to your letter of request June 5, 1990, National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. 100039 has been terminated.

A renewal application assigned No. 998623 had been received and was being held awaiting fees and a completed EPA Form 2C. The application was withdrawn concurrently with termination of the existing permit.

Thank you for notifying us of this permit action. Please feel free to call Kent Ashbaker at 229-5325 if you have any questions or find that you need a permit at some future time.

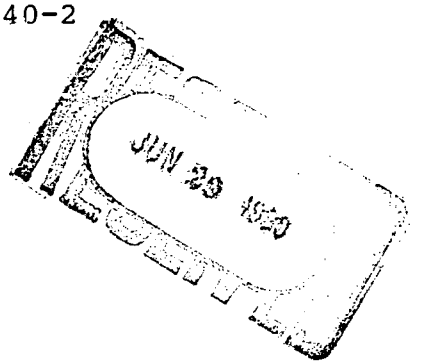
Sincerely,

Lydia R. Taylor

Lydia R. Taylor
Administrator
Water Quality Division

dh

cc: Hall-Buck Marine, Inc.
Attention: Kermit Pitre
P.O. Box 83838
Portland, OR 97283
U.S. Environmental Protection Agency/OR003140-2
Northwest Region, DEQ



KMB00006137

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 S.W. 5th Avenue
Room 400
Portland, Oregon
97204-1972
(503) 796-7740

RECEIVED
AUG - 5 1988
ROUTE TO:
DFF
SJD
J/S
EJ
DW has copy GJS
LD has copy ANS

August 2, 1988

Mr. Don Stewart, Vice President, Engineering
Hall-Buck Marine, Inc.
PO Box 03838
Portland, OR 97203-0838

RE: Industrial Wastewater Discharge Permit 400-027

Dear Mr. Stewart:

Enclosed is permit 400-027 for Hall-Buck Marine, Inc.. Please read the permit carefully taking special note of the following.

1. The permit authorizes the continued discharge of adequately treated wastewaters to the City sanitary sewer for two years (until August 1, 1990).

2. Schedule A lists the wastewater discharge limitations for specific pollutants or pollutant properties to be monitored at your facility. Please note that these limits apply to all discharges from your facility.

3. Schedule B reporting requirements are summarized as follows:

a. A minimum of one sample will be collected and analyzed during the first month following the effective date of this permit (August). At a minimum, one sample will be collected and analyzed during the months of September and October. Monthly reports addressing the requirements set forth in Schedule B are to be submitted no later than the 15th of the month.

b. Following the Baseline Monitoring and Compliance reporting periods the Industrial Waste staff shall review the analysis data submitted and may adjust the monitoring and sampling requirements shown on page 4.

RECEIVED
AUG 12 1988
100% RECYCLED PAPER

4. Note that item 3 of Schedule D requires 30 days advance notice of process changes that may significantly affect the character of the wastewater discharged.

If you have any questions regarding the permit please contact Duane Linnertz at 796-7758.

Sincerely,

Harry G. Edmonds

Harry G. Edmonds, P.E.
Industrial Waste Engineer

cc: John Harrison, DEQ
Tom Bottenberg - City
Jim Cooke - City

RECEIVED
AUG - 5 1988

CITY OF PORTLAND
INDUSTRIAL WASTEWATER MANAGEMENT SECTION
Room 400
1120 SW 5th Avenue
Portland, Oregon 97204-1972

MUNICIPAL PRETREATMENT PROGRAM

WASTE DISCHARGE PERMIT

ISSUED TO: HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

SIC CODE: 5161

PLANT TYPE: Transfer of bulk minerals

EPA CATEGORY: None

LOCATION: 11040 N. Lombard St.
Portland OR 97203

MAILING ADDRESS: PO Box 03838
Portland OR 97203-0838

RESPONSIBLE OFFICIAL: Don Stewart PHONE NO. :285-2990

APPLICATION FEE RECEIVED: _____

EFFECTIVE DATE: August 1, 1988

EXPIRATION DATE: August 1, 1990

CITY ENGINEER: Richard O. Schmidt DATE: 8/2/88
Richard O. Schmidt

PREPARED BY: Duane Linnertz
CHECKED BY: HYE

CONTENTS

COVER: SIGNATURE PAGE.....i

INTRODUCTION: PERMITTED ACTIVITIES.....ii

SCHEDULE A WASTE DISCHARGE LIMITATIONS.....1

B MONITORING REQUIREMENTS.....2-4

C COMPLIANCE REQUIREMENTS.....5

D SPECIAL CONDITIONS.....6

E GENERAL CONDITIONS.....7-10

APPENDIX 1 DEFINITIONS.....11-14

2 RESERVED: SPILL PREVENTION AND CONTROL PROGRAM.....15

3 BATCH DISCHARGE PROCEDURE.....16-17

INTRODUCTION

PERMITTED ACTIVITIES

Until this permit expires, is modified or revoked, the permittee is authorized to construct, install, modify or operate wastewater treatment control and disposal facilities and discharge adequately treated wastewaters to the City sewers in conformance with requirements, limitations and conditions set forth in attached schedules and numbered appendices. All other direct and indirect industrial waste discharges to the City sewers are prohibited.

This permit does not relieve the permittee from responsibility for compliance with other applicable federal, state or local laws and regulations.

SCHEDULE A

Waste Discharge Limitations Not To Be Exceeded After Permit Issuance Date. (see note 1)

Applicable Regulations: Chapter 17.36 and 17.34 of the Code of the City of Portland

Pollutant Property	Maximum for monthly average (see note 2)	
Ammonia	50.0	mg/l
Cadmium (total)	1.0	"
Chromium (total)	5.0	"
Copper (total)	2.0	"
Cyanide (total)	1.0	"
Nickel (total)	3.0	"
Lead (total)	2.0	"
Zinc (total)	4.0	"
Sulfate	500.0	"
Sulfide	50.0	"
Total Phenols	1.0	"
Total Toxic Organics (TTO)	1.37	"
Oil and grease	100.0	"
BOD	300.0	" (see Note 3)
Total Suspended Solids (TSS)	350.0	" " " "
pH (range)	5.5 - 10.0	

Notes:

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or the adoption of technically based local limits pursuant to 40 CFR 403 of the Clean Water Act.

2. If only one sample is collected during a monthly reporting period the analysis data submitted shall constitute a monthly average pollutant value.

3. Refer to Section 17.36.060(a) of the City Code for extra-strength sewer charges applicable to biochemical oxygen demand (BOD) and Total Suspended Solids in excess of specified limit.

SCHEDULE B

Minimum Monitoring and Reporting Requirements. (See Note 1. below)

I. Baseline Monitoring Report (Initial 30 Day Period)

Pollutant or Pollutant Property	Type of sample	Sampling Frequency (After 8/1/88)	Reporting requirements Critical Date(S)
Dissolved Solids	grab	one per month	(see Note 2 Below)
TSS	"	" " "	"
pH	grab	" " "	"
Flow	metered	" " "	"

Notes:

1. The permittee shall select an independent analysis lab to collect 24 hour composite sample and analyze for all the items listed in Schedule B, Baseline Monitoring Report. All samples shall be obtained from the sampling manhole.

2. The Baseline Monitoring Report (BMR) is due within 45 days following the effective date of Industrial Waste Permit.

SCHEDULE B

Minimum Monitoring and Reporting Requirements (see Note 1 below)

II. Report on Compliance (2nd and 3rd Month of Operation)

Pollutant or Pollutant Property	Type of sample	Sampling Frequency (After 8/1/88)	Reporting requirements Critical Date(S)
Dissolved Solids	grab	one per month	(see note 2 below)
TSS	"	" " "	"
pH	grab	" " "	"
Flow	metered	" " "	"

Notes:

1. The permittee shall select an independent analysis lab to collect a 24 hour composite sample and analyze for all the items listed in Schedule B, Report on Compliance. All samples shall be obtained from the sampling manhole.

2. Report On Compliance (ROC) is due within 15 days following conclusion of the 2nd and 3rd month of reporting.

SCHEDULE B

Minimum Monitoring and Reporting Requirements

III. Periodic Compliance Report (Continuous Requirement, see Notes 1 & 2 below)

Pollutant or Pollutant Property	Type of sample	Sampling Frequency (After 10/1/88)	Reporting requirements Critical Date(S)
TSS	grab	one per month	(see Note 4 & 5 Below)
pH	"	" "	"
Flow	metered	" " "	"

Notes:

1. During each month of discharging to the City of Portland, the permittee shall select an independent analysis lab to collect a 24 hour composite sample and analyze for all the items listed in Schedule B, Periodic Compliance Report. All samples shall be obtained from the sampling manhole.

2. After the initial 90 day reporting period, and in conjunction with item four of Schedule D, the Industrial Waste staff will review the analytical data submitted and may adjust the sampling and monitoring requirements listed above.

3. All monitoring results are to be mailed to:

Industrial Waste Section
Bureau of Environmental Services
City of Portland
1120 SW 5 th Ave. Rm 400
Portland, OR 97204-1972

Test data shall be submitted prior to the 15th of each month following the month which samples were collected.

KMB00006145

SCHEDULE C

1. By no later than August 30, 1988 the permittee shall install and maintain a strip chart recording pH meter for continuous pH recording. The City has approved monitoring the pH of the wastewater at the discharge of the pretreatment system. This approval may be revoked at any time if pH data is not representative of the sampling data obtained from the sampling manhole.

SCHEDULE D

Special Conditions:

1. Upon request by the City of Portland the permittee shall provide or split wastewater samples with the Water Pollution Control Lab of the City of Portland.

2. At a minimum pretreatment shall consist of pH control and settling.

3. 30 days prior to implementation, report any changes, permanent or temporary to the premises or operation that significantly change the quality or volume of the wastewater discharge or deviates from the terms and conditions under which this permit is granted.

3. All monitoring results are to be mailed to:

Industrial Waste Section
Bureau of Environmental Services
City of Portland
1120 SW 5 th Ave. Rm 400
Portland, OR 97204-1972

Test data shall be submitted prior to the 15th of each month following the month which samples were collected.

4. No discharge of sludge from either the pencil pitch collection Tank or the Washdown Collection Tank will be allowed in to the Public sewer. The permittee shall maintain records of all sludge disposal showing dates of shipment and name of contract hauler.

5. All discharges to the sanitary sewer that bypass pretreatment are considered batch discharges. Such discharges must be submitted according to the Batch Discharge Request Procedure listed in appendix 3.

7. City employees shall have access to the sampling manhole at all times.

8. All sampling and self-monitoring samples for compliance with Schedule B shall be obtained from the sampling manhole. The location for pH monitoring shall be approved by the Industrial Waste Section if continuous pH monitoring is implemented.

SCHEDULE E

1. All discharges and activities authorized herein shall be consistent with the terms and conditions of this permit and Chapter 17.34 of the City Code. The discharge of any pollutant in excess of these limits shall constitute a violation of the terms and conditions of this permit.

2. Monitoring records:

a. All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation (and calibration and maintenance records), shall be retained by the permittee for a minimum of three years and provided to the City upon request. This retention period shall be extended during the course of any unresolved litigation pertaining to the discharge of pollutants by the permittee, or whenever it is requested by the City.

b. The permittee shall record the following information: (1) the exact date, time, and place of sampling; (2) the dates the analyses were performed; (3) who performed the analyses; (4) the analytical techniques or methods used; and (5) the results of all required analyses.

c. Samples and measurements taken to meet the requirements of the above condition shall be representative.

d. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless approved otherwise in writing by the City, conform to the "Guidelines Establishing Test Procedures for the Analysis of Pollutants," as specified in 40 CFR Part 136.

3. The diversion or bypass of any discharge from facilities utilized by the permittee to maintain compliance with the terms and conditions of this permit is prohibited, except (a) where unavoidable to prevent loss of life or severe property damage, or (b) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the terms and conditions of this permit. The permittee shall immediately notify the City in writing of each such diversion or bypass in accordance with the procedure specified in Condition E 11.

4. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State or local laws or regulations.

5. After notification in accordance with the City Code (Chapter 17.34.070(d)(4)) this permit may be modified, suspended or revoked, in whole or in part, for cause, including but not limited to the following:

a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the City Engineer.

b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts.

c. A change in City's NPDES permit or any other condition that requires either a temporary or permanent reduction or elimination of any authorized discharge.

6. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Federal Clean Water Act (PL 95-217, as amended) for toxic pollutants present in the permittee's discharge, and such standard or prohibition is more stringent than limits upon these pollutants in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition, and the permittee shall be so notified.

7. The permittee shall, at all reasonable times, allow authorized representatives of the City:

a. To enter upon the permittee's premises where an effluent source or disposal system is located or where any records required by this permit are kept.

b. To have access to any required records and permission to copy these records.

c. To inspect and evaluate any monitoring equipment or monitoring methods required by this permit; and

d. To sample any discharge of pollutants.

8. Change in permitted discharge. A modification to the permittee's discharge permit must be issued before any significant increase is made in the volume or level of pollutants in an existing permitted discharge to the City sewer system. Increased production, process changes or substitution of different chemical feed stocks, including boiler and cooling tower water treatment chemicals, shall be approved in writing by the City Engineer prior to the changes.

9. The City of Portland, its officers, agents or employees shall not sustain any liability due to the issuance of this permit or the construction or maintenance of facilities resulting from this permit.

10. Notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted which will violate the City of Portland's Industrial Waste Discharge Regulations as adopted in Chapter 17.34 of the Code of the City of Portland.

11. If the permittee is unable to comply with all the conditions of this permit due to a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, the permittee shall:

a. Immediately take action to stop, contain, clean up the unauthorized discharges, and correct the problem.

b. Immediately call the operator of the Columbia Boulevard Wastewater Treatment Plant (285-0205) so that plant personnel can evaluate the impact of the discharge and take corrective action.

c. Within five (5) days submit a detailed written report to the City describing the breakdown, the actual quantity and quality of resultant waste discharges, the corrective action taken, the steps taken to prevent recurrence, and any other pertinent information.

12. Compliance with E 11 above shall not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for its failure to comply.

13. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit.

14. In the event the permittee ceases operations at the present business location, and plans to relocate within the City of Portland's jurisdiction, the permittee must apply for a new permit pursuant to 17.34.070 of the City of Portland's Industrial Waste Discharge Code.

15. In the event the permittee plans to cease operations at the present business location, and not relocate within the City of Portland's jurisdiction, the permittee shall inform this office, in writing, 90 days prior to plant closure.

16. All applications, reports, and information submitted to the City shall be signed and certified in a manner approved by the City Engineer.

17. Discharges exceeding the 5-day Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) concentration as defined in Section 17.36.060(A) of the City Code may be subject to the extra-strength sewer charge (ESSC) established in Exhibit A of that section. The City is under no obligation to accept excess amounts of BOD or TSS.

18. Only industrial and sanitary wastewaters are allowed into the sanitary sewer under this permit. Storm water discharges must comply with NPDES regulations.

DEFINITIONS

Abbreviations:

BOD: five-day biochemical oxygen demand.

mg/l: milligrams per liter.

kg: kilograms.

m^3/d: cubic meters per day.

ppm: parts per million, assumed equal to milligrams per liter.

Average for BOD, TSS, and chemical parameters are based on arithmetic mean
of samples taken.

Definitions - General, City, Federal

City Engineer:
The words "City Engineer" shall mean the City Engineer of the City of Portland, Oregon or his or her duly authorized representative or agent.

City or City of Portland:
The words "City" or "City of Portland" shall mean the municipality of Portland, Oregon, a municipal corporation of the State of Oregon, acting through the City Council or any board, committee, body, official or person to whom the Council shall have lawfully delegated the power to act for or on behalf of the City. Unless a particular board, committee, body official or person is specifically designated in these rules and regulations, wherever action by the City is explicitly required or implied herein, it shall be understood to mean action by the City Engineer of Portland, Oregon or his or her duly authorized representative or agent.

Compatible Pollutant:
The words "compatible pollutant" shall mean biochemical oxygen demand,suspended solids, pH and fecal coliform bacteria, plus additional pollutants which the City treatment works is designed to treat.

Composite Wastewater Sample:
A combination of individual samples of water or wastewater taken at selected intervals to minimize the effect of the variability of the individual samples.

Conventional Pollutants:
Classification of industrial pollutants that includes BOD (biochemical oxygen demand), suspended solids, fecal coliform, pH (acidity/alkalinity) and other pollutants so designated by EPA, as defined by Section 304(a)(4) of the Clean Water Act.

Effective Date of this Permit:
The date this permit is signed by the City Engineer.

Expiration Date:
From one to five years beyond the effective date of this permit.

Grab Sample:
A sample collected at a particular time and place. See Standard Methods, 14 Edition, p. 40.

Hazardous or Toxic Substances:
Those substances listed by the City Engineer as hazardous or toxic pollutants. The list is based upon the priority pollutant list prepared by the U.S. Environmental Protection Agency and any additional information available which indicates toxicity or hazard level of particular substances. The list is available from the City Engineer and may be revised from time to time as additional information becomes available.

Hazardous Substance:
Any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act..

Industrial Waste:
The words "Industrial Waste" shall mean any liquid, solid or gaseous substance, or combination thereof, resulting from any process of industry, manufacturing, commercial food processing, business, agriculture, trade or research, including but not limited to the development, recovering or processing of natural resources and leachate from landfills or other disposal sites.

Industrial Waste Discharge Permit:
A permit to discharge industrial wastes into the City sewer system issued under the authority of this ordinance and which prescribes certain discharge requirements and limitations.

Maximum Daily Discharge Limitation:
The highest allowable daily discharge.

Nonconventional Pollutants:
All pollutants that are not specifically designated as either conventional or toxic.

Oil and Grease:
Applies to Hexane Extractable Materials (HEM) only.

POTW:
Publicly Owned Treatment Works

Pretreatment:
The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a non-harmful state prior to or in lieu of discharge or otherwise introducing such pollutants into the City sewer system.

Schedule of Compliance:
A schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition or standard.

Solid Waste:
Any garbage, refuse or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility including solid, liquid, semi-solid or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits.

Solids:
Total suspended matter that either floats on the surface or is in suspension in water or wastewater and that is removable by laboratory filtering (as described in Standard Methods for the Examination of Water and Wastewaters, current edition) or Guidelines Establishing Test Procedures for the Analysis of Pollutants, contained in 40 CFR 136, as published in the Federal Register and referred to as non-filterable residue). (Portland City Code Chapter 17.34.020.)

Solid Waste Disposal:
The final placement of refuse that cannot be salvaged or recycled.

Solvent Management Plan:
A plan that specifies the toxic organic compounds used, the method of disposal used (instead of dumping into wastestreams), and procedures for assuring that toxic organics do not spill or leak into wastewater discharged to the City sewer system.

Total Dissolved Solids:
The total dissolved (filterable) solids as determined by use of the method specified in the list of approved test procedures.

Total Organic Active Ingredients:
The sum of all organic active ingredients covered by the organic pesticide chemicals manufacturing subcategory that are manufactured at a facility subject to the effluent guidelines for pesticides chemicals manufacturing.

Total Solids:
The sum of dissolved and undissolved constituents in water or wastewater usually expressed as milligrams per liter.

Total Suspended Solids (TSS):
Total unfilterable suspended solids. See Standard Methods, 14th Edition, p. 94 (Test Method 208 D.).

Toxic Pollutants:
Toxic pollutants included in the Clean Water Act of 1777. Under Section 307, such pollutants the administrator determined to be harmful to organisms when discharged into waters. It is the classification of industrial pollutants based on an "initial list" of toxic substances specified by the 1977 amendments to the Clean Water Act, to which EPA may add or from which it may subtract.

Toxic Substances:
A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

Waste:
Unwanted materials left over from manufacturing processes, refuse from places of human or animal habitation

Wastewater:
Industrial waste or sewage or any other waste including that which may be combined with any groundwater, surface water or storm water that may be discharged to the City sewer system.

Water Pollution:
The addition of enough harmful or objectionable material to damage water quality.

RESERVED

Spill Prevention and Control Plan

to be prepared by the Permittee
and approved by the City

APPENDIX 3

INDUSTRIAL WASTE
BATCH DISCHARGE REQUEST PROCEDURE

The following procedures are to be followed when requesting a batch discharge of industrial wastewater to the City of Portland sanitary sewer, regardless of the volume of the discharge. Industrial users who have a current Industrial Waste Permit may be exempt from the following procedures if they have established other procedures governing periodic batch discharges.

All industrial users of the City sewer system are to be aware that it is unlawful to discharge industrial waste into the City sewer system in excess of the limitations established in the industrial waste permit or in violation of the City Code Sections 17.34.030 and 17.34.040.

Please read the following conditions and instructions carefully to insure a proper and timely response to each batch discharge request.

1. Batch discharges are not allowed with out written permission. To obtain permission for discharge, submit a written request to the Industrial Waste Section for each batch discharge requested. The written request shall contain:

A. The name and facility address of the waste generator.

B. A description of the waste to be discharged.

C. All analytical test results of samples collected from the batch.

D. The volume of the discharge.

E. The specific location of the waste material i.e., process area, tank identification, etc..

F. The preferred method and point of discharge into the City sewer.

Send all written request to: Bureau of Environmental Services
Industrial Waste Management Section
1120 S.W. 5th AV, Room 400
Portland, OR 97204-1972

2. Upon receipt of the written request the Industrial Waste Section will review the request and may deny the request, approve the request or require additional sampling and analysis.

3. If wastewater samples fail to meet discharge limitations set forth in the Industrial Waste Discharge Permit or Chapter 17.34 of the City Code, additional pretreatment and sampling shall be required and requests resubmitted.

4. All discharges will be approved by the City in writing, unless otherwise specified within the Industrial Waste Permit. Prior to discharging, the industrial user shall sign an agreement issued by the Industrial Waste Section to insure compliance with the above conditions and any special conditions applicable to a specific to a discharge.

5. Discharges that require additional sampling, special analysis or exceed the BOD and suspended solids concentrations defined in Section 17.36.060 (A) of the City Code may be subject to extra-strength charges and administrative fees.

6. Once written approval to discharge has been obtained from the City and prior to discharge of any industrial wastewater, the discharger shall notify the City of Portland Water Pollution Control Laboratory (WPCL) at 289-1357, between the hours of 8 am to 4 pm Monday through Friday. The WPCL supervisor will either schedule a sample collection time or give permission to discharge immediately. Allow 48 hrs for scheduling a sample collection and an additional five to six days for laboratory analysis to be completed. No discharge will be allowed until authorization is obtained from the WPCL and laboratory results confirm that the planned discharge does not violate discharge limits of the City of Portland.

7. Once permission is obtained, the discharger shall maintain a written log of all batch discharges to the sewer. At a minimum, the log shall record the date, time, volume and pH for each batch discharged to City sewer. In addition, all sample analysis data shall be recorded and maintained with the log. These records shall be available for review by City personnel upon request.

8. Upon request by the City, the wastewater samples shall be provided to or split with the WPCL.

The City reserves the right to revoke this special authorization at any time. If you have any question please call the Industrial Waste Section at 796-7758.

VICTOR ATIYEH
GOVERNOR

Department of Environmental Quality

522 S.W. FIFTH AVENUE, BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

MAR 11 1985

PORT OF PORTLAND
Attention: M. L. Byington, Project Manager
P.O. Box 3529
Portland, Oregon 97208

Re: Waste Discharge Permit
File No. 100025
(Terminal 4 - Dry Bulk Handling)

We have completed our review of your permit application and the comments received regarding the preliminary draft permit which was mailed to you for review on December 28, 1984 and have issued the enclosed NPDES Waste Discharge Permit.

This permit will be considered as the final action on permit application number 999865.

Copies of monitoring report forms will be sent to you by our regional office under separate cover.

You are urged to carefully read the permit and take all possible steps to comply with the conditions contained therein so our Oregon environment can be preserved. If you have questions regarding the permit, please contact this office.

Sincerely,

Fred Hansen
Director

CKA: jt
Enclosure

cc: EPA
Northwest Region, DEQ

DEQ-1

Permit Number: 100039
Expiration Date: 1/31/90
File Number: 100025
Page 1 of 2 Pages

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

WASTE DISCHARGE PERMIT

Department of Environmental Quality
522 Southwest Fifth Avenue, Portland, OR
Mailing Address: Box 1760, Portland, OR 97207
Telephone: (503) 229-5696

Issued pursuant to ORS 468.740 and The Federal Clean Water Act

ISSUED TO:

Port of Portland
P.O. Box 3529
Portland, OR 97208

SOURCES COVERED BY THIS PERMIT:

Type of Waste	Outfall Number	Outfall Location
Wash Water	001	R.M. 4.6

PLANT TYPE AND LOCATION:

Terminal 4
Bulk Import and Export Terminal
Foot of N. Lombard St.

RECEIVING STREAM INFORMATION:

Major Basin: Willamette
Minor Basin: -
Receiving Stream: Willamette River
County: Multnomah
Applicable Standards: OAR 340-41-445

EPA REFERENCE NO: OR-003140-2

Issued in response to Application No. 999865 received 10/23/84.

This permit is issued based on the land use findings in the permit record.

Fred Hansen

Fred Hansen, Director

MAR 11 1985

Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify or operate a waste water collection, treatment, control and disposal system and discharge to public waters adequately treated waste waters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

	Page
Schedule A - Waste Discharge Limitations not to be Exceeded..	2
Schedule B - Minimum Monitoring and Reporting Requirements...	2
Schedule C - Compliance Conditions and Schedules.....	-
Schedule D - Special Conditions.....	2
General Conditions.....	Attached

Each other direct and indirect waste discharge to public waters is prohibited.

This permit does not relieve the permittee from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree.

KMB00006160

SCHEDULE A

1. Waste Discharge Limitations not to be Exceeded After Permit Issuance Date

Outfall Number 001 350 ppm

	Concentrations Monthly Ave. mg/1	Concentrations Daily Max. mg/1	Loadings Monthly Ave. lb/day	Loadings Daily Max. lb/day
Total Suspended Solids	10	20	1.6	3.2

Other Parameters	Limitations
Settleable Solids	Shall not Exceed 0.1 ml/l
Flow	Shall not Exceed 19,000 gallons/day
pH	Shall not be Outside the Range of 6.0-9.0.

2. Notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted which will violate Water Quality Standards as adopted in OAR 340-41-445 except in the following defined mixing zone:

The allowable mixing zone shall not extend beyond a radius of 50 feet of the discharge in the Willamette River.

SCHEDULE B

Minimum Monitoring and Reporting Requirements (unless otherwise approved in writing by the Department)

Outfall Number 001

Item or Parameter	Minimum Frequency	Type of Sample
Total Suspended Solids	Daily when Discharging	Composite
Settleable Solids	Daily when Discharging	Composite
pH	Daily when Discharging	Grab
Flow	Daily when Discharging	Estimate

Reporting Procedures

Monitoring results shall be reported on approved forms. The reporting period is the calendar month. Reports must be submitted to the Department by the 15th day of the following month.

SCHEDULE D

1. An environmental supervisor shall be designated to coordinate and carry out all necessary functions related to maintenance and operation of waste collection, treatment, and disposal facilities. This person must have access to all information pertaining to the generation of wastes in the various process areas.

P10002.5 (t)

$775/1000 gal per month x 9 or thereboutd for connection fee
plus $150 to 200/mo
[illegible] a sewer meter separate from water meter.

NPDES GENERAL CONDITIONS

G1. All discharges and activities authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.

G2. Monitoring records:

a. All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records, shall be retained by the permittee for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Director.

b. The permittee shall record for each measurement or sample taken pursuant to the requirements of this permit the following information: (1) the date, exact place, and time of sampling; (2) the dates the analyses were performed; (3) who performed the analyses; (4) the analytical techniques or methods used; and (5) the results of all required analyses.

c. Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and nature of the monitored discharge.

d. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless approved otherwise in writing by the Department, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants as specified in 40 CFR, Part 136.

G3. All waste solids, including dredgings and sludges, shall be utilized or disposed of in a manner which will prevent their entry, or the entry of contaminated drainage or leachate therefrom, into the waters of the state, and such that health hazards and nuisance conditions are not created.

G4. The diversion or bypass of any discharge from facilities utilized by the permittee to maintain compliance with the terms and conditions of this permit is prohibited, except (a) where unavoidable to prevent loss of life or severe property damage, or (b) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the terms and conditions of this permit. The permittee shall immediately notify the Department in writing of each such diversion or bypass in accordance with the procedure specified in Condition G13.

G5. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws, or regulations.

KMB00006162

G6. Whenever a facility expansion, production increase, or process modification is anticipated which will result in a change in the character of pollutants to be discharged or which will result in a new or increased discharge that will exceed the conditions of this permit, a new application must be submitted together with the necessary reports, plans, and specifications for the proposed changes. No change shall be made until plans have been approved and a new permit or permit modification has been issued.

G7. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including but not limited to the following:

a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the Commission;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in the condition of the receiving waters or any other condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

G8. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Federal Act for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee shall be so notified.

G9. The permittee shall, at all reasonable times, allow authorized representatives of the Department of Environmental Quality:

a. To enter upon the permittee's premises where an effluent source or disposal system is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to and copy any records required to be kept under the terms and conditions of this permit;

c. To inspect any monitoring equipment or monitoring method required by this permit; or

d. To sample any discharge of pollutants.

G10. The permittee shall maintain in good working order and operate as efficiently as practicable all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

G11. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to insure compliance with the conditions of this permit.

G12. The Department of Environmental Quality, its officers, agents, or employees shall not sustain any liability on account of the issuance of this permit or on account of the construction or maintenance of facilities because of this permit.

KMB00006163

G13. In the event the permittee is unable to comply with all the conditions of this permit because of a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, the permittee shall:

a. Immediately take action to stop, contain, and clean up the unauthorized discharges and correct the problem.

b. Immediately notify the Department of Environmental Quality so that an investigation can be made to evaluate the impact and the corrective actions taken and determine additional action that must be taken.

c. Submit a detailed written report describing the breakdown, the actual quantity and quality of resulting waste discharges, corrective action taken, steps taken to prevent a recurrence, and any other pertinent information.

Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

G14. If the permittee wishes to continue an activity regulated by the permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

G15. All applications, reports, or information submitted to the Director shall be signed and certified in accordance with 40 CFR 144.32.

G16. This permit is not transferable except as provided in OAR 340-45-045.

G17. Definitions of terms and abbreviations used in this permit:

a. BOD means five-day biochemical oxygen demand.

b. TSS means total suspended solids.

c. mg/l means milligrams per liter.

d. kg means kilograms.

e. m^3/d means cubic meters per day.

f. MGD means million gallons per day.

g. Composite sample means a combination of samples collected, generally at equal intervals over a 24-hour period, and apportioned according to the volume of flow at the time of sampling.

h. FC means fecal coliform bacteria.

i. Averages for BOD, TSS, and Chemical parameters based on arithmetic mean of samples taken.

j. Average Coliform or Fecal Coliform is based on geometric mean of samples taken.

CITY OF
PORTLAND, OREGON
BUREAU OF ENVIRONMENTAL SERVICES

Earl Blumenauer, Commissioner
Mary T. Nolan, Director
1120 S.W. 5th, Rm. 400
Portland, Oregon 97204-1972
(503) 796-7740
FAX: (503) 796-6995

MUNICIPAL PRETREATMENT PROGRAM

WASTE DISCHARGE PERMIT

ISSUED TO:	HALL-BUCK MARINE, INC. PORTLAND BULK TERMINAL
SIC CODE:	5161
PLANT TYPE:	TRANSFER BULK MATERIALS
EPA CATEGORY:	400
LOCATION:	11040 N. LOMBARD ST. PORTLAND, OR 97203
MAILING ADDRESS:	P.O. BOX 83838 PORTLAND, OR 97203-0838
RESPONSIBLE OFFICIAL:	DAN LANDRY ASSISTANT TERMINAL MANAGER PHONE NO: 285-2990
APPLICATION FEE RECEIVED:	PERMIT MODIFICATION (NO CHARGE)
EFFECTIVE DATE:	SEPTEMBER 1, 1991
EXPIRATION DATE:	AUGUST 1, 1995

DIRECTOR OF ENVIRONMENTAL SERVICES: Robert W. Reck FOR Mary T. Nolan DATE: 7.26.91

PREPARED BY: Miguel A. Santana
CHECKED BY: JPH
KOH

KMB00006165

CONTENTS

COVER: SIGNATURE PAGE.....i

TABLE OF CONTENTS:.....ii

INTRODUCTION: PERMITTED ACTIVITIES.....iii

SCHEDULE A WASTE DISCHARGE LIMITATIONS.....A1

B MONITORING REQUIREMENTS.....B1-4

C COMPLIANCE REQUIREMENTS.....C1-2

D SPECIAL CONDITIONS.....D1-2

E GENERAL CONDITIONS.....E1-10

APPENDIX 1 DEFINITIONS.....1.1-6

2 TOTAL TOXIC ORGANIC LIST.....2.1-2

3 ACCIDENTAL SPILL PREVENTION PLAN.....3.1

4 BATCH DISCHARGE PROCEDURE.....4.1-2

5 BATCH DISCHARGE LOG.....5.1

6 ACCIDENT SPILL PREVENTION PLAN.....6.1

7 SAMPLING MANHOLE DIAGRAM.....7.1

KMB00006166

SCHEDULE A

Waste Discharge Limitations Not To Be Exceeded After 9/01/91.

Applicable Regulations: Chapter 17.34 of the Code of the City of Portland and the Administrative Rules adopted thereunder. Hall-Buck Marine, Inc. is a transfering station for bulk materials from railcars to ships. Hall-Buck Marine, Inc. is regulated by the local limits.

Pollutant Property	Daily Maximum
Cadmium (Total)	0.7 mg/L
Chromium(Total)	3.8 mg/L
Copper (Total)	2.3 mg/L
Lead (Total)	0.7 mg/L
Nickel (Total)	3.0 mg/L
Zinc (Total)	4.0 mg/L
Total Toxic Organics (TTO)	2.13 mg/L
pH (Range)	5.5-11.5
Fats, Oils and Grease	
Polar	500 mg/L
Non-Polar	100 mg/L

Closed Cup Flash Point prohibited if less than 140 °F

Notes:

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or as determined by the Director of Environmental Services.

2. TTO shall mean total toxic organics, see list of toxic organics in Appendix 2. At the minimum TTO analysis shall consist of anthracene, benzo(a)pyrene, phananthrene and pyrene analysis.

3. If total concentration of Fats, Oils and Grease is greater than 100 mg/L Hall-Buck Marine, Inc. must separate the fractions (polar, non-polar) to determine the concentration of each fraction.

KMB00006167

SCHEDULE B

Minimum Monitoring and Reporting Requirements

I. Final Compliance

	SAMPLE TYPE	FREQUENCY	REPORTING DATE
Cadmium	Composite	Quarterly	December 15th
Chromium	"	"	"
Copper	"	"	"
Lead	"	"	"
Nickel	"	"	"
Zinc	"	"	"
TTO	Grab	"	"
Fats, Oils and Grease	"	"	"
pH	"	"	"
Closed Cup Flash Point	"	"	"

Notes:

1. Final Compliance period represents the first 90 days of operation under this permit.

2. The first quarter of discharging under this permit to the City of Portland, Hall-Buck Marine, Inc. shall collect a sample and analyze for required items listed in Schedule B, Monitoring and Reporting Requirements. Sampling shall be collected when the monitored substances are likely to be present in their maximum concentrations.

3. All official sampling shall be taken at the approved Sampling Location. (see Appendix 4)

4. The permittee shall analyze samples for all listed parameters plus any other which might be expected to be present in significant quantities.

5. TTO shall mean total toxic organics, see list of toxic organics listed in Appendix 2. At the minimum TTO analysis shall consist of anthracene, benzo(a)pyrene, phanathrene and pyrene analysis.

KMB00006168

SCHEDULE D

Special Conditions

1. pH

   a) Hall-Buck Marine, Inc. is required to operate and maintain a continuous pH monitoring and recording system for measurement of the pretreated wastewater pH prior to discharge to the City sewer.

   b) Hall-Buck Marine, Inc. is not required to file its pH log and charts with the City unless notified, it is however, required to retain these records in accordance with Schedule E item 3, of this permit.

   c) The Industrial Waste Section has approved monitoring the pH of the wastewater at the discharge of the pretreatment system. This approval may be revoked at any time if pH data is not representative to the sampling data obtained from the sampling manhole. Hall-Buck Marine, Inc. shall report within 24 hours any pH excursion. A pH excursion is defined as:

      1) Any pH violation with a value below 5.5 and above 11.5 with a duration of 15 minutes or more.

      2) Any pH below 5.0 and above 12.5 regardless of the duration of the excursion.

   d) On a quarterly basis, Hall-Buck Marine, Inc. is required to submit to the City a report specifying periods of pH violations of less than 15 minutes, or a statement indicating that full compliance has been achieved during the month.

   e) In situations where an automatic pH recording system is unavailable, a manual pH log must be maintained on an hourly basis throughout the duration of industrial wastewater discharge to the sewer system.

   f) Hall-Buck Marine, Inc. is required to calibrate the pH meter at least once a day using two-point calibration. The date, time and initials of the technician shall be entered on the chart or on a separate log if a chart recorder is not used.

2. At a minimum pretreatment shall consist of pH control and settling.

KMB00006169

3. No discharges of sludge from either the Pencil Pitch Collection Tank or the Washdown Collection Tank will be allowed in to the sewer system. The permittee shall maintain records of all sludge disposal showing dates of shipment and name of contract hauler. These records shall be available on site for review during inspecxtions.

4. All discharges to the sewer system that bypass pretreatment are considered batch discharges. Such discharges must be submitted according to the Batch Discharge Request Procedure listed in appendix 2.

5. Following the Report on Compliance Period, and in the absence of any toxic organics, in lieu of monitoring for TTO, the following certification as a comment to the periodic reports may be submitted:

"Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics has occurred since -filing the last discharge monitoring report.

6. Hall-Buck Marine, Inc. shall provide written standards operating instructions and employee training to ensure the proper and safe handling of all chemicals used on the premises and the proper operation of pollution control equipment.

KMB00006170

4. **Monitoring**

a. The permittee shall record the following information:

* The exact date, time, and place of sampling
* Name of person who collected the sample(s)
* Type of sample(s) collected
* The dates analyses were performed
* Who performed the analyses
* The analytical techniques or methods used
* The results of all required analyses
* Whether quality assurance and quality control laboratory procedures are followed

b. Samples and measurements, taken to meet the requirements of the above condition, shall be representative of the effluent.

c. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless otherwise approved in writing by the City, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants as specified in 40 CFR, Part 136. Laboratory quality assurance and quality control programs should be documented. EPA QA/QC programs should be followed.

d. The permittee is required to document proper installation, and maintenance of flow monitoring and sampling equipment.

e. If the results of the permittee's wastewater analysis indicate that a noncompliance has occurred, the permittee must notify the City's Source Control Management Section within 24 hours of becoming aware of the noncompliance. The permittee must also repeat the sampling within 24 hours of the effluent noncompliance or next process day and submit the analysis to the City within 30 days after becoming aware of the noncompliance.

f. The permittee shall take all reasonable steps to minimize or correct any adverse impact to the POTW or the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

g. If requested, the permittee shall provide or split discharge samples with the City of Portland Water Pollution Control Laboratory.

KMB00006171

7. **Bypass or Diversion**

The diversion or bypass (the intentional diversion of wastestreams from any portion of a permittee's treatment facility) of any discharge, from facilities used by the permittee, to maintain compliance with the terms and conditions of this permit is prohibited except:

a. When unavoidable to prevent loss of life or severe property damage.

b. When excessive storm drainage or runoff would damage facilities necessary for compliance with the terms and conditions of this permit.

The permittee shall immediately notify the City in writing of each such diversion or bypass, in accordance with the procedure specified in condition No. 16.

8. **Property Rights or Privileges**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges; it does not authorize any injury to private property or any invasion of personal rights; and it does not authorize any infringements or federal, state, or local laws or regulations.

9. **Permit Suspension or Termination**

a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the director of the Bureau of Environmental Services.

b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts.

c. Falsifying self-monitoring reports.

d. Tampering with monitoring equipment.

e. Refusing to allow prompt access to the facility premises and records.

f. Failure to meet effluent limitations.

g. Failure to pay fines.

h. Failure to meet compliance schedules.

KMB00006172

10. Permit Modification

This permit may be modified with 30 days prior written notification, in whole or in part, for causes including but not limited to the following:

a. A change in the City's NPDES permit or any other condition that requires either a temporary or permanent elimination of any authorized discharge.

b. To incorporate new or revised federal, state, or local pretreatment standards or requirements.

c. Information indicating that the permitted discharge poses a threat to the City's collection and treatment system, POTW personnel, or the receiving waters and sludge.

d. To correct typographical or other errors in the permit.

e. Any significant change in the volume of a permitted discharge.

11. Permit Renewal

This permit is issued to a specific entity and cannot be transferred by the industrial user and must be renewed pursuant to Section 17.34.070 of the Code of the City of Portland and Permit Applications must be received 90 days prior to:

a. Expiration date of current permit.

b. In the event the permittee plans to cease operations at the present location, and plans to relocate within the City of Portland's jurisdiction and continue the same permitted activities.

c. The permitted industrial process being significantly altered or changed so that pollutants not specifically mentioned in the current permit are present in the permittee's discharge.

12. Plant Closure

In the event the permittee plans to cease operations at the present business location, and not to relocate within the City of Portland's jurisdiction, the permittee shall inform this office, in writing, 90 days prior to plant closure.

KMB00006173

13. **Appeal**

the permittee may request reconsideration of the terms of this permit within thirty (30) days of the effective date. This request must be in writing; failure to submit a request for reconsideration shall be deemed a waiver of the appeal.

14. **Liability**

The City of Portland, its officers, agents or employees shall not sustain any liability due to the issuance of this permit or the construction or maintenance of facilities resulting from this permit.

15. **Severability**

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to the other circumstances and the remainder of this permit shall not be affected.

16. **Notification of Slug Load**

If the permittee is unable to comply with all the conditions of this permit due to a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, or should any condition cause the release of any slug load, the permittee shall:

a. Immediately take action to stop, contain, clean up the unauthorized discharges, and correct the problem.

b. Immediately call the Lead Operator of the Columbia Boulevard Wastewater Treatment Plant (823-2300) so that plant personnel can evaluate the impact of the discharge and take corrective action. Notify Source Control By calling the Duty Office, pager # 323-3398.

c. Within five (5) days submit a detailed written initial report to the City describing the breakdown, the actual quantity of resultant waste discharges, the corrective action taken, the steps taken to prevent recurrence, and any other pertinent information. Samples shall be taken immediately upon discovery of the Slug Load. Within 15 days, a follow-up report shall be submitted. The report shall contain analysis of samples taken during such discharge and samples taken after normal conditions have been restored. The samples, at a minimum, shall be analyzed for the parameters required in Schedule B. Sampling shall be continued until all parameters are within discharge limits.

KMB00006174

23. Hazardous Waste Notification

The industrial user shall notify the Source Control Management Section, the POTW, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into the POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent such information is known and readily available to the industrial user: an identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following 12 months.

KMB00006175

APPENDIX 1
DEFINITIONS

Abbreviations

BOD_5	Five-day biochemical oxygen demand
mg/L	Milligrams per liter
kg	Kilograms
m^3/d	Cubic meters per day
ppm	Parts per million (assumed equal to milligrams per liter)
POTW	Publicly owned treatment works
WPCL	Water Pollution Control Laboratory

Averages for BOD, TSS, and chemical parameters are based on arithmetic mean of samples taken.

Definitions

Bypass

The intentional diversion of wastestreams from any portion of a permittee's treatment facility..

Compatible Pollutant

Biochemical oxygen demand, suspended solids, pH and fecal coliform bacteria, and additional pollutants that the City treatment works is designed to treat.

Conventional Pollutants

Classification of industrial pollutants, which includes BOD (biochemical oxygen demand), suspended solids, fecal coliform, pH (acidity/alkalinity), and other pollutants so designated by EPA, as defined by Section 304(a)(4) of the Clean Water Act.

Director of Environmental Services

The Director of Environmental Services of the City of Portland, Oregon, or that person's duly authorized representative or agent.

KMB00006176

POTW

POTW means Publicly Owned Treatment Works, which includes any devices and systems, owned by a State or municipality, used in the collection, transportation, storage, treatment, recycling and reclamation of wastewater.

Pretreatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alternation of the nature of pollutant properties in wastewater to a non-harmful state, prior to or in lieu of discharge of such pollutants into the City sewer system.

Sampling

a. The "monthly average" other than pH is the arithmetic mean of samples collected curing a calendar month.

b. The "daily maximum" is defined as the greatest allowable value for any calendar day.

c. A "24-hour composite" sample shall mean a flow-proportioned mixture of not less than eight discrete aliquot. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and preserved in accordance with 40 CFR part 136 and amendments.

d. A "Grab" sample is an individual sample collected in less than 15 minutes, without regard for flow or time.

e. A "Grab-Composite" is a minimum of four grab samples collected and preserved over a 24-hour period and combined to provide a representative sample of effluent being discharged.

Schedule of Compliance

A schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with an effluent limitation or other limitation, prohibition, or standard.

Severe Property Damage

Substantial physical damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

KMB00006177

Slugload

A slugload is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge.

Solid Waste

Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits.

Solid Waste Disposal

The final placement of refuse that cannot be salvaged or recycled.

Solvent Management Plan

A plan that specifies the toxic organic compounds used, the method of disposal used (instead of dumping into wastestreams), and procedures for ensuring that toxic organics do not spill or leak into wastewater discharged to the City sewer system.

Total Dissolved Solids

The total dissolved (filterable) solids as determined by use of the method specified in the list of approved test procedures.

Total Organic Active Ingredients

The sum of all organic active ingredients covered by the organic pesticide chemicals manufacturing subcategory, which are manufactured at a facility subject to the effluent guidelines for pesticides chemicals manufacturing.

Total Solids

The sum of dissolved and undissolved constituents in water or wastewater, usually expressed as milligrams per liter.

KMB00006178

INDUSTRIAL WASTE
BATCH DISCHARGE REQUEST PROCEDURE

The following procedures are to be followed when requesting a batch discharge of industrial wastewater to the City of Portland sewer system, regardless of the volume of the discharge. Industrial users who have a current Industrial Waste Discharge Permit may be exempt from the following procedures if they have established other procedures governing periodic batch discharges.

All industrial users of the City sewer system are to be aware that it is unlawful to discharge industrial waste into the City sewer system in excess of the limitations established in the industrial waste permit or in violation of the City Code Sections 17.34.030 and 17.34.040.

Please read the following conditions and instructions carefully to insure a proper and timely response to each batch discharge request.

1. Batch discharges are not allowed with out written permission. To obtain permission for discharge, submit a written request to the Industrial Waste Section for each batch discharge requested. The written request shall contain:

A. The name and facility address of the waste generator.

B. A description of the waste to be discharged.

C. All analytical test results of samples collected from the batch.

D. The volume of the discharge.

E. The specific location of the waste material i.e., process area, tank identification, etc..

F. The preferred method and point of discharge into the City sewer.

Send all written request to: Bureau of Environmental Services
Industrial Waste Management Section
1120 S.W. 5th Av. Room 400
Portland, Or. 97204-1972

KMB00006179

2. Upon receipt of the written request the Industrial Waste Section will review and may deny the request, approve the request or required additional sampling and analysis.

3. If wastewater samples fail to meet discharge limitations set forth in the Industrial Waste Discharge Permit or Chapter 17.34 or the City Code, additional pretreatment and sampling shall be required and requests resubmitted.

4. All discharges will be approved by the City in writing, unless otherwise specified within the Industrial Waste Permit. Prior to discharging, the industrial user shall sign an agreement issued by the Industrial Waste Section to insure compliance with the above conditions and any special conditions applicable to a specific to a discharge.

5. Discharges that require additional sampling, special analysis or exceed the BOD and Suspended Solids concentrations defined in Section 17.36.060 (A) of the City Code may be subject to extra-strength charges and administrative fees.

6. Once written approval to discharge has been obtained from the City and prior to discharge of any industrial wastewater, the discharger shall notify the City of Portland Water Pollution Control Laboratory (WPCL) at 289-1357. between the hours of 8 am to 4 pm Monday through Friday. The WPCL supervisor will wither schedule a sample collection time or give permission to discharge immediately. Allow 48 hours for scheduling a sample collection and an additional five to six days for laboratory results confirm that the planned discharge does not violate discharge limits of the City of Portland.

7. Once permission is obtained, the discharger shall maintain a written log of all batch discharges to the sewer system. At a minimum, the log shall record the date, time, volume and pH for each batch discharge to the City sewer. In addition, all sample analysis data shall be recorded and maintained with the log. These records shall be available for review by City personnel upon request.

8. Upon request by the City, the wastewater samples shall be provided to or split with the WPCL.

The City reserves the right to revoke this special authorization at any time. If you have any questions please call the Industrial Waste Section at 796-7568.

KMB00006180

BATCH DISCHARGE LOG

DATE	TIME	VOLUME	pH READING	FOG RESULTS	SIGNATURE

KMB00006181

RESERVED

ACCIDENTAL SPILL PREVENTION PLAN
to be prepared by the Permittee
and approved by the City.

KMB00006182

SAMPLING LOCATION MAP

KMB00006183

SCHEDULE C

COMPLIANCE REPORTS

1. **SEMI-ANNUAL** are to be submitted by the 15th of June, December. The reports shall consist of:

   a. Sample analysis report submitted on City form No.13-1a.

   b. Statement of Compliance/non-compliance signed by the officially designated contact person.

   c. Copies of all laboratory analysis sheets showing analytical methods used and quality assurance/quality control.

   d. Any other reports as may be required.

KMB00006184

CITY OF
PORTLAND, OREGON
BUREAU OF ENVIRONMENTAL SERVICES

Environmental Survey

SECTION B - DETAILED WASTEWATER INFORMATION

Company Name Hall-Buck Marine, Inc./Portland Bulk Terminal
Facility Address 11040 N. Lombard St., Portland, OR 97283

B1. Please describe processes to be used in your facility that will result or may result in wastewater discharge to the public sewer system.
Washdown of conveyor belts and other marine cargo transfer equipment; sanitary system.

B2. This facility generates or will generate the following types of wastes (check all that apply):

	Average gallons per day	Peak gallons per day
[X] Domestic wastes (restrooms, employee showers, etc., Estimate 35 gallons per day for each employee)	245	270
[ ] Cooling water, noncontact		
[ ] Boiler/Tower blowdown		
[ ] Cooling water, contact		
[ ] Process		
[X] Equipment/Facility Washdown	Note 1	Note 1
[ ] Air Pollution Control Unit		
[X] Stormwater runoff to sewer	2,800	26,850**
[ ] Other (describe)		
[ ] Cleanup		
Total		

Based on 7 employees

Based on 1990, '91 meter readings

Time and Duration of Discharge: M-F; 6 Hrs./Day
Cleanup Time: N/A

NOTE 1: Batch discharges only; 3-4 days/month; no "daily" discharges; average batch size is 32,370 gals., maximum batch size is 375,000 gal

B3. Products Produced: (Attach additional sheets as necessary)

Type	Amount and Rate of Production Handled	Process
	SEE ATTACHMENT 1	

B4. Water supplied from: (Best estimate if not metered)
(City, Well, etc.)

Water Source(s)	Water Acct No.	Water Quantities* Estimated	Meter	
a. City*	POP1689693	4,200	4,175	gal/day
b.				gal/day
c.				gal/d
Total				

*1 ccf = 748 gallons

B5. Wastes are discharged or may be discharged to: (check all that apply)

	Average gallons per day	Peak gallons per day
[X] Sanitary sewer	245	270
[X] Storm sewer	2,800	26,850**
[ ] Surface water		
[ ] Groundwater (onsite disposal)		
[ ] Waste haulers		
[ ] Other (describe)		
Total		

Stormwater: based on 38"/year average rainfall and daily max of 1" over 1.03 acres.

Are the discharges batch [X]? continuous [ ]?

*City water received via account with Port of Portland
**Based on assumption of 1" rainfall in 24 hours over 1.03 acres.

Form 4-2
8/90

PDX702.015.S1

KMB00006185

B6. Are any liquid wastes or sludges from this firm disposed of by means other than discharge to the sewer system?
[ ] Yes [ ] No If "no," skip Items B7 and B8: If "yes," complete items B7 and B8.

B7. These wastes may best be described as:

Item No.		Estimated gallons or pounds per year
[ ]	Acids	
[ ]	Alkalies	
[ ]	Heavy metal sludges	
[ ]	Inks/dyes	
[ ]	Oil and/or grease	
[ ]	Organic compounds	
[ ]	Paints	
[ ]	Pesticides	
[ ]	Plating wastes	N/A
[ ]	Pretreatment sludges	
[ ]	Solvents/thinners	
[ ]	Other hazardous wastes (specify)	
	_____	_____
	_____	_____
[X]	Other wastes (specify)*	
1)	Dry product residues	194,000 lbs./yr.
2)	Sump sludges	12,000 gals./yr.

B8. For the above checked wastes, does your company practice:

[ ] Onsite storage
location _____
[ ] Offsite storage
hauler's name _____
address _____
hauler's DEQ permit # _____
phone number _____
[ ] Onsite disposal
[X] Offsite disposal
hauler's name Metropolitan Disposal & Recycling Corp.
address P. O. Box 11229, Portland, OR 97211-0229
hauler's DEQ permit # N/A
phone number (503) 285-0571

Describe the method(s) of storage or disposal checked above.

All wastes* are landfilled at Hillsboro Landfill, Inc.

Do you have an EPA or DEQ permit for storage or hauling? [ ] Yes [X] No If yes, attach a copy of the permit.

*No hazardous wastes are generated at this facility.

KMB00006186

B9. List all principal materials regularly used in your facility that may be present in your wastewater discharge (such as cleaning agents, solvents, food processing waste, plating solutions, catalysts, milk wastes, ink, etc.). Identify chemical constituents, if known, or brand name. Attach material safety data sheets.

Generic Type	Amount Per Year	Discharged to: Storm	Discharged to: Sanitary	Spill Potential: Storm	Spill Potential: Sanitary	Chemical Constituents or Brand Name
a. Example: Degreaser	3 gallons			X		
b.						
c.						
d.						
e.						
f.						
g.						
h.						
i.						
j.						
k.						

Permit — this is where we need the MSDS's attached H2SO4 (sulphuric acid) etc. etc.

(Attach additional sheets if necessary)

B10. Have you listed with the Fire Bureau the onsite storage of flammable or combustible liquids or solids, hazardous chemicals, or radioactive materials? [ ] Yes [X] No

If yes, list materials, if any, and their scientific or common and brand names and what quantities are being stored (use extra sheets if needed or attach a copy of Fire Bureau list).

	S-Scientific/C-Common	Brand Name	Lbs or Gallons
a.			
b.			
c.			
d.			

B11. Do you have an accidental spill prevention program for the facility? [X] Yes [ ] No Emergency response plan? [ ] Yes [X] No
If yes, attach plans. See Attachment 2

B12. Characteristics of Wastewater:

a. Temperature ambient Don't know [ ]
b. pH level 10.3 Don't know [ ]
c. Flammable or explosive materials Yes [ ] No [X] Don't know [ ]
d. Solid or viscous materials Yes [ ] No [X] Don't know [ ]
e. Priority pollutants Yes [ ] No [X] Don't know [ ] If yes, complete Attachment A.
(See Attachment A for the priority pollutants list.)

B13. Attach any wastewater analysis that has been performed on the wastewater discharge(s) from your facilities in the last year. Attach a copy of the most recent lab data to this questionnaire. Be sure to include the date of the analysis, name of laboratory performing the analysis, and location(s) from which sample(s) were taken (attach sketches, plans, etc., as necessary). SEE ATTACHMENT 5

KMB00006187

B14. If your facility uses processes in any of the industrial categories or business activities listed below and any of these processes generate or cogenerate wastewater or waste sludge, place a check beside the category or business activity (check all that apply).

a. Industrial Categories

EPA Category Code		Category
467	[ ]	Aluminum forming
461	[ ]	Battery manufacturing
434	[ ]	Coal mining
465	[ ]	Coil coating
468	[ ]	Copper forming
469	[ ]	Electric & electronic components
413	[ ]	Electroplating (If checked, please complete Attachment B)
415	[ ]	Inorganic chemicals
420	[ ]	Iron & steel
425	[ ]	Leather tanning & finishing
433	[ ]	Metal Finishing (If checked, please complete Attachment B)
464	[ ]	Metal molding & casting (Foundries)
471	[ ]	Nonferrous metals forming
421	[ ]	Nonferrous metals manufacturing
414 & 416	[ ]	Organic chemicals, plastics, & synthetic fibers
455	[ ]	Pesticides
419	[ ]	Petroleum refining
439	[ ]	Pharmaceuticals
463	[ ]	Plastics processing
466	[ ]	Porcelain enamel
430 & 431	[ ]	Pulp, paper, and fiberboard
428	[ ]	Rubber
423	[ ]	Steam electric
410	[ ]	Textile mills
429	[ ]	Timber products (wood preserving)

b. Other Business Activity

	[ ]	Adhesives
	[ ]	Analytical laboratories
	[ ]	Auto laundries
	[ ]	Beverage bottler
	[ ]	Can making
405	[ ]	Dairy products
	[ ]	Dry Cleaners
457	[ ]	Explosives manufacturing
	[ ]	Food/edible products processor
	[ ]	Gas stations
454	[ ]	Gum & wood chemicals
	[ ]	Health services
460	[ ]	Hospital
	[ ]	Laundries
	[ ]	Machine shops
	[ ]	Mechanical products
440	[ ]	Ore mining
446 & 447	[ ]	Paint & ink
459	[ ]	Photographic supplies
	[ ]	Printing & publishing
	[ ]	Radiator Shops
	[ ]	Slaughter/meat packing/rendering
417	[ ]	Soaps & detergents
	[ ]	Used oil reclaimers
	[ ]	Waste recycler
	[x]	Other Marine Cargo Handling

KMB00006188

B15. Attach a simple schematic drawing(s) of your facility, indicating: (Drawings should be 11 x 17, or smaller) SEE ATTACHMENT 3

a. Location and size of all service outlets, process drains, floor drains
b. Existing sampling manholes or locations where samples may be collected
c. Current or planned flow metering equipment
d. Current or planned automatic sampling equipment
e. Location of pretreatment processes, treated flows, and untreated flows
f. Location and name of pertinent streets
g. Flow schematic to indicate process and process discharge in gpd
h. Chemical storage location
i. Storm drain location, if known

B16. Pretreatment devices or processes used for treating wastewater or sludge (check as many as appropriate).

[ ] Air flotation
[ ] Carbon filtration
[ ] Centrifuge
[ ] Chemical precipitation
[ ] Chlorination
[ ] Cyclone
[ ] Evaporation
[X] Filtration
[ ] Filtration, Multi-media
[ ] Filtration, Rotary
[ ] Filtration, Sand
[ ] Flow equalization
[ ] Grease or oil separation, type _____
[ ] Grease trap
[ ] Grinding filter
[ ] Grit removal
[ ] Ion exchange
[X] Neutralization, pH correction
[ ] Ozonation
[ ] Reverse osmosis
[ ] Screen
[ ] Sedimentation
[ ] Septic tank
[ ] Solvent separation
[ ] Spill protection
[X] Sump
[ ] Biological treatment, type _____
[ ] Rainwater diversion or storage _____
[ ] Other chemical treatment, type _____
[ ] Other physical treatment, type _____
[ ] Other, type _____
[ ] No pretreatment provided

B17. Is additional pretreatment required? [ ] Yes [ ] No [X] Don't know If yes, describe necessary pretreatment.

B18. Is industry in compliance with City industrial pretreatment ordinance? [X] Yes [ ] No [ ] Don't Know
See ordinance.

B19. Is industry in compliance with Federal Categorical standards? [X] Yes [ ] No [ ] Don't Know

B20. Are any process changes or expansions planned during the next three years? [X] Yes [ ] No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions. SEE ATTACHMENT 4

B21. Please describe any previous spill events and remedial measures taken to prevent their reoccurrence:

NONE

KMB00006189

B22. Comments: _____

! certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature* _____ Title Environmental Manager Date 11/20/92

*This form should be signed by a responsible corporate officer, a general partner, or by a duly authorized representative. See 40 CFR 403.12(l) for full definition.

KMB00006190

Attachment A

PRIORITY POLLUTANT INFORMATION

Please indicate by placing an "X" in the appropriate space by each listed chemical whether it is Suspected to be Absent, Known to be Absent, Suspected to be Present, or Known to be Present in your manufacturing or service activity or generated as a byproduct. Some compounds are known by other names. Please refer to the Priority Pollutant Synonym Listing for those compounds which have an asterisk (*).

Item No.	CASRN	Chemical Compound	Suspected Absent	Known Absent	Suspected Present	Known Present
1	7664417	ammonia	X			
2	1332214	asbestos (fibrous)		X		
3	57125	cyanide (total)	X			
4	7440360	antimony (total)	X			
5	7440382	arsenic (total)	X			
6	7440417	beryllium (total)	X			
7	7440439	cadmium (total)		X		
8	7440473	chromium (total)		X		
9	7440508	copper (total)				X
10	7439921	lead (total)				X
11	7439976	mercury (total)	X			
12	7440020	nickel (total)		X		
13	7782492	selenium (total)	X			
14	7440224	silver (total)	X			
15	7440280	thallium (total)	X			
16	7440666	zinc (total)				X
17	83329	acenaphthene				X
18	208968	acenaphthylene		X		
19	107028	acrolein	X			
20	107131	acrylonitrile	X			
21	309002	aldrin		X		
22	120127	anthracene				X
23	71432	benzene	X			
24	92875	benzidine		X		
25	56553	benzo(a)anthracene*				X
26	50328	benzo(a)pyrene*				X
27	205992	benzo(b)fluoranthene				X
28	191242	benzo(g,h,i)perylene*				X
29	207089	benzo(k)fluoranthene*		X		
30	319846	a-BHC(alpha)		X		
31	319857	b-BHC(beta)		X		
32	319868	d-BHC(delta)		X		
33	58899	g-BHC*(gamma)		X		
34	111444	bis(2-chloroethyl)ether*		X		
35	111911	bis(2-chloroethoxy)methane*		X		
36	108601	bis(2-chloroisopropyl)ether*		X		
37	542881	bis(chloromethyl)ether*	X			

Attachment A (Continued)

Item No.	CASRN	Chemical Compound	Suspected Absent	Known Absent	Suspected Present	Known Present
79		1,6-dinitro-2-methylphenol*	X			
80	51285	2,4-dinitrophenol		X		
81	121142	2,4-dinitrotoluene		X		
82	606202	2,6-dinitrotoluene		X		
83	122667	1,2-diphenylhydrazine*	X			
84	959988	endosulfan I*		X		
85	33213659	endosulfan II*		X		
86	1031078	endosolfan sulfate	X			
87	72208	endrin	X			
88	7421934	endrin aldehyde		X		
89	100414	ethylbenzene	X			
90	206440	fluoranthene				X
91	86737	fluorene*				X
92	76448	heptachlor		X		
93	1024573	heptachlor epoxide		X		
94	118741	hexachlorobenzene*		X		
95	87683	hexachlorobutadiene		X		
96	77474	hexachlorocyclopentadiene*		X		
97	67721	hexachloroethane*		X		
98	193395	indeno (1,2,3-cd)pyrene*				X
99	78591	isophorone*		X		
100	74873	methylene chloride*	X			
101	91203	naphthalene		X		
102	98953	nitrobenzene		X		
103	88755	2-nitrophenol*		X		
104	100027	4-nitrophenol*		X		
105	62759	n-nitrosodimethylamine*		X		
106	621647	n-nitrosodipropylamine*		X		
107	86306	n-nitrosodiphenylamine*		X		
108	12674112	PCB-1016*		X		
109	11104282	PCB-1221*		X		
110	11141165	PCB-1232*		X		
111	53469219	PCB-1242*		X		
112	12672296	PCB-1248*		X		
113	11097691	PCB-1254*		X		
114	11096825	PCB-1260*		X		
115	87865	pentachlorophenol		X		
116	85018	phenanthrene				X
117	108952	phenol				X
118	129000	pyrene				X
119	1746016	2,3,7,8-tetrachlorodibenzo-p-dioxin*	X			

KMB00006192

ATTACHMENT 1

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

LIST OF PRODUCTS HANDLED

LIST OF PRODUCTS HANDLED

Soda Ash*

Bentonite Clay*

Talc

Pencil Pitch (Coal Tar Pitch)

Aluminum Trihydrate

Soybean Meal

Sodium Sulfate

Calcined Coke

*Over 95% of throughput is comprised of these two products.

ATTACHMENT 2

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ACCIDENTAL SPILL PREVENTION PLAN

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ACCIDENTAL SPILL PREVENTION PLAN

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ACCIDENTAL SPILL PREVENTION PLAN

This Plan has been prepared to meet the requirements of Industrial Wastewater Discharge Permit No. 400-027 issued by the City of Portland for discharges from HBM's Portland Bulk Terminal.

A. Hazardous Substances Handled and Potential points of entry into City sewer system or stormwater runoff:

- "Sulphuric Acid 66 BE": Used as needed for neutralization of wastewater prior to discharges to sewer.
- Leakage from storage tanks and from drums could possibly flow out of warehouse to ground outside. There is no accessible point of entry to sewer system.

B. Measures to prevent entry of spills into sewer system or stormwater runoff:

- Tanks and drums are located inside warehouse with impervious concrete floor. No drains are present.

C. Measures to be taken to contain spills:

See Attachment 1.

D. Description of Employee Training in prevention of spills:

This Plan is reviewed with all new employees. At regular Safety meetings, the Plan is reviewed with all employees.

E. The NOTICE shown in Attachment 2 and a copy of this Plan are posted in the warehouse near the Wastewater Treatment System.

Signed: Kenneth Ritter

Date: 12/6/91

ATTACHMENT 1

MEASURES TO BE TAKEN IN EVENT OF SULPHURIC ACID SPILL

Step 1. Review M.S.D.S. sheet to familiarize yourself with precautions.

Step 2. Use Protective Equipment.

a) Respirator with cartridge for acid gas.
b) Chemical goggles and full face shield.
c) Acid-resistant slicker suit with rubber apron, rubber boots and pants outside and rubber gloves with sleeves outside.

Step 3. Remove all sources of ignition.

Step 4. Small spills and leaks.

a) Mop or wipe up and dispose of in DOT approved container.

Step 5. Large Spills.

a) Contain spill with dirt or other non-combustible material by diking. After containment, pump acid into empty drum using acid pump.

Step 6. Carefully neutralize remaining acid with soda ash or lime. Be sure area is well-ventilated to dissipate the carbon dioxide gas, which is caused from neutralizing.

Step 7. Keep non-neutralized material out of sewers, storm drains, surface water and soils.

Step 8. Notify supervision for proper instructions of disposal as per federal, state and local procedures.

Step 9. Wash protective equipment thoroughly after handling.

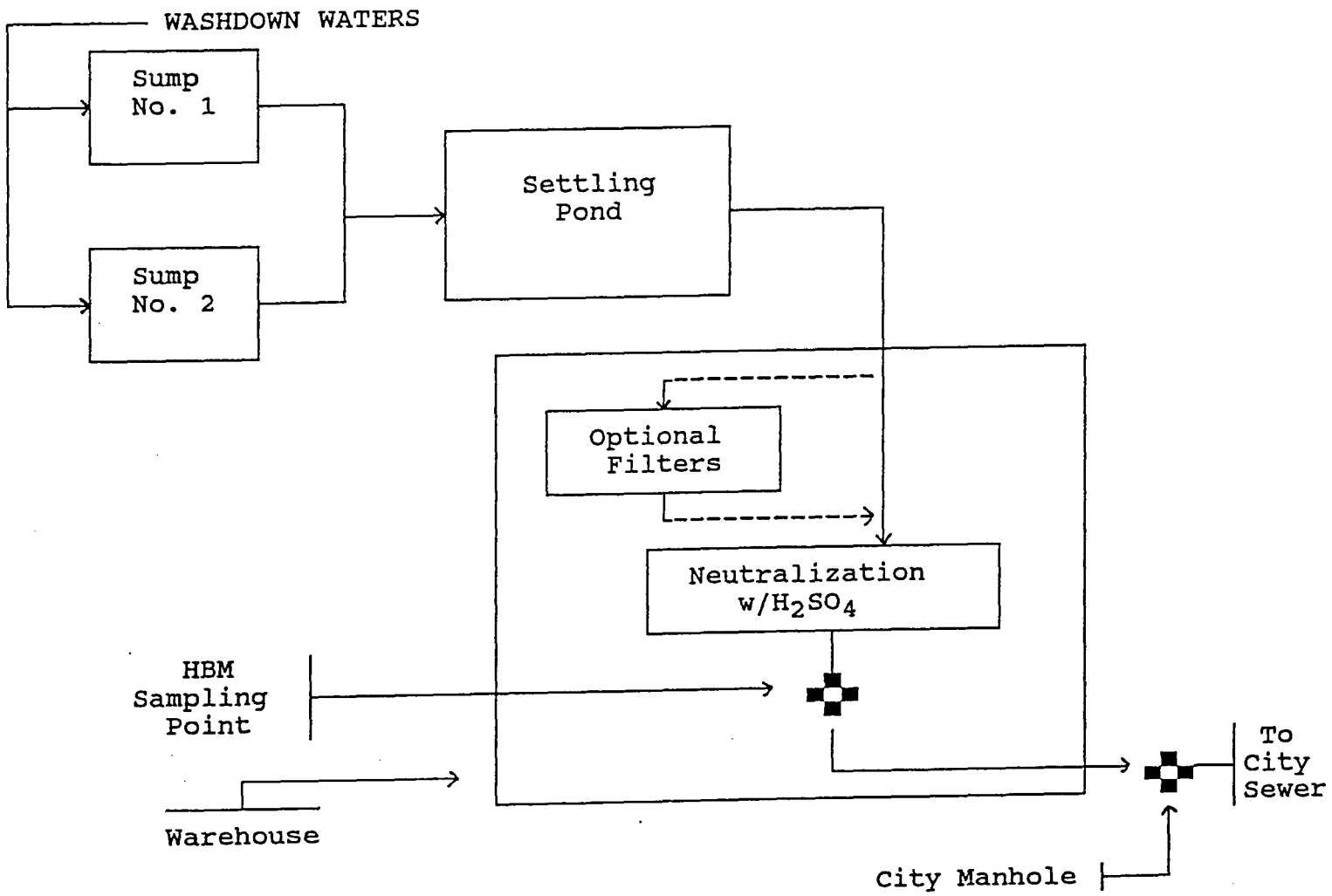
Step 10. Do not get into eyes, on skin, or on clothing. If so, immediately flush eyes and skin with water for thirty (30) minutes. Remove all contaminated clothing. Get immediate medical attention.

ATTACHMENT 2

NOTICE TO EMPLOYEES

IN THE EVENT OF A SPILL OF SULPHURIC ACID WHICH MAY GET INTO THE CITY OF PORTLAND'S SEWER SYSTEM, THE SUPERVISOR ON DUTY MUST IMMEDIATELY NOTIFY THE CITY OF PORTLAND, BUREAU OF ENVIRONMENTAL SERVICES AT (503) 769-7740.

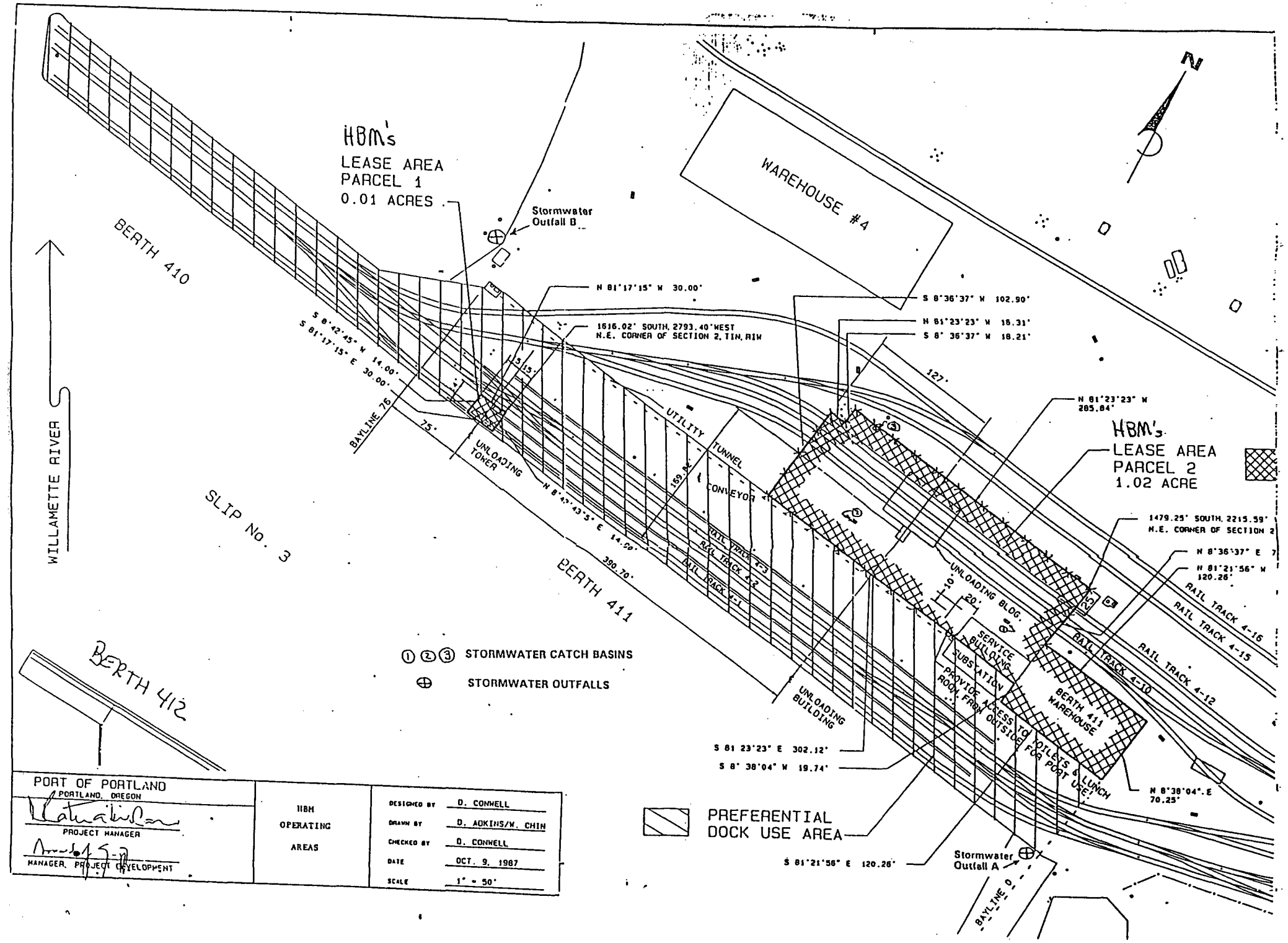
SAMPLING LOCATION MAP



ATTACHMENT 3

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

SITE PLAN AND SAMPLING SCHEMATIC

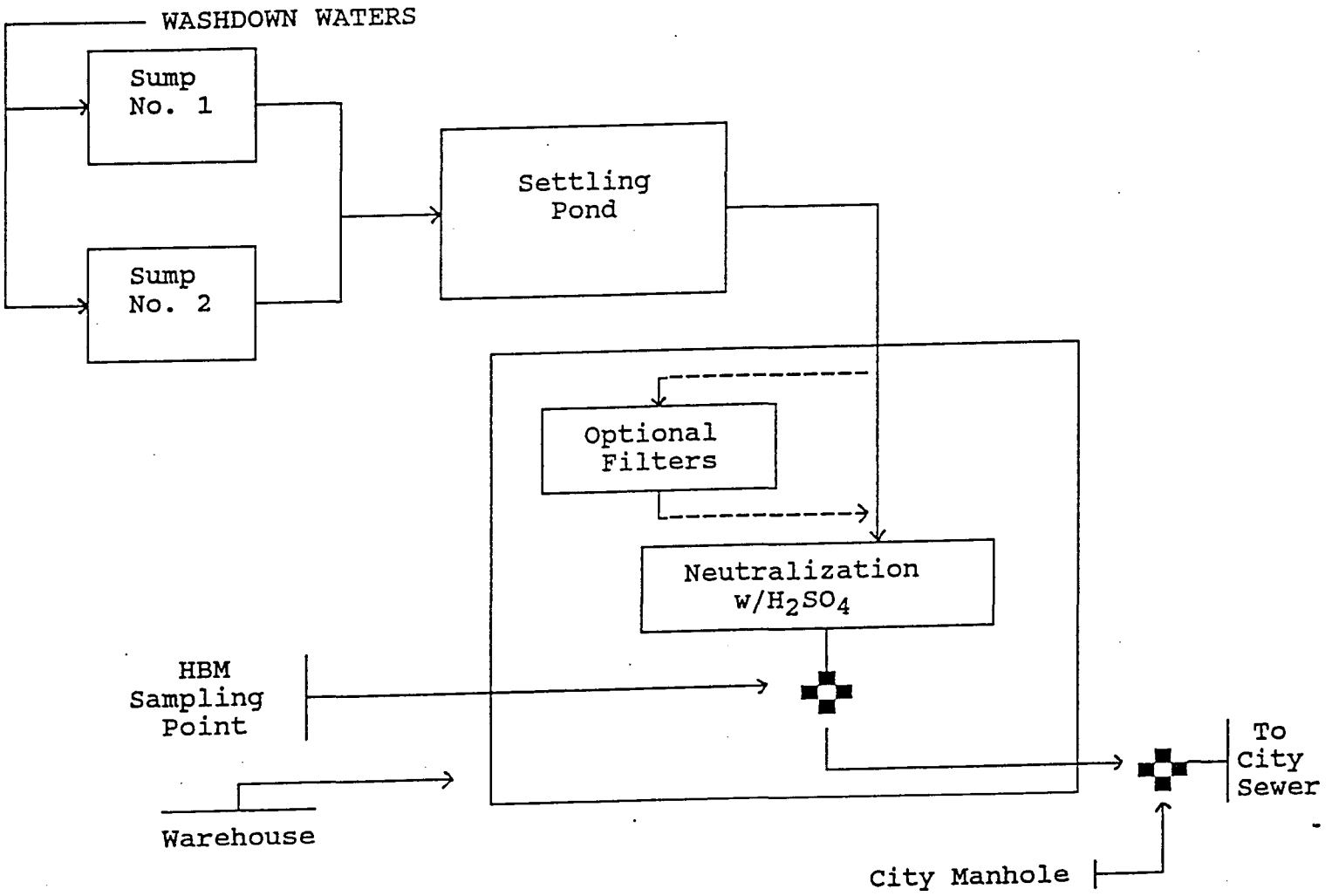


KMB00006202

Sampling Location Map

Permit Number: 400-027

SAMPLING LOCATION MAP



ATTACHMENT 4

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ANTICIPATED EXPANSION

ANTICIPATED EXPANSION

Over the next three (3) years, HBM anticipates the following changes at the Portland Bulk Terminal:

1. Add covered storage space of about 30,000 T capacity. This change will have no impact on wastewater generated.

2. Construct additional loading/unloading equipment to allow for handling of soda ash separately from all other products. This change is expected to minimize the need for equipment washdowns. Therefore, the amount of wastewater generated and disposed of to the City will be reduced.

ATTACHMENT 5

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

WASTEWATER ANALYSES

ROUTE TO:

HOH		CAB	
WHB	TBC	SJD	[illegible]
GJS	CHW	[illegible]	[illegible]
MRD		JEB	[illegible]
SJ			WKS

Report Date: July 7, 1992
Job#: WG-920629AW-1
PO#: 2498
Project#: None
Project: ~~Quarterly~~ Compliance

* Semi-annual now not quarterly [illegible]

Attention: Mr. Kermit Pitre
Hall-Buck Marine, Inc.
P.O. Box 83838
Portland, OR 97283

SAMPLE INFORMATION:
Date Samples Were Received By Laboratory: 06/29/92

Lab No.	Field Identification	Sample Matrix	Date	Time
1	Grab	Waste Water	06-29-92	1450

ANALYTICAL RESULTS ARE ON THE FOLLOWING PAGE(S)

Sincerely,

Renee Chauvin
Technical Director

RJC/mlh

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.

RECEIVED
JUL 14 1992

Job#: WG-920629AW-1

Hall-Buck Marine, Inc.
Page 2

PARAMETER	METHOD	DETECTION LIMITS	Grab RESULTS
pH (S.U.)	EPA 150.1	----	8.18
Flash Point (°F)	EPA 1020	----	>200
Total Oil & Grease	SM 5520 C	0.6	1.2
Polar Oil & Grease	SM 5520 C,F	0.6	ND
Total Petroleum Hydrocarbons (Non-Polar)	SM 5520 F	0.6	1.0

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

SM means Standard Methods for the Examination of Water and Wastewater, 1989, 17th Edition.

The ">" symbol indicates greater than.

REPORT CONTINUES

Job#: WG-920629AW-1

Hall-Buck Marine, Inc.
Page 3

Analysis Requested: Base/Neutral Extractables by EPA 625, GC/MS.

PARAMETER	DETECTION LIMIT	LABORATORY BLANK	Grab RESULTS (ug/L)
Anthracene	2	ND	5
Benzo(a)pyrene	10	ND	34
Phenanthrene	2	ND	19
Pyrene	2	ND	38

Results expressed as µg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

RECEIVED
JUL 24 1992

Report Date: July 22, 1992
Job#: WI-920630AV-1
PO#: 2498
Project#: None
Project: None

Attention: Dan Landry
Hall-Buck Marine, Inc.
P.O. Box 83838
Portland, OR 97283

SAMPLE INFORMATION:
Date Samples Were Received By Laboratory: 06/30/92

Lab No.	Field Identification	Sample Matrix	Date	Time
1	24hr Composite	Waste Water	06-30-92	24hr

ANALYTICAL RESULTS:

PARAMETER	METHOD	DETECTION LIMITS	24 HR COMPOSITE
Cadmium	*	0.05	ND
Chromium	*	0.05	ND
Copper	*	0.05	0.10
Lead	*	0.1	0.1
Nickel	*	0.05	ND
Zinc	*	0.05	0.91

Results expressed as mg/L unless otherwise noted.

* Federal Register, 40 CFR Part 136, Method 200.7, Friday, October 26, 1984, Part VIII.

ND means none detected at or above the detection limit listed.

Sincerely,

Renee Chauvin
Technical Director

RJC/daj

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.

COFFEY LABORATORIES INC.
12423 N.E. WHITAKER WAY, PORTLAND, OR 97230
(503) 254-1794 • FAX (503) 254-1452

COFFEY LABORATORIES - PENDLETON BRANCH
287 S.E. FIRST, PENDLETON, OR 97801
(503) 276-0385

CHAIN OF CUSTODY

PROJECT #:	PROJECT NAME:	P.O. #:	PAGE ____ of ____ PAGES PLEASE PRINT OR TYPE	FOR LABORATORY USE ONLY
COMPANY NAME: HALL BUCK MARINE			RECEIVED JUL 24 1992	JOB #: WI 920630
REPORT ATTENTION:				
SAMPLES COLLECTED BY: R. WISEMAN CLI.				CUSTABBR: Hall Buck Mar

FIELD IDENTIFICATION: ONE LINE PER SAMPLE CONTAINER	LAB LOC	LAB ID	COLLECTION DATE	COLLECTION TIME	MEDIA	ANALYSIS REQUESTED	ANALYSIS REMARKS
24 HR. Composite	08		6-30-92	24 HR	W.W.	Cd Cr Cu Ni Pb Zn	

RELINQUISHED BY: Ralph Wiseman 6-30-92	DATE/TIME 1730	RECEIVED BY: ____ DATE/TIME	LAB USE
RELINQUISHED BY: ____	DATE/TIME	RECEIVED BY LAB: Danette Utley 6/30/92	DATE/TIME 1735
SAMPLE REMARKS:		LEVEL 1 2 3 4	EXPRESS UPS MAIL CXX GREY TAXI LAB

WHITE COPY - COFFEY LABORATORIES

PINK COPY - CLIENTS COPY

SHADED AREA FOR LABORATORY USE ONLY

CHAIN OF CUSTODY INSTRUCTIONS ON BACK OF PINK COPY

(7/90)

HALL-BUCK MARINE, INC.

P.O. Box 35 • Burnside, LA 70738 • TWX 510-994-3131 • Cable-HALLBUCK, Baton Rouge • Phone (504) 675-5387

6/10/92
Sent UPS to Kermit to sign and send to city

June 10, 1992

City of Portland
Bureau of Environmental Services
1120 S. W. Fifth, Room 400
Portland, OR 97204-1972

Dear Sir of Madam:

RE: SEMI-ANNUAL INDUSTRIAL DISCHARGE REPORT
PERMIT NO. 400-27

Enclosed is HBM's Industrial Discharge Report due on June 15, 1992. As indicated in our last report (December 3, 1991), Total Toxic Organics (TTO) Testing was conducted at that time and indicated that levels were well below the permit limit of 2.13 mg/l (actual level was 0.374 mg/l). Accordingly, in lieu of further TTO testing, this report includes the Certification referred to in our permit at Section D, Special Conditions, Item 5.

With respect to frequency of sampling, inasmuch as reporting is required only semi-annually, and based on a conversation with Greg East of your office on January 24, 1992, we will sample and test our wastewaters twice per year. (Normally during January/February and July/August, depending on shipment schedules.) Mr. East indicated in our conversation that sections of the permit that refer to "quarterly" sampling were to be revised.

If you have questions concerning this report, please contact me at (800) 535-8170 or our facility manager, Kermit Pitre, at (503) 285-2990.

Sincerely yours,

HALL-BUCK MARINE, INC.

Marie E. Krien-Schmidt

Marie E. Krien-Schmidt
Environmental Manager

MKS:tl
Enclosures

cc: Mr. Kermit Pitre - PBT

CITY OF PORTLAND
INDUSTRIAL DISCHARGE REPORT

INDUSTRY NAME:	HALL-BUCK MARINE, INC.
PERMIT NUMBER:	400-027
REPORT DUE DATE:	JUNE 15, 1992
SAMPLING PERIOD:	JAN/FEB 1992
SAMPLE CODE:	
TODAY'S DATE:	6-10-92

REPORT TYPE (CHECK ONE)

- ☐ INITIAL MONITORING
- ☐ REPORT ON COMPLIANCE
- ☒ PERIODIC COMPLIANCE
- ☐ SPECIAL COMPLIANCE

(FOR CITY USE ONLY)

SAMPLE DATE >		SAMPLE LOCATION >		SAMPLE TYPE >	_ COMPOSITE _ GRAB	DATE RECEIVED AT LAB >		DATE OF SAMPLE ANALYSIS >	

PARAMETER	CODE	REPORTED CONCENTRATION mg/L	LIMIT mg/l Daily	LIMIT mg/l Monthly	VIOLATION YES(X)	VIOLATION LEVEL	COMMENTS
							Full compliance has--has not*--
PH	843	10.32 S.U.	5.5 TO 11.5				been achieved this reporting period
CADMIUM (TOTAL)	736	ND	0.7	---			
CHROMIUM (TOTAL)	748	ND	3.8	---			
COPPER (TOTAL)	752	0.19	2.3	---			
NICKEL (TOTAL)	824	ND	3.0	---			
LEAD (TOTAL)	811	0.1	0.7	---			
ZINC (TOTAL)	874	0.21	4.0	---			
TTO	838	NA	2.13	---			See attached Certification
FATS, OILS AND GREASE	813	2.6	---	---			
POLAR	814	ND	500	---			
NON-POLAR	815	2.2	100	---			

*See attached report.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: 6-12-92

KMB00006213

Portland Bulk Terminal
Hall-Buck Marine, Inc.
Permit No. 400-27

CERTIFICATION
Regarding Total Toxic Organics

Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics has occurred since filing the last discharge monitoring report.

Signature	June 12, 1992 Date

RECEIVED
FEB 5 1992

Report Date: February 3, 1992
Job#: WI-9201245-2
PO#: 2220
Project: Quarterly Compliance

Attention: Dan Landry
Hall-Buck Marine, Inc.
P.O. Box 83838
Portland, OR 97283

SAMPLE INFORMATION:
Date Samples Were Received By Laboratory: 01/24/92

Lab No.	Field Identification	Sample Matrix	Date	Time
1	48hr Composite	Waste Water	01-24-92	48hr
2	Grab	Waste Water	01-24-92	1400

ANALYTICAL RESULTS ARE ON THE FOLLOWING PAGE(S)

Sincerely,

Renee Chauvin
Technical Director

RJC/mlh

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Job#: WI-9209124S-2

Hall-Buck Marine, Inc.
Page 2

PARAMETER	METHOD	DETECTION LIMITS	48hr Composite RESULTS
Cadmium	*	0.05	ND
Chromium	*	0.05	ND
Copper	*	0.05	0.19
Lead	*	0.1	0.1
Nickel	*	0.05	ND
Zinc	*	0.05	0.21

PARAMETER	METHOD	DETECTION LIMITS	GRAB RESULTS
pH (S.U.)	EPA 150.1	---	10.32
Flash Point (°F)	EPA 1010	---	> 200

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

* Federal Register, 40 CFR Part 136, Method 200.7, Friday, October 26, 1984, Part VIII.

The ">" symbol indicates greater than.

Analysis Performed: Polar and Non-Polar Oil & Grease in water, freon-extractable.

PARAMETER	METHOD	DETECTION LIMIT	GRAB RESULTS
Total Oil & Grease	SM 5520 C	0.5	2.6
Polar Oil & Grease	SM 5520 C,F	0.5	ND
Total Petroleum Hydrocarbons (Non-Polar)	SM 5520 F	0.5	2.2

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

SM means Standard Methods for the Examination of Water and Wastewater, 1989, 17th Edition.

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

HALL-BUCK MARINE, INC.

P.O. Box 35 • Burnside, LA 70738 • TWX 510-994-3131 • Cable-HALLBUCK, Baton Rouge • Phone (504) 675-5387

December 3, 1991

City of Portland
Bureau of Environmental Services
1120 S.W. 5th, Room 400
Portland, OR 97204-1972

Dear Sir or Madam:

RE: SEMI-ANNUAL INDUSTRIAL DISCHARGE REPORT
PERMIT NO. 400-027

Enclosed is HBM's Industrial Discharge Report due on December 15, 1991. As required by our permit, sampling was conducted when Total Toxic Organics (TTO) and other contaminants were expected to be at a maximum (i.e., after a loading of pencil pitch).

Note that the TTO level was 0.374 mg/l, well below the permitted level of 2.13 mg/l. Accordingly, in lieu of further testing for TTO, our future reports will include the Certification referred to in Schedule D, Special Conditions, Item 5. (See page D2 of 2 in the permit.)

At this time, we would like to clarify the frequency of sampling and future reports required by the City. Schedule B, Part II, "Periodic Compliance Report" (Page B3 of 4) specifies semi-annual reporting on the 15th of December and June. Schedule C (Page C1 of 1) also states that reporting is due semi-annually. However, Note #1 in Schedule B, Part II (Page B3 of 4) and Special condition 1.d. in Schedule D (Page D1 of 1) indicate that sampling is to be done quarterly and that pH compliance reports must be filed quarterly. This would seem to indicate that although reporting frequency has been reduced to semi-annual, HBM is still required to sample and analyze on a quarterly basis, with the results of Q1 and Q2 submitted on June 15 and the results of Q3 and Q4 submitted on December 15. In addition, it appears that a quarterly pH report is required.

Would you please advise us as to whether we have correctly interpreted the permit requirements, or whether it was the City's intent to reduce all sampling and reporting to semi-annually. You can reach me at (800) 535-8170. Thank you for your assistance.

Sincerely yours,

HALL-BUCK MARINE, INC.

Marie E. Krien-Schmidt

Marie E. Krien-Schmidt
Environmental Manager

MKS:tl
Enclosure

cc: Mr. Kermit Pitre - PBT
Mr. Daniel Landry - PBT

CITY OF PORTLAND
INDUSTRIAL DISCHARGE REPORT

INDUSTRY NAME:	HALL-BUCK MARINE, INC.		(FOR CITY USE ONLY)
PERMIT NUMBER:	400-027	REPORT TYPE (CHECK ONE)	
REPORT DUE DATE:	DECEMBER 15, 1991	[X] INITIAL MONITORING	
SAMPLING PERIOD:		[ ] REPORT ON COMPLIANCE	
SAMPLE CODE:		[ ] PERIODIC COMPLIANCE	
TODAY'S DATE:		[ ] SPECIAL COMPLIANCE	

SAMPLE DATE >		SAMPLE LOCATION >		SAMPLE TYPE >	_ COMPOSITE _ GRAB	DATE RECEIVED AT LAB >		DATE OF SAMPLE ANALYSIS >	

PARAMETER	CODE	REPORTED CONCENTRATION mg/L	LIMIT mg/l Daily	LIMIT mg/l Monthly	VIOLATION YES(X)	VIOLATION LEVEL	COMMENTS
PH	843	S.U.	5.5 TO 11.5				10.14
CADMIUM (TOTAL)	736		0.7	---			ND*
CHROMIUM (TOTAL)	748		3.8	---			ND
COPPER (TOTAL)	752		2.3	---			0.29
NICKEL (TOTAL)	824		3.0	---			ND
LEAD (TOTAL)	811		0.7	---			0.2
ZINC (TOTAL)	874		4.0	---			0.15
TTO	858		2.13	---			0.374
FATS, OILS AND GREASE	913		---	---			
POLAR	914		500	---			2
NON-POLAR	915		100	---			10

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the erson or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted s, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting alse information, including the possibility of fine and imprisonment for knowing violations.

Signature: [signature] Date: 12/3/91

* ND = None Detected

KMB00006218

NOV 6 1991

Report Date: October 30, 1991
Job#: WI-910927AD-2
PO#: 2090
Project: Quarterly Compliance

Attention: Kermit Pitre
Hall-Buck Marine, Inc.
P.O. Box 83838
Portland, OR 97283

SAMPLE INFORMATION:
Date Samples Were Received By Laboratory: 09/27/91

Lab No.	Field Identification	Sample Matrix	Date	Time
1	24 Hr. Comp	Waste Water	09-27-91	
2	Grab	Waste Water	09-27-91	9:21

ANALYTICAL RESULTS ARE ON THE FOLLOWING PAGE(S)

Sincerely,

Victor A. Perry,
Quality Assurance

Sincerely,

Susan M. Coffey,
President

SMC/mlh

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Job#: WI-910927AD-2

Hall-Buck Marine, Inc.
Page 2

Sample ID: #1 24 Hr. Comp
#2 Grab

PARAMETER	METHOD	DETECTION LIMITS	SAMPLE #1 RESULTS	PBT's Permit Limit (mg/L)
Cadmium	*	0.05	ND	0.7
Chromium	*	0.05	ND	3.8
Copper	*	0.05	0.29	2.3
Lead	EPA 239.1	0.1	0.2	0.7
Nickel	*	0.05	ND	3.0
Zinc	*	0.05	0.15	4.0

PARAMETER	METHOD	DETECTION LIMITS	SAMPLE #2 RESULTS
pH (S.U.)	EPA 150.1	---	10.14
Flash Point (°F)	EPA 1020	---	>200

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

* Federal Register, 40 CFR Part 136, Method 200.7, Friday, October 26, 1984, Part VIII.

SM means Standard Methods for the Examination of Water and Wastewater, 1985, 16th Edition.

The ">" symbol indicates greater than.

Analysis Performed: Polar and Non-Polar Oil & Grease in water, freon-extractable.

PARAMETER	METHOD	DETECTION LIMIT	Grab RESULTS	Permit Limit mg/L
Total Oil & Grease	SM 5520 C	0.5	12	
Polar Oil & Grease	SM 5520 C,F	0.5	2	500
Total Petroleum Hydrocarbons (Non-Polar)	SM 5520 F	0.5	10	100

Results expressed as mg/L unless otherwise noted.

SM means Standard Methods for the Examination of Water and Wastewater, 1989, 17th Edition.

REPORT CONTINUES

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Job#: WI-910927AD-2

Hall-Buck Marine, Inc.
Page 3

Analysis Performed: Base Neutrals/Acid Extractables, by EPA Method 625, GC/MS

ANALYTE	DETECTION LIMIT	LABORATORY BLANK	Grab RESULTS (µg/mL)	
Acenaphthene	1	ND	3	.003 mg/l (ppm)
Acenaphthylene	1	ND	ND	
Aldrin	3	ND	ND	
Anthracene	1	ND	3	.003
Benzidine	200	ND	ND	
Benzo(a)anthracene	3	ND	16	.016
Benzo(b)fluoranthene	5	ND	44	.044
Benzo(k)fluoranthene	5	ND	ND	
Benzo(a)pyrene	5	ND	43	.043
Benzo(ghi)perylene	5	ND	22	.022
alpha-BHC	5	ND	ND	
beta-BHC	5	ND	ND	
delta-BHC	5	ND	ND	
gamma-BHC	5	ND	ND	
Bis(2-chloroethoxy)methane	1	ND	ND	
Bis(2-chloroethyl)ether	1	ND	ND	
Bis(2-chloroisopropyl)ether	10	ND	ND	
Bis(2-ethylhexyl)phthalate	2	3	43	.043
4-Bromophenyl phenyl ether	2	ND	ND	
Butyl benzyl phthalate	5	ND	ND	
Chlordane	50	ND	ND	
4-Chloro-3-methylphenol	4	ND	ND	
2-Chloronaphthalene	1	ND	ND	
2-Chlorophenol	1	ND	1	.001
4-Chlorophenyl phenyl ether	1	ND	ND	
Chrysene	3	ND	12	.012
4,4'-DDD	5	ND	ND	
4,4'-DDE	5	ND	ND	
4,4'-DDT	5	ND	ND	
Dibenzo(a,h)anthracene	5	ND	10	.010
Di-n-butylphthalate	1	ND	ND	
1,2-Dichlorobenzene	1	ND	ND	
1,3-Dichlorobenzene	1	ND	ND	
1,4-Dichlorobenzene	1	ND	ND	
3,3'-Dichlorobenzidine	200	ND	ND	
2,4-Dichlorophenol	2	ND	ND	
			(p1)	.197 Total Toxics

Results expressed as µg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

REPORT CONTINUES

* total: (page 1 + 2) = 0.374 } * permit limit = 2.13 mg/l

OK
mds
11/6/91

COFFEY LABORATORIES, IN
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 2

Job#: WI-910927AD-2

Hall-Buck Marine, Inc.
Page 4

Analysis Performed: Base Neutrals/Acid Extractables, by EPA Method 625, GC/MS

ANALYTE	DETECTION LIMIT	LABORATORY BLANK	Grab RESULTS (µg/L) → (mg/L)	
Dieldrin	5	ND	ND	
Diethyl phthalate	5	ND	ND	
2,4-Dimethylphenol	2	ND	ND	
Dimethylphthalate	1	ND	ND	
2,4-Dinitrophenol	50	ND	ND	
2,4-Dinitrotoluene	5	ND	ND	
2,6-Dinitrotoluene	5	ND	22	.022
Di-n-octylphthalate	2	ND	ND	
Endosulfan sulfate	20	ND	ND	.018
Endrin aldehyde	100	ND	18	
Fluoranthene	1	ND	trace, <1	
Fluorene	1	ND	ND	
Heptachlor	2	ND	ND	
Heptachlor epoxide	5	ND	ND	
Hexachlorobenzene	1	ND	ND	
Hexachlorobutadiene	2	ND	ND	
Hexachlorocyclopentadiene	5	ND	ND	
Hexachloroethane	3	ND	27	.027
Indeno(1,2,3-cd)pyrene	5	ND	ND	
Isophorone	2	ND	ND	
2-Methyl-4,6-dinitrophenol	10	ND	ND	
Naphthalene	2	ND	ND	
Nitrobenzene	10	ND	ND	
2-Nitrophenol	10	ND	ND	
4-Nitrophenol	200	ND	ND	
N-Nitrosodimethylamine	1000	ND	ND	
N-Nitrosodiphenylamine	5	ND	ND	
N-Nitrosodi-n-propylamine	5	ND	ND	
Pentachlorophenol	5	ND	7	.007
Phenanthrene	1	ND	810	.081
Phenol	5	ND	ND	
Polychlorinated biphenyls	100	ND	22	.022
Pyrene	1	ND	ND	
Toxaphene	100	ND	ND	
1,2,4-Trichlorobenzene	1	ND	ND	
2,4,6-Trichlorophenol	10	ND	ND	

Results expressed as µg/L unless otherwise noted.

(P2) Total Toxics .177

ND means none detected at or above the detection limit listed.

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

.177 (p.2)
+ .197 (p.1)
.374 total toxics

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

COFFEY LABORATORIES INC.
12423 N.E. WHITAKER WAY, PORTLAND, OR 97230
(503) 254-1794 • FAX (503) 254-1452

CHAIN OF CUSTODY

COFFEY LABORATORIES - PENDLETON BRANC
287 S.E. FIRST, PENDLETON, OR 9780
(503) 276-038

PROJECT #:

PROJECT NAME: Quarterly Compliance

P.O. #:

PAGE 1 of 1 PAGES
PLEASE PRINT OR TYPE

FOR LABORATORY USE ONLY

COMPANY NAME: HALL BUCK MARINE

REPORT ATTENTION: Kermit Pitre

Copy of report: MARIE E. KRIENZ-SC
PO Box 35
BURNSIDE, LA 7073

SAMPLES COLLECTED BY:

FIELD IDENTIFICATION: ONE LINE PER SAMPLE CONTAINER	LAB LOG	LAB ID	COLLECTION DATE	COLLECTION TIME	MEDIA	ANALYSIS REQUESTED	ANALYSIS REMARKS
24 Hr Composite grab	[illegible]	[illegible]	9/27/91	24hr 9:21	WW	Cd, Cr, Cu, Pb, Ni, Zn	
	[illegible]	[illegible]	↓	↓	↓	FATS, oils + grease polar/non	
	[illegible]	[illegible]				pH	
	[illegible]	[illegible]				Closed cup flash POINT	
	[illegible]	[illegible]				TTO: ANTHRACENE, Benzo(a) pyrene, 2 b. Hlus	
						phananthracene, pyrene	
						Sample collect. 2 HRS -	

RELINQUISHED BY: DATE/TIME

RECEIVED BY: DATE/TIME

LAB USE

RELINQUISHED BY: MJT 9-27-91 13:15 DATE/TIME

RECEIVED BY LAB: [signature] DATE/TIME 9/27/91 1315

SAMPLE REMARKS:

LEVEL 1 2 3 4 EXPRESS UPS MAIL CXX GREY TAXI

WHITE COPY - COFFEY LABORATORIES

PINK COPY - CLIENTS COP

(7/90)

SHADED AREA FOR LABORATORY USE ONLY
CHAIN OF CUSTODY INSTRUCTIONS ON BACK OF PINK

TOTAL P.06

KMB00006223

T-4-Water-(City Permit)

CITY OF PORTLAND ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

INDUSTRIAL USER INSPECTION FORM

INDUSTRY NAME: Kinder Morgan Bulk term-4

SITE ADDRESS: 11040 N. Lombard Portland, OR 97283

INSPECTION TYPE: ☐ Minor ☒ Major ☒ Pre-permitting ☐ Other:

DESCRIBE THE PROCESS(ES)/OPERATION(S) INSPECTED:

GASELINE PUMP, PH TREATMENT SYSTEM, SPILL KITS, Sampling Manhole 1A
Sumps in each Building

PRETREATMENT SYSTEM:	CONDITION & OPERATION good	needs improvement	COMMENTS
☐ Clarifier	☐	☐	
☒ Oil & Water Separator	☒	☐	
☒ pH adjustment	☒	☐	good
☐ Other	☐	☐	

POINT(S) OF COMPLIANCE:

LOCATION/CODE	CONDITION & OPERATION good	needs improvement	COMMENTS
1. 1A	☒	☐	SIGN DENOTING LOCATION
2.	☐	☐	
3.	☐	☐	

RECORDS REVIEW: ☒ ASPP Request for Revision ☒ FACT SHEET ☐ TOMP ☐ CALIBRATION LOG ☒ PERMIT ☐ OTHER:

SLUDGE DISPOSAL:

PROCESS	HAULER	DESTINATION
1. Used oil	Spencer	Local
2. Antifreeze	Spencer	"
3. Filter	"	"
Scrap Steel		

GENERAL INSPECTION NOTES:

FOLLOW-UP ACTION(S):	DUE DATE(S)
1. SMR'S / revise add PH Log + PH	8/3/2000
2.	
3.	

INSPECTOR(S): Colleen Harold DATE: Aug 1, 2000
Alberta Price DATE: Aug 1, 2000

INDUSTRY: Brad A. Chapman (print)
(signature) DATE: 8-1-00

REVIEWED BY:
Industrial Pretreatment Supervisor
CITY USE ONLY
Total Time: _____ hrs.
(include prep./follow-up/review)

KMB00006224

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

Expiration Date : 08/01/2005
Permit Number: 400.027
Page: i

WASTEWATER DISCHARGE PERMIT

ISSUED TO:	Kinder Morgan Bulk Terminal - #4
SIC CODE:	4491
PLANT TYPE:	Marine Cargo Handling
EPA CATEGORY:	400 General
LOCATION:	11040 N. Lombard, Terminal 4 Portland, OR. 97283 97203
MAILING ADDRESS:	11040 N. Lombard Terminal 4 P.O. Box 83838 Portland OR. 97283
RESPONSIBLE OFFICIAL:	Jaesson Mack Brown, Vice-President Operations.
PHONE NUMBER:	(225) 675 - 5387; (800) 535-8170
FAX NUMBER:	(225) 675 - 8259
EXPIRATION DATE:	08/01/2005
INDUSTRIAL SOURCE CONTROL MANAGER	For Gerald W. Baumgartner — 8-1-00 Effective Date

PREPARED BY: CFGH
CHECKED BY : MAS

S:\CUSTOMER\IU-K\KMBT-4\PERMIT\Prmitrenwl.DOC

TABLE OF CONTENTS

COVER:		SIGNATURE PAGE	i
TABLE OF CONTENTS:			ii
INTRODUCTION:		PERMITTED ACTIVITIES	iii
SCHEDULE	A	WASTEWATER DISCHARGE LIMITATIONS	A1-2
	B	MONITORING AND REPORTING REQUIREMENTS	B1-3
	C	RESERVED: COMPLIANCE SCHEDULE	C1-1
	D	SPECIAL CONDITIONS	D1-1
	E	GENERAL CONDITIONS	E1-9
APPENDIX	1	DEFINITIONS	1.1-5
	2	SAMPLING LOCATION MAP	2.1-1
	3	ACCIDENTAL SPILL PREVENTION PLAN	3.1-1
	4	PERMIT AMENDMENTS	4.1-1

INTRODUCTION

PERMITTED ACTIVITIES

The permittee is authorized to discharge industrial wastewater to the City of Portland's sewer system in compliance with Chapter 17.34 of the City Code, the Bureau of Environmental Services Administrative Rules and any applicable provisions of federal or state laws or regulations and in accordance with discharge point(s), effluent limitations, monitoring requirements, and all other conditions set forth herein.

It is the permittee's duty to comply with all conditions of this permit. Any noncompliance with permit requirements constitutes a violation of Chapter 17.34 of Portland's City Code and, as such, subjects the permittee to enforcement action(s).

Schedule A
WASTEWATER DISCHARGE LIMITATIONS

Listed below are the waste discharge limitations not to be exceeded after **the permit effective date of 08/01/2000**. Applicable regulations include Chapters 17.34 and 17.36 of the Code of the City of Portland and 40 CFR 400. The point of compliance with the discharge limitations shall be Sampling Manhole 1A located on the North side of the office building. Refer to Appendix 2

POC (*)	Pollutant Name	Local Limit Daily Max (mg/L)	Categorical Limit (mg/Lmg/l, lb / off lb) Daily	Monthly
	METALS			
	Arsenic	0.2		
	Cadmium	0.7		
	Chromium	5.0		
*	Copper	3.7		
*	Lead	0.7		
	Mercury	0.010		
	Molybdenum	1.4		
	Nickel	2.8		
	Selenium	0.6		
	Silver	0.4		
*	Zinc	3.7		
	NON-METALS (INORGANICS)			
	Cyanide	1.2		
*	pH	5.0-11.5 su		
	Sulfide	4.0		
	NON-METALS (ORGANICS)			
	1,2-Dichloroethane	0.50		
	2,4-Dinitrotoluene	0.13		
	Acyrlonitrile	1.00		
	Chlordane	0.03		
	Chlorobenzene	0.20		
	Chloroform	0.20		
	Nitrobenzene	2.00		
	Pentachlorophenol	0.04		
	Trichloroethylene	0.20		
*	Non-polar Oil & Grease	110		

Notes: → Petroleum Based Lube + Fuels

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or as determined by the Director of Environmental Services.

2. In addition to the limits stated in Schedule A, the permittee shall comply with all other applicable City, State and Federal regulations.

KMB00006228

3. The pollutant parameters marked with an asterisk (*) are the pollutants of concern. At a minimum, the permittee is required to monitor for pollutants of concern. All limits are applicable at the point of compliance.

4. The permittee is required to meet the MOST stringent limitation listed, denoted in bold type in the above table, when comparing the *Local Limit* column with the *Categorical Limit* column.

5. This is a permit specific limit developed and implemented in accordance with Bureau of Environmental Services Administrative Rules, Section II (4)).

6. The City has Pollutant Prohibitions for certain individual organic compounds that are not amenable to biological treatment or that have a screening value or local limit that is less than the practical method detection level (MDL). Discharges containing concentrations of a prohibited pollutant above the MDL, as listed in Appendix 5, is a violation of City Code and this permit.

Schedule B
MONITORING AND REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report

Parameter	Sample Type	First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Metals	**Composite**												
Copper (total)		✓						✓					
Lead (total)		✓						✓					
Zinc (total)		✓						✓					
Non-Metals	**Grab**												
pH		✓						✓					
Oil and Grease (total)		✓						✓					
Due Dates		Feb 15	Mar 15	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sept 15	Oct 15	Nov 15	Dec 15	Jan 15

Reports Due

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report, Notes:

1. Periodic Compliance Reports are to be submitted to the Industrial Source Control Division by the 15th of the month following the conclusion of the reporting period. Sampling, analysis, and reporting will follow the schedule above.

2. All official sampling shall be taken at the approved sampling location. (See Appendix 2: sampling location map.)

3. The permittee shall analyze samples for all listed parameters plus any other which, might be expected to be present in significant quantities.

4. The permittee shall submit all self-monitoring results to the Industrial Source Control Division as part of their monitoring and reporting requirements.

5. All monitoring results are to be mailed to:

   Industrial Source Control Division
   Bureau of Environmental Services
   City of Portland
   6543 N. Burlington Ave.
   Portland, OR 97203

6. Periodic Compliance Reports are to be submitted by the 15th of each month following the report period for each sampling location. The reports shall consist of:

   a. Statement of compliance/noncompliance, signed by the officially designated contact person (statement is found on bottom of the self-monitoring report form).

   b. Sample analysis results recorded on the appropriate self-monitoring report form and chain of custody for sample collected.

   c. Originals of all laboratory analysis sheets showing who analyzed sample, date and time sample was analyzed, analytical methods used, method detection limit, test result, and quality assurance/quality control.

   d. Copies of pH charts (if any) showing violations (if any). → not required per Colleen Harold

   e. Any other reports that may be required. → She said on 8-1-01 that they may require our daily check sheet. BC

   f. Calculations of monthly average, if appropriate.

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report (Notes continued):

7. The permittee should instruct its laboratory that, if the oil and grease (total) concentration exceeds 110 mg/L, the laboratory should determine the concentrations of the polar and non-polar oil and grease fractions.

8. The City may reduce or increase the frequency of sampling, based on the analytical results submitted.

9. As per 40 CFR 403.12(g)(5), if an industrial user subject to the reporting requirements of Schedule B monitors any parameter from the official sampling location more frequently than required, using procedures specified in Schedule E14(c), the results of their monitoring must be submitted in the required report.

Schedule C
COMPLIANCE SCHEDULE

The Permittee shall review their Accidental Spill Prevention Plan and make any revisions and/or updates required. Submit these revisions or a letter indicating none needed to our office by November 1st, 2000.

Review Spill Plan befor 11-1-2000

Schedule D
SPECIAL CONDITIONS

1. pH (optional)

The Industrial Source Control Division has approved the method of monitoring of the wastewater pH at the time of discharge to the City Sewer system. This approval may be revoked at any time, if pH data are not representative of the sampling data obtained from the sampling manhole. To ensure that the basic City monitoring and reporting requirements are met, the permittee shall include a summary of significant pH excursions with its monthly reporting of parameters listed in Schedule B. This is in addition to the mandatory reporting of discharge violations within 24 hours of learning of these violations.

Significant excursions are defined as:

a. pH excursions > 11.5, ≤ 12.5 for a total duration of more than 15 minutes in any calendar day.

b. pH excursions > 12.5 for a total duration of more than 5 minutes in any calendar day.

c. pH excursions less than 5.0 regardless of duration during a calendar day.

Each occurrence shall be reported with the date, time, duration and the maximum or minimum pH excursion reached. The monthly report shall contain the total time (in minutes) that the pH was outside the limits set in Schedule A.

The permittee is required to continue using a strip-chart-recording pH meter for continuous pH recording or any other pH control system recorder that meets with City approval. A daily record shall be kept for each day of plant operation, excluding those days when there is no process activity. The records shall be maintained and must be available for direct review or photo duplication by City representatives, if required.

Upon approval by the Industrial Source Control Division, pH monitoring may be performed at the designated point of accommodation instead of the point of compliance specified monitoring. The point of accommodation shall be located after all wastestreams have been combined and pretreatment has been completed. Performing the pH monitoring at the point of accommodation does not relieve the permittee of the responsibility for maintaining compliance at the sampling manhole--the pH limits are applicable at both the point of accommodation and the point of compliance.

KMB00006234

Schedule E
GENERAL CONDITIONS

1. Accidental Spill Prevention Plan

To comply with Section 17.34.090 of the City Code, the permittee shall submit a new or revised Accidental Spill Prevention Plan (ASPP) to the Industrial Wastewater Management Section 90 days after the effective date of this permit. The plans shall include the following elements. 11-1-0

a. A description of the hazardous substances handled and their potential points of entry into the City sewer system or storm runoff

b. A description of the measures to be taken to prevent entry at the described points before a spill occurs

c. Measures to be taken to contain a spill if one occurs

d. A description of employee training in the prevention and control of spills

e. A posted notice informing employees of the requirement to notify the Bureau of Environmental Services in case of spills or uncontrolled discharges.

2. Appeal

Upon receipt of a final industrial wastewater discharge permit, a permittee may appeal any of its terms or conditions to the Code Hearings Officer in accordance with procedures set out at Chapter 22.10 of the Portland City Code; provided that such an appeal shall include a copy of the permit that is the subject of the appeal, shall state the basis for the appeal, and shall be filed with the Code Hearings Officer and the Bureau of Environmental Services.

3. Authorized Discharge

All discharge and activities authorized herein shall be consistent with the terms and conditions of this permit, Chapter 17.34 of the City Code and the Administrative Rules. The discharge of any pollutant in excess of these limits shall constitute a violation of the terms and conditions of this permit.

4. Bypass or Diversion

The diversion or bypass (the intentional diversion of wastestreams from any portion of a permittee's treatment facility) of any discharge, from facilities used by the permittee, to maintain compliance with the terms and conditions of this permit is prohibited except:

a. When unavoidable to prevent loss of life or severe property damage.

b. When excessive storm drainage or runoff would damage facilities necessary for compliance with the terms and conditions of this permit.

4. Bypass or Diversion (continued)

The permittee shall immediately notify the City in writing of each such diversion or bypass, in accordance with the procedure specified in condition No. 23.

5. Certification

Legible copies of all applications, reports, and information submitted to the City shall be signed and certified as follows in accordance with 40 CFR 403.12.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

6. Chemical Storage

Chemicals shall be stored in a manner that will prevent the entry of these substances into the sanitary, combined sewer, or storm sewer system, or waters of the state.

7. Continuous Compliance

Compliance with Schedule E, No. 23 shall not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit.

8. Dilution Prohibition

It is unlawful for a discharger to use dilution as a partial or complete substitute for adequate treatment to achieve compliance with the standards and limitations set forth in this permit. The Director may impose mass limitations on dischargers who are using dilution to meet the applicable pretreatment standards or the requirement set forth in this permit.

9. Enforcement Provision

A violation of any conditions, standards or requirements of this permit constitutes a violation of Chapter 17.34 of the City Code and any rules promulgated thereunder. Therefore, the City may seek any or all of the remedies or penalties provided for in Section 17.34.110 of the City Code, including recovery of costs incurred by the City, in response to the following:

a. Any violation by the permittee of the provisions in this Industrial Wastewater Discharge Permit.

b. Any violation by the permittee of the provisions of the City Code.

9. Enforcement Provision (continued)

c. Any violation by the permittee of an Enforcement Action requirement with respect to provisions set forth in this Industrial Wastewater Discharge Permit and the City Code and Administrative Rules.

The range or severity of enforcement actions taken by the City against the permittee will be determined by, but not limited to, the nature, magnitude, duration, and frequency of the violation as provided by City Code and Administrative Rules.

10. Extra-Strength Sewer Charge (ESSC)

Discharges exceeding 300 mg/L for the 5-day biochemical oxygen demand (BOD) or 350 mg/L total suspended solids (TSS) concentrations (as defined in Section 17.36.060(1) of the City Code) shall be subject to the extra-strength sewer charge (ESSC) established in Section 17.36.060(1).

11. Hazardous Waste Notification

The industrial user shall notify the Industrial Source Control Division Section, the POTW, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into the POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent such information is known and readily available to the industrial user: an identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following 12 months.

12. Inspection and Entry

The permittee shall, at all reasonable times, allow authorized representatives of the City:

a. To enter the permittee's premises where an effluent source or disposal system is located or where any records associated with this permit are kept.

b. To have access to any required records and permission to copy these records. At no time can wastewater effluent data be claimed or held as confidential information.

c. To inspect and evaluate any monitoring equipment or monitoring methods required by this permit.

d. To sample any discharge to the sewer system.

KMB00006237

13. Liability

The City of Portland, its officers, agents or employees shall not sustain any liability due to the issuance of this permit or the construction or maintenance of facilities resulting from this permit.

14. Monitoring

a. The permittee shall record the following information:

* The exact date, time, and place of sampling
* Name of person who collected the sample(s)
* Type of sample(s) collected
* The dates analyses were performed
* Who performed the analyses
* The analytical techniques or methods used
* The results of all required analyses
* Whether quality assurance and quality control laboratory procedures are followed

b. Samples and measurements, taken to meet the requirements of the above condition, shall be representative of the effluent. Grab samples must be collected for pH, cyanide, phenol, sulfide, volatile organic compounds and oil and grease monitoring.

c. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless otherwise approved in writing by the City, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants as specified in 40 CFR, Part 136. Laboratory quality assurance and quality control programs should be documented. EPA QA/QC programs should be followed.

d. The permittee is required to document proper installation, and maintenance of flow monitoring and sampling equipment.

e. If the results of the permittee's wastewater analysis indicate that a noncompliance has occurred, the permittee must notify the City's Industrial Source Control Division Section within 24 hours of becoming aware of the noncompliance. The permittee must also repeat the sampling within 24 hours of the effluent noncompliance or next process day and submit the analysis to the City within 30 days after becoming aware of the noncompliance.

KMB00006238

14. Monitoring (continued)

f. The permittee shall take all reasonable steps to minimize or correct any adverse impact to the POTW or the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

g. If requested, the permittee shall provide or split discharge samples with the City of Portland Water Pollution Control Laboratory.

15. Permit Modification

This permit may be modified with 30 days prior written notification, in whole or in part, for causes including but not limited to the following:

a. A change in the City's NPDES permit or any other condition that requires either a temporary or permanent elimination of any authorized discharge.

b. To incorporate new or revised federal, state, or local pretreatment standards or requirements.

c. Information indicating that the permitted discharge poses a threat to the City's collection and treatment system, POTW personnel, or the receiving waters and sludge.

d. To correct typographical or other errors in the permit.

e. Any significant change in the volume of a permitted discharge.

16. Permit Renewal

This permit is issued to a specific entity and cannot be transferred by the industrial user and must be renewed pursuant to Section 17.34.070 of the Code of the City of Portland and Permit Applications must be received 90 days prior to:

a. Expiration date of current permit.

b. In the event the permittee plans to cease operations at the present location, and plans to relocate within the City of Portland's jurisdiction and continue the same permitted activities.

c. The permitted industrial process being significantly altered or changed so that pollutants not specifically mentioned in the current permit are present in the permittee's discharge.

17. Permit Suspension or Termination

a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the director of the Bureau of Environmental Services.

17. Permit Suspension or Termination (continued)

b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts.

c. Falsifying self-monitoring reports.

d. Tampering with monitoring equipment.

e. Refusing to allow prompt access to the facility premises and records.

f. Failure to meet effluent limitations.

g. Failure to pay fines.

h. Failure to meet compliance schedules.

18. Plant Closure

In the event the permittee plans to cease operations at the present business location, and not to relocate within the City of Portland's jurisdiction, the permittee shall inform this office, in writing, 60 days prior to plant closure.

19. Property Rights or Privileges

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges; it does not authorize any injury to private property or any invasion of personal rights; and it does not authorize any infringements or federal, state, or local laws or regulations.

20. Records Retention

All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation (and calibration and maintenance records), shall be retained by the permittee for a minimum of three years. This retention period shall be extended during the course of any unresolved litigation pertaining to the discharge of pollutants by the permittee, or whenever it is requested by the City, the Approval Authority (DEQ), the Regional Administrator (EPA).

21. Reporting Requirements

a. Accidental or Slug Loading

The permittee shall notify the City immediately, either in person or by telephone (Duty Officer Pager # 323-3398 and Lead Operator CBWTP # 823-2530), if accidental or slug loading to the sanitary sewer occurs. A formal written report, discussing circumstances and remedies, shall be submitted to the City within 5 days of the occurrence.

21. Reporting Requirements (continued)

b. Changes in Wastewater Characteristics

The permittee shall give notice to the Industrial Source Control Division Section 90 days before any facility expansion, production increase, or process modifications that result in new or substantially increased discharges or a change in the nature of the discharge.

c. Change in representative

If the responsible corporate official changes, notify the City within 10 days, as per 40 CFR 403.12 (1) (4).

22. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to the other circumstances and the remainder of this permit shall not be affected.

23. Slug Load Notification

If the permittee is unable to comply with all the conditions of this permit due to a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, or should any condition cause the release of any slug load, the permittee shall:

a. Immediately take action to stop, contain, clean up the unauthorized discharges, and correct the problem.

b. Immediately call the Lead operator of the Columbia Boulevard Wastewater Treatment Plant (823-2530) so that plant personnel can evaluate the impact of the discharge and take corrective action. Notify Industrial Source Control by calling the Duty Officer, pager # 323-3398.

c. Within five (5) days submit a detailed written initial report to the City describing the breakdown, the actual quantity of resultant waste discharges, the corrective action taken, the steps taken to prevent recurrence, and any other pertinent information.

Samples shall be taken immediately upon discovery of the Slug load. Within 15 days, a follow-up report shall be submitted. The report shall contain analysis of samples taken during such discharge and samples taken after normal conditions have been restored. The samples, at a minimum, shall be analyzed for the parameters required in Schedule B. Sampling shall be continued until all parameters are within discharge limits.

24. Upset

a. Definition:

For the purposes of this section, upset means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an Upset:

An upset will constitute an affirmative defense to an action brought for noncompliance with applicable pretreatment standards, if the requirements of paragraph c are met.

c. Conditions Necessary for a Demonstration of an Upset:

A permittee who wishes to establish the affirmative defense of an upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and the permittee can identify the specific cause(s) of the upset.

(2) The facility was, at the time, being operated prudently, efficiently, and in compliance with applicable operation and maintenance procedures.

(3) The permittee has submitted the following information to the Industrial Source Control Division within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within 5 days).

* A description of the indirect discharge and cause of noncompliance

* The period of noncompliance, including exact dates and times or, if not corrected, the anticipated duration of noncompliance

* Steps planned or now being taken to reduce, eliminate, and prevent recurrence of the noncompliance

d. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset shall have the burden of proof.

e. Permittee Responsibility in Case of an Upset.

24. Upset (continued)

If reduction, loss, or failure of its treatment facility occurs, the permittee shall control production of all discharges in order to maintain compliance with applicable pretreatment standards until the facility is restored or an alternative method of treatment is provided. This requirement especially applies if the primary source of the treatment facility power is reduced, lost, or failed.

Appendix 1
DEFINITIONS

Abbreviations

BOD_5	Five-day biochemical oxygen demand
mg/L	Milligrams per liter
k	Kilograms
m^3/d	Cubic meters per day
ppm	Parts per million (assumed equal to milligrams per liter)
POTW	Publicly owned treatment works
WPCL	Water Pollution Control Laboratory

Averages for BOD, TSS, and chemical parameters are based on arithmetic mean of samples taken.

Definitions

Bypass

The intentional diversion of wastestreams from any portion of a permittee's treatment facility..

Compatible Pollutant

Biochemical oxygen demand, suspended solids, pH and fecal coliform bacteria, and additional pollutants that the City treatment works is designed to treat.

Conventional Pollutants

Classification of industrial pollutants, which includes BOD (biochemical oxygen demand), suspended solids, fecal coliform, pH (acidity/alkalinity), and other pollutants so designated by EPA, as defined by Section 304(a)(4) of the Clean Water Act.

Director of Environmental Services

The Director of Environmental Services of the City of Portland, Oregon, or that person's duly authorized representative or agent.

City, or City of Portland

The municipality of Portland, Oregon, a municipal corporation of the State of Oregon, acting through the City Council or any board, committee, body, official, or person to whom the Council shall have lawfully delegated the power to act on behalf of the City. Unless a particular board, committee, official, or person is specifically designated in these rules and regulations, wherever action by the City is explicitly required or implied herein, it shall be understood to mean action by the Director of Environmental Services of Portland, Oregon, or that person's duly authorized representative or agent.

Effective Date of this Permit

The date this permit is signed by the Director of the Bureau of Environmental Services.

Expiration Date

From 1 to 5 years beyond the effective date of this permit.

Hazardous or toxic substances

Hazardous or toxic substances are those substances referred to in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S. Code 9601 et seq.), section 502(13) of the Clean Water Act, and any other substances so designated by the Director of Environmental Services and contained in rules adopted pursuant to this Chapter.

Industrial Waste

Any liquid, solid, or gaseous substance (or combination thereof) resulting from any process of industry, manufacturing, commercial food processing, business, agriculture, trade, or research, including but not limited to the development, recovery, or processing of natural resources and leachate from landfills or other disposal sites.

Industrial Wastewater Discharge Permit

A permit to discharge industrial wastewater into the City sewer system issued under the authority of the City Code, which prescribes certain discharge requirements and limitation.

Interference

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts the normal operation of the City sewer system, or which causes a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or any increase in the cost of treatment of sewage or in the cost of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations); Section 405 of the Clean Water Act, the Solid Waste Disposal Act (including Title II, more commonly referred to as the Resource Conservation and Recovery Act), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of RCRA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum Daily Discharge Limitation

The highest allowable daily discharge.

Non-conventional Pollutants

All pollutants that are not specifically designated as either conventional or toxic.

Oil and Grease

Fats, Oils and Grease. Fats, oils and grease are those substances which are measured by USEPA Method 1664: N-Hexane Extractable Method (HEM) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM).

(a) Non-polar fats, oils and grease are that portion of fats, oils and grease which is measured as non-polar (from petroleum sources) by USEPA Method 1664.

(b) Polar fats, oils and grease are that portion of fats, oils and grease which is determined to be polar (of animal or vegetable origin) by USEPA Method 1664.

Pass Through

Pass through means a discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

POTW

POTW means Publicly Owned Treatment Works, which includes any devices and systems, owned by a State or municipality, used in the collection, transportation, storage, treatment, recycling and reclamation of wastewater.

Pretreatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alternation of the nature of pollutant properties in wastewater to a non-harmful state, prior to or in lieu of discharge of such pollutants into the City sewer system.

Sampling

a. The "monthly average" other than pH is the arithmetic mean of samples collected curing a calendar month.

b. The "daily maximum" is defined as the greatest allowable value for any calendar day.

c. A "24-hour composite" sample shall mean a flow-proportioned mixture of not less than eight discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and preserved in accordance with 40 CFR part 136 and amendments.

d. A "Grab" sample is an individual sample collected in less than 15 minutes, without regard for flow or time.

e. A "Grab-Composite" is a minimum of four grab samples collected and preserved over a 24-hour period and combined to provide a representative sample of effluent being discharged.

KMB00006246

Schedule of Compliance

A schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with an effluent limitation or other limitation, prohibition, or standard.

Severe Property Damage

Substantial physical damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Slugload

A slugload is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge.

Solid Waste

Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits.

Solid Waste Disposal

The final placement of refuse that cannot be salvaged or recycled.

Solvent Management Plan

A plan that specifies the toxic organic compounds used, the method of disposal used (instead of dumping into wastestreams), and procedures for ensuring that toxic organics do not spill or leak into wastewater discharged to the City sewer system.

Total Dissolved Solids

The total dissolved (filterable) solids as determined by use of the method specified in the list of approved test procedures.

Total Organic Active Ingredients

The sum of all organic active ingredients covered by the organic pesticide chemicals manufacturing subcategory, which are manufactured at a facility subject to the effluent guidelines for pesticides chemicals manufacturing.

Total Solids

The sum of dissolved and undissolved constituents in water or wastewater, usually expressed as milligrams per liter.

Total Suspended Solids

Total suspended matter that either floats on the surface or is in suspension in water or wastewater and that are removable by laboratory filtering (as described in *Standard Methods for the Examination of Water and Wastewaters,* current edition) or Guidelines Establishing Test Procedures for the analysis of Pollutants, contained in 40 CFR 136, as published in the *Federal Register.*(Bureau of Environmental Services Administrative Rules I[22])

Upset

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Waste

Unwanted materials left over from manufacturing processes, or refuse from places of human or animal habitation.

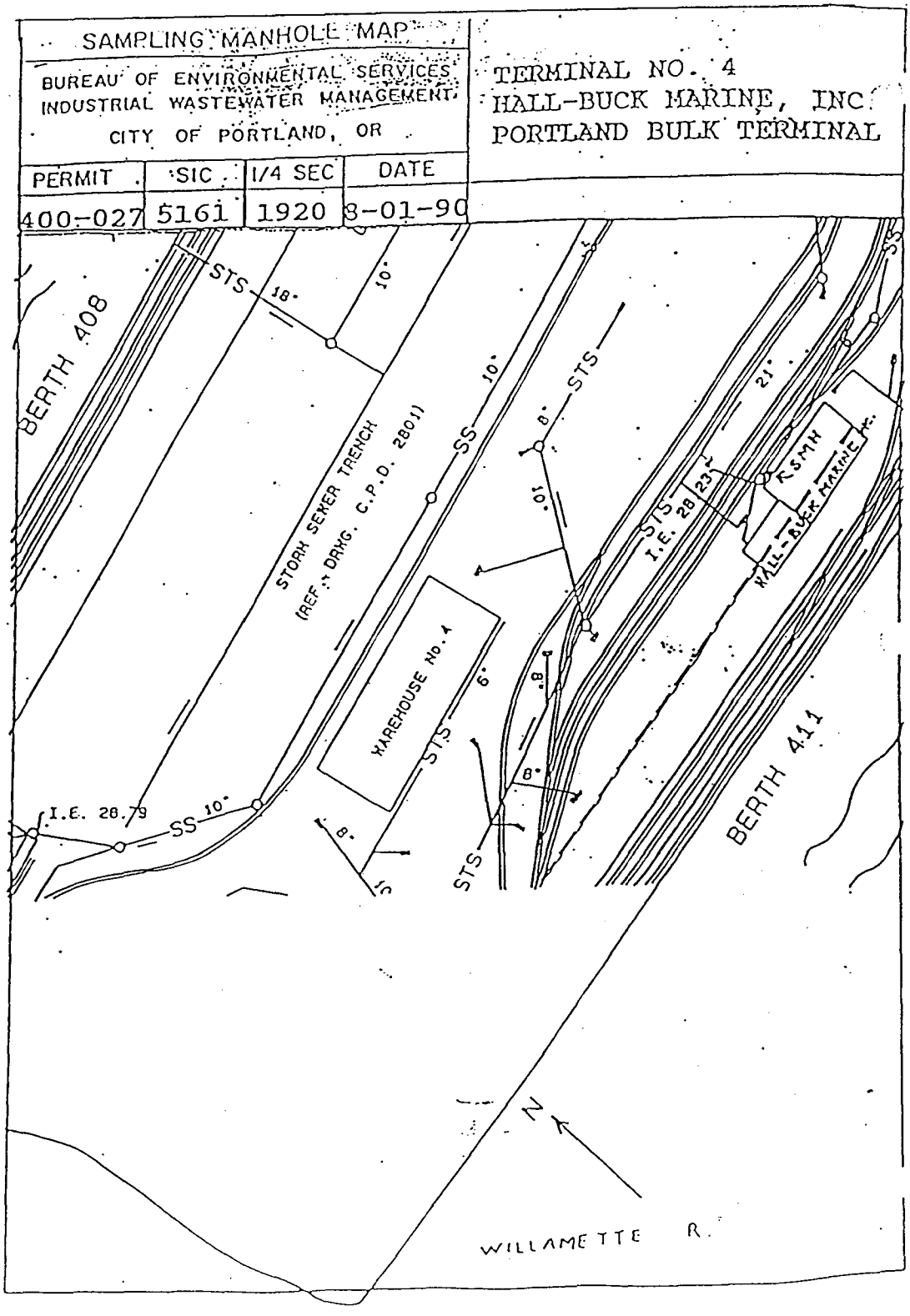
Wastewater

Industrial waste, sewage, or any other waste, including that which may be combined with any groundwater, surface water, or stormwater that may be discharged to the city sewer system.

Water Pollution

The addition of enough harmful or objectionable material to damage water quality.

Appendix 2
SAMPLING LOCATION MAP



Appendix 3
RESERVED: ACCIDENTAL SPILL PREVENTION PLAN

To be prepared by the permittee and approved by the City.
Please see Schedule C, Compliance Schedule of this permit.

Permit Amendments

KINDER MORGAN

September 9, 1998 **Kinder Morgan Bulk Terminals, Inc.**

CERTIFIED MAIL - P 278 846 969

Ms. Colleen Harold
Bureau of Environmental Services
Water Pollution Control Laboratory
6543 N. Burlington Avenue
Portland, OR 97203-5452

Dear Ms. Harold:

RE: LETTER OF VIOLATION & NOTICE OF INTENT TO ASSESS CIVIL PENALTY
LOV-1998-025; DISCHARGE PERMIT NO. 400-027
KINDER MORGAN BULK TERMINALS, INC. (KMBT)
(formerly Hall-Buck Marine, Inc., HBM)
PORTLAND BULK TERMINAL 4

As required by Section IV of the above-captioned LOV, we are writing to confirm that 1) Portland Bulk Terminal 4 facility did in fact return immediately to compliance with the requirements of the City Code, Industrial Pretreatment Administrative Rules, and conditions of its permit with respect to lead; and 2) that resampling took place on September 1, 1998, and compliance was confirmed. A copy of the laboratory report is attached to this letter, along with the Compliance Monitoring Report Form.

In response to Section VI of the LOV, we submit the following information and request that the notice of intent to assess a civil penalty by withdrawn. During the last two weeks of July, Terminal 4 underwent a dredging project pursuant to a DEQ cleanup requirement regarding pencil pitch, a product handled at Terminal 4 in the past and recently discontinued. Rather than send the dredge material to Ross Island, which, as you know, is the subject of current environmental concerns, HBM decided to send the material to the Hillsboro Landfill under an existing permit for the disposal of such material. To do this, it was necessary to collect the material on the dock and mix it with a de-watering agent (woodchips were used). After de-watering, the material was picked up and loaded into trucks for transport to the landfill. A small amount of residual dredge material remained on the dock after the cleanup. These dredge residuals were washed into our settlement sump as is our usual practice for residual product collected on the dock.

Because the date of the city's sampling at Terminal 4, August 23, corresponds with discharges made immediately after the disposal of the dredge materials, we believe that the slightly elevated lead level in the August 23rd sample must have come from the dredge materials. As you know, Terminal 4 is an old facility at which metal ores were handled prior to HBM's operations there. Accordingly, there may have been some residual lead concentrations in the dredged material. Inasmuch as Terminal 4 has never had an exceedance over the City's lead level in all the years that HBM has operated there, and inasmuch as this dredging project was a one-time event that will not recur, we respectfully request that no civil penalty be assessed.

7116 Hwy. 22 P. O. Box 625 Sorrento, LA 70778-0625 800/535-8170 Fax 225/675-5923

If there are any questions, please call me at 800-535-8170.

Respectfully,

KINDER MORGAN BULK TERMINALS, INC.

Marie E. Krien-Schmidt

Marie E. Krien-Schmidt
Director, Environmental Affairs

MKS:ap
Enclosures

cc: Mr. B. Clinefelter - KMBT/T-4
Mr. B. McMullin - KMBT
Mr. K. Jones - KMBT

CITY OF PORTLAND
INDUSTRIAL WASTEWATER DISCHARGE
COMPLIANCE MONITORING REPORT

INDUSTRY NAME:	Hall-Buck Marine, Inc.
PERMIT NUMBER:	400-027
REPORT DUE DATE:	Within 30 Days of Final Notification
SAMPLING PERIOD	N/A
ENFORCEMENT NUMBER	LOV-1998-025 - CTM -001

For Industrial Source Control Division Use Only

Date Postmarked/Received: Date Entered:

Entered By:

Comments:

SAMPLE DATE	POINT OF COMPLIANCE	SAMPLE TYPE
		Composite

PARAMETER	ANALYSIS METHOD	REPORTED CONCENTRATION	MDL	LIMITS DAILY	COMMENTS
Lead	200.7/6010	N.D.	0.025	.7 mg/l	

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Marie E. Kuen-Schmidt Date: 9/2/98

S:\CUSTOMER\U-H\HALL-BUC\COMP-ENF\LOV\98LOVSMR.DOC

KMB00006254

OAL

L7801

Sample Summary

Sample ID	Lab #	Description	Sampled	Received
COMP 8-31-9-1	L7801-1	water	09/01/98 09:00	09/01/98
GRAB 9-1	L7801-2	water	09/01/98 09:10	09/01/98

Definition of Terms

ND Analytical result was below the reporting limit.

Analysts

Initials	Analyst	Title
GCK	Bill Kernion	Chemist

Method Summary

Analysis	Method
Copper	EPA 200.7/6010
Lead	EPA 200.7/6010
Zinc	EPA 200.7/6010

Sampled in "point of compliance" manhole.

OREGON ANALYTICAL LABORATORY

A Division of Portland General Electric
14855 S.W. Old Scholls Ferry Road, Beaverton, OR 97007
Phone 503 590 5500 • Fax 503 590 1404
www.oalab.com/oal

Printed on recycled paper

OAL

L7801

Client: *Kinder Morgan Bulk Terminals*
Contact: *Brent McMullin*

PARTIAL

Total Metals

Sample ID	Matrix						Lab Number
Analyte	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
COMP 8-31-9-1	Water			Sampled: 08/31/98 Hot Plate Digestion EPA 200.2/3005A: 09/02/98			L7801-1
Copper	0.015	0.0020	mg/L	09/03/98	EPA 200.7/6010		GCK
Lead	ND	0.025	mg/L	09/03/98	EPA 200.7/6010		GCK
Zinc	0.073	0.010	mg/L	09/03/98	EPA 200.7/6010		GCK

OREGON ANALYTICAL LABORATORY
A Division of Portland General Electric
14855 S.W. Old Scholls Ferry Road, Beaverton, OR 97007
Phone 503 590 5300 • Fax 503 590 1404
www.oalab.com/eal

Printed on recycled paper

KMB00006256

Oregon Analytical Laboratory

14505 S.W. Sequoia Parkway Suite 105
Beaverton, Oregon 97007
(503) 590-1404
FAX (503) 590-1405

Chain of Custody Record
Laboratory Analysis Request

Sampling: ☐ Grab ☐ Comp
OAL hrs. _____ Page ___ of ___
ISCO 1 Site Visit ☒

Client Information
Company: Hall Buck Tug
Contact: Brent McMullin
Address:
Phone # 285-1200 Fax #:

Billing Information
Company:
Contact:
Address:
Phone #: Fax #:

Project Information
Project Name:
Project #:
P.O. #:
Comments:
Sampler's Name: Wally Streader
Signature:
Quote #:
NOTE: If quote number is not referenced, standard pricing will be applied.
Provide Fax Results ☐ Yes ☐ No

	Sample Identification	Date	Time	FOR LAB USE ONLY OAL Log #	# of Containers	Matrix: Soil	Matrix: Water	Matrix: Other (Air, Sludge)	Analyses	Turnaround	Remarks
1	Comp 8-31-9-1	9/1/98	9:00	L7801-1	1		X		TPH ☐ Gas ☐ Diesel ☐ Oil; BTEX; Metals ☐ Total ☐ TCLP ☐ Dissolved; Cr Pb Hg; Other: Cmpb 2a	N	
2	Grab 7-1	9	9:00	1-2	1		X		TPH ☐ Gas ☐ Diesel ☐ Oil; Endrin		9.2
3											
4											
5											
6											
7											
8											
9											

Remarks

[N] Normal – 10 working days
[S] Special – 5 working days
[R] Rush – 24-72 hrs.
[O] Other – _____

Relinquished	Relinquished	Relinquished
Signature: Wally Streader	Signature:	Signature:
Print Name: Wally Streader	Print Name:	Print Name:
Company: OAL	Company:	Company:
Date: 9-1-98	Date:	Date:
Time: 12:20	Time:	Time:
Received	**Received**	**Received**
Signature:	Signature:	Signature:
Print Name: Jamie Malkin-Lindsey	Print Name:	Print Name:
Company: OAL	Company:	Company:
Date: 9/1/98	Date:	Date:
Time: 1225	Time:	Time:

☒ Courier ☐ UPS ☐ FedEx ☐ Other
Received @ 18 °C
Appropriate Containers ☒ Yes ☐ No
_____ 4oz./8oz. Jars
_____ VOA Vials
1 Plastic Bottles
1 Glass Bottles
_____ Other _____

KMB00006257

P 278 846 969

U.S. Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Ms. Colleen Harold Bureau of Envir. Services	
Street & Number 1543 N. Burlington Ave.	
Post Office, State, & ZIP Code Portland, OR 97203-5452	
Postage	$ .55
Certified Fee	1.35
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.10
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$ 3.00
Postmark or Date	

PS Form **3800**, April 1995

APR 10 1998 USPS

KMB00006258

Stick postage stamps to article to cover First-Class postage, certified mail fee, and charges for any selected optional services *(See front).*

1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached, and present the article at a post office service window or hand it to your rural carrier *(no extra charge).*

2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach, and retain the receipt, and mail the article.

3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.

4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.

5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.

6. Save this receipt and present it if you make an inquiry.

PS Form **3800**, April 1995 *(Reverse)*

KMB00006259

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Colleen Harold
Bureau of Envir. Services
Water Pollution Control Lab
6543 N. Burlington Ave.
Portland, OR 97203-5452

4a. Article Number
P 278 846 969

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
9-14

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

KMB00006260

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

HALL-BUCK MARINE, INC.
P. O. BOX 625
SORRENTO, LA 70778-0625

Attn: Marie Krier Schmidt

file: T-4-Water: City Permit

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

ROUTE TO:
TO: MKS
RE:
TBS
SJD copy circulated
DWD
KPP

December 10, 1998.

Kinder Morgan Bulk Terminals, Inc.
7116 Highway 22
PO Box 625
Sorrento, LA 70778-0625

Dear Marie:

Enclosed please find the revised Schedule B to your permit #400-027 for Kinder Morgan Bulk Terminal 4. The revisions I made should match the Schedule B you currently have with the exception of the revision date that has been added. I hope this clears up any confusion and apologize again for any inconvenience. If you have any questions or comments, please call me at 503-823-5556.

Sincerely,

Colleen J. H. Harold

Colleen Harold
Permit manager

cc File

RECEIVED
DEC 14 1998

KMB00006262

Schedule B
MONITORING AND REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report

Parameter	Sample Type	First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Metals													
Copper (total)	Composite	✓						✓					
Lead (total)	Composite	✓						✓					
Zinc (total)	Composite	✓						✓					
Non-Metals													
pH	Continuous	✓						✓					
Oil and Grease (total)	Grab	✓						✓					
Due Dates													
		Feb 15	Mar 15	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sept 15	Oct 15	Nov 15	Dec 15	Jan 15

Notes:

1. Periodic Compliance Reports are to be submitted to the Industrial Source Control Division by the 15th of the month following the conclusion of the reporting period. Sampling, analysis, and reporting will follow the schedule above.

2. All official sampling shall be taken at the approved sampling location. (See Appendix 2: sampling location map.)

3. The permittee shall analyze samples for all listed parameters plus any other which might be expected to be present in significant quantities.

4. The permittee shall submit all self-monitoring results to the Industrial Source Control Division as part of their monitoring and reporting requirements.

5. All monitoring results are to be mailed to:

   Industrial Source Control Division
   Bureau of Environmental Services
   City of Portland
   6543 N. Burlington Ave.
   Portland, OR 97203

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report (Notes continued):

6. Periodic Compliance Reports are to be submitted by the 15th of each month following the report period for each sampling location. The reports shall consist of:

   a. Statement of compliance/noncompliance, signed by the officially designated contact person (statement is found on bottom of the self-monitoring report form).

   b. Sample analysis results recorded on the appropriate self-monitoring report form and chain of custody for sample collected.

   c. Originals of all laboratory analysis sheets showing who analyzed sample, date and time sample was analyzed, analytical methods used, method detection limit, test result, and quality assurance/quality control.

   d. Copies of pH charts (if any) showing violations (if any).

   e. Any other reports that may be required.

   f. Calculations of monthly average, if appropriate.

7. The permittee should instruct its laboratory that, if the oil and grease (total) concentration exceeds 100 mg/L, the laboratory should determine the concentrations of the polar and non-polar oil and grease fractions.

8. The City may reduce or increase the frequency of sampling, based on the analytical results submitted.

9. As per 40 CFR 403.12(g)(5), if an industrial user subject to the reporting requirements of Schedule B monitors any parameter from the official sampling location more frequently than required, using procedures specified in Schedule E14(c), the results of their monitoring must be submitted in the required report.

COMPLIANCE CERTIFICATION
WASTEWATER DISCHARGE LIMITATIONS

The following table lists the new or more stringent wastewater discharge limitations for the City of Portland that became effective on ***October 26, 1998****. Please indicate your facility's compliance status for each parameter listed below and* ***return this form to us by no later than December 12, 1998****.*

Parameter	Former Local Limit (mg/l)	Effective Local Limit (mg/l)	Compliance	
			YES	NO
Metal Local Limits				
Arsenic (total)	0.30	0.20		
Mercury (total)	0.014	0.010		
Molybdenum (total)		1.40		
Nickel (total)	3.00	2.80		
Selenium (total)		0.60		
Zinc (total)	4.00	3.70	X	
Non-metal Local Limits				
Acrylonitrile		1.00		
Chlordane		0.03		
Chlorobenzene		0.20		
Chloroform		0.20		
1,2-Dichloroethane		0.50		
2,4-Dinitrotoluene		0.13		
Nitrobenzene		2.00		
Pentachlorophenol		0.04		
Sulfide (dissolved)	50.00	4.00		
Trichloroethene		0.20		

1. Is the facility meeting applicable pretreatment standards on a consistent basis? Yes [X] No [ ]

2. If no, do you require: N/A

   a) Additional operation and maintenance (O&M) to achieve compliance? Yes [ ] No [ ]

   b) New or additional pretreatment facilities to achieve compliance? Yes [ ] No [ ]

3. If additional O&M or additional pretreatment will be required to meet pretreatment standards on a consistent basis, submit your proposed plan. The plan must include progress reporting dates for commencement and completion of major events leading to compliance with the standard. N/A

   Note: The final compliance date in this schedule shall not be later than one year after the effective date of the local limits. Written progress reports are required within 14 days of each of the compliance dates specified in the compliance schedule.

4. I have provided a compliance schedule. N/A Yes [ ] No [ ]

Authorized Representative Statement: {40 CFR 403.6(a)(2)(ii)}

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief is true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Brad A. Clinefelter — Name (print)

Terminal Manager — Title

Brad A. Clinefelter — Signature

11-24-98 — Date

(503) 235-2990 — Phone

Kinder Morgan Bulk Terminal; Inc — Company Name

400-027 — Permit Number

Collect - New City Account Rep -

Schedule A
WASTEWATER DISCHARGE LIMITATIONS

10-26-98 - changes mad

Listed below are the waste discharge limitations not to be exceeded after **the permit effective date**. Applicable regulations include Chapters 17.34 and 17.36 of the Code of the City of Portland and 40 CFR 400. The point of compliance with the discharge limitations shall be Sampling Manhole 1A. Refer to Appendix 2.

POC (*)	Pollutant Name	Local Limit (mg/L)	Categorical Limit () Daily	Monthly
	METALS			
	Arsenic	0.2		
	Cadmium	0.7		
	Chromium	5.0		
*	Copper	3.7		
*	Lead	0.7		
	Mercury	0.010		
	Molybdenum	1.4		
	Nickel	2.8		
	Selenium	0.6		
	Silver	0.4		
*	Zinc	3.7		
	NON-METALS (INORGANICS)			
	Ammonia	see note 5		
	Cyanide	1.2		
*	pH	5.0-11.5 su		
	Sulfate	see note 5		
	Sulfide	4.0		
	NON-METALS (ORGANICS)			
	1,2-Dichloroethane	0.50		
	2,4-Dinitrotoluene	0.13		
	Acyrlonitrile	1.00		
	Chlordane	0.03		
	Chlorobenzene	0.20		
	Chloroform	0.20		
	Nitrobenzene	2.00		
*	Non-polar Oil & Grease	110		
	Pentachlorophenol	0.04		
	Polar Oil & Grease	see note 5		
	Trichloroethylene	0.20		
	Total Toxic Organics	see note 7		

limit inc same

limit decr.

limit inc

limit incr.

Schedule A
WASTEWATER DISCHARGE LIMITATIONS

Wastewater Discharge Limitations Notes:

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or as determined by the Director of Environmental Services.

2. In addition to the limits stated in Schedule A, the permittee shall comply with all other applicable City, State and Federal regulations.

3. The pollutant parameters marked with an asterisk (*) are the pollutants of concern. At a minimum, the permittee is required to monitor for pollutants of concern. All limits are applicable at the point of compliance.

4. The permittee is required to meet the MOST stringent limitation listed in the above table when comparing the *Local Limit* column with the *Categorical Limit* column.

5. The local limit is replaced with Best Management Practices (BMP) to control the discharge of this pollutant. If a control strategy is already in effect for this parameter, it must continue to be implemented.

6. The City has developed local limits for specific organic compounds.

7. Industrial User Specific Limits or BMPs will be developed for industrial users on a case-by-case basis for *Individual Organic Compounds* (IOCs):

    a) Permit specific limits or BMPs will be based on a technical evaluation for pollutants that are amenable to treatment by the processes employed at the POTW, cause pass-through or interference, or create worker health and safety problems within the POTW. Refer to the appendix for these IOCs and their respective screening value limitations.

    b) Compounds that are not amenable to biological treatment or that have a screening value or local limit that is less than the practical method detection limit (MDL) are classified as *Pollutant Prohibitions*. The Director will maintain an inventory of these Pollutant Prohibitions determined to be present in the permittee's wastestream through technical evaluation. The inventory will contain the Pollutant Prohibitions and the MDL used to determine a violation. Refer to the appendix for these Pollutant Prohibitions.

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

November 13, 1998

Brad Clinefelter
Kinder Morgan Bulk Terminals, Inc.
11040 N. Lombard
Portland, OR 97283

RE: City of Portland new local discharge limits

Dear Brad:

On October 26, 1998, the City of Portland (City) adopted new local discharge limits that apply to all permitted users discharging industrial wastewater to the City's sewer system. This letter provides an overview of the local limit development process as well as distinct information relative to pollutant categories, including monitoring and enforcement information.

These new local limits require modification of your current industrial wastewater discharge permit. Your Permit Manager will work with you to explain the new local limits and make the necessary modifications to your facility's permit.

Local discharge limits have been changed or established for eleven metals, nine individual organic compounds, total cyanide, dissolved sulfide, non-polar oil and grease, and pH. Please refer to the table in the interim Schedule A accompanying this letter for a list of the pollutant parameters and limits. The limits listed in the interim Schedule A are **effective immediately**.

In short:

- If your industry monitors for only pH or non-polar oil and grease and none of the listed pollutants is reasonably expected to be present in your facility's wastewater discharge, the new limits will have little affect on your operation.

- If your industry monitors for listed pollutants (other than pH and non-polar oil and grease) or, if any of the listed pollutants are expected to be present in your facility's wastewater discharge, contact your Permit Manager to discuss the possible regulatory implications.

Local Limit Development Process Overview

Since 1991, a number of regulatory changes have occurred that affected the City's municipal pretreatment program. The most notable include:

1. Oregon Department of Environmental Quality's (ODEQ) guidance for local limits development;
2. ODEQ's new guidance for Annual Report submittal for municipal pretreatment programs;
3. Amendments to the Clean Air Act;
4. Changes to OSHA Confined Space Entry requirements; and,
5. Requirements under the City's National Pollutant Discharge Elimination System (NPDES) permit to evaluate the local limits at least once every five years.

As a result of these regulatory influences, the City determined that a local limits re-evaluation was necessary.

Public notices were issued and public meetings on the proposed local limits were held in June 1996 and January 1997. The proposed local limits were revised in response to comments received during the public participation periods. The primary revision was the application of local limits to all non-domestic wastewater discharges.

After discussions between the City and the ODEQ, an opinion was requested from the state Attorney General (AG) as to whether local limits could apply to all non-domestic dischargers. The AG said the City must narrow the scope of application of local limits to permitted industrial users and suggested the implementation of separate City limits to all other non-permitted users. As a result, the City amended the Administrative Rules to:

- Apply local limits to permitted industrial users only, and

- Apply City limits to non-permitted, non-domestic dischargers with the provision to implement prescribed best management practices (BMP) to achieve presumptive compliance.

After approval by the ODEQ, the revised local limits and Administrative Rules were incorporated into the City's NPDES permit October 14, 1998.

KMB00006269

Local Limit Parameters and Summary of Revisions

PARAMETER	*EFFECT*	*LIMIT*
pH	*Range increased*	From 5.5 to 5.0 - 11.5 S.U.
Metals		
Arsenic	**Limit lowered**	From 0.3 to **0.2 mg/L.**
Cadmium	*No change in limit*	0.7 mg/L.
Chromium	*Limit increased*	From 3.8 to 5.0 mg/L.
Copper	*Limit increased*	From 2.3 to 3.7 mg/L.
Lead	*No change in limit*	0.7 mg/L.
Mercury	**Limit lowered**	From 0.014 to **0.010 mg/L.**
Molybdenum	*New local limit*	1.4 mg/L.
Nickel	**Limit lowered**	From 3.0 to **2.8 mg/L.**
Selenium	*New local limit*	0.6 mg/L.
Silver	*No change in limit*	0.4 mg/L.
Zinc	**Limit lowered**	From 4.0 to **3.7 mg/L.**
Non-Metals		
Ammonia	*Limit removed*	N/A
Chlorinated Hydrocarbons	*Limit removed*	N/A
Cyanide	*No change in limit*	1.2 mg/L.
Dissolved sulfide	**New local limit**	**4.0 mg/L.**
Non-polar oils and grease	*Limit increased*	From 100 to 110 mg/L.
Polar oils and grease	*Limit removed*	N/A
Phenolics	*Limit removed*	N/A
Sulfate	*Limit removed*	N/A
Total sulfide	*Limit removed*	N/A

There are no longer local limits for groups of organic compounds (e.g., chlorinated hydrocarbons, phenolics). However, the group sum limits for **categorical industries** are still applicable. With the institution of the new local limits, the City has adopted a technically-based, chemical-specific approach for individual organic compounds (IOC) consistent with the Clean Water Act. IOCs are evaluated according to treatability, toxicity, flammability, explosivity, fume toxicity, and Maximum Allowable Headwork's Loading (MAHL). A decision matrix was used to classify the IOC into one of the following categories:

A. Local Limit
B. Pollutant Prohibitions
C. Screening Value Limited Pollutants
D. Conditional Discharge Pollutants

KMB00006270

Local Limit Parameters and Summary of Revisions, continued

A. *Local Limits*

IOCs that are amenable to biological treatment and have a limitation based on MAHL or the Toxic Characteristics Rule have been incorporated into the City's local limits. There are nine IOCs with numeric local limits:

PARAMETER	***LIMIT***
Individual Organic Compounds	
1,2-Dichloroethane	**0.50 mg/L.**
2,4-Dinitrotoluene	**0.13 mg/L.**
Acrylonitrile	**1.00 mg/L.**
Chlordane	**0.03 mg/L.**
Chlorobenzene	**0.20 mg/L.**
Chloroform	**0.20 mg/L.**
Nitrobenzene	**2.00 mg/L.**
Pentachlorophenol	**0.04 mg/L.**
Trichloroethene	**0.20 mg/L.**

B. *Pollutant Prohibitions*

IOCs that are not amenable to biological treatment or those that have screening values or local limits that are less than the practical method detection limits (MDLs) are classified as *pollutant prohibitions*. An MDL is defined by the US-EPA as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero."[1] An inventory of pollutant prohibitions determined through technical evaluation will be maintained by the City. The inventory will contain the pollutant prohibitions and the MDL used to determine a violation. The new local limits contain 47 IOCs as pollutant prohibitions that apply to all permitted industrial users. In some cases, matrix interference may cause analytical results to be higher than the MDLs listed in the following table. In these instances, the permitted industrial user will be required to conduct a source investigation to determine whether the pollutant is present.

PARAMETER	***METHOD DETECTION LIMIT (MDL) mg/L***
Pollutant Prohibitions	
Volatiles	
Bromodichloromethane	**0.005**
Bromoform	**0.005**
Bromomethane	**0.010**

1. 40 CFR Part 136, Appendix B

KMB00006271

Local Limit Parameters and Summary of Revisions, continued

B. *Pollutant Prohibitions, continued*

PARAMETER	*METHOD DETECTION LIMIT (MDL) mg/L*
Pollutant Prohibitions	
Volatiles, continued	
1,1,1,2-Tetrachloroethane	**0.010**
1,1,2-Trichloroethane	**0.005**
1,1-Dichloroethene	**0.005**
Chloroethane	**0.050**
Chloromethane	**0.005**
Dibromochloromethane	**0.005**
Vinyl Chloride	**0.050**
Base/Neutral extracables	
1,2,4-Trichlorobenzene	**0.005**
1,2-Dichlorobenzene	**0.005**
1,2-Diphenylhydrazine	**0.005**
1,3-Dichlorobenzene	**0.005**
1,4-Dichlorobenzene	**0.005**
2,6-Dinitrotoluene	**0.005**
4-Bromophenyl-Phenyl Ether	**0.005**
Bis (2-Chloroethoxy)methane	**0.010**
Bis (2-Chloroisopropyl)ether	**0.010**
Hexachlorobenzene	**0.005**
Hexachlorobutadiene	**0.005**
Hexachlorocyclopentadiene	**0.005**
N-Nitroso-Di-N-Propylamine	**0.005**
Pesticides	
4,4-DDD	**0.001**
4,4-DDE (p,p-DEX)	**0.001**
4,4-DDT (p,p-TDE)	**0.001**
a-BHC (alpha)	**0.001**
b-BHC (beta)	**0.001**
d-BHC (delta)	**0.001**
Dieldrin	**0.001**
Endosulfan II (beta)	**0.001**
Endosulfan Sulfate	**0.001**

KMB00006272

B. *Pollutant Prohibitions, continued*

PARAMETER	*METHOD DETECTION LIMIT (MDL) mg/L*
Pollutant Prohibitions	
Pesticides, continued	
Endosulfan-I (alpha)	**0.001**
Endrin	**0.001**
Endrin Aldehyde	**0.001**
g-BHC (gamma) (Lindane)	**0.001**
Heptachlor	**0.001**
Heptachlor Epoxide	**0.001**
Toxaphene	**0.001**
Polychlorinated biphenyls (PCBs)	
PCB 1016	**0.001**
PCB 1221	**0.001**
PCB 1232	**0.001**
PCB 1242	**0.001**
PCB 1248	**0.001**
PCB 1254	**0.001**
PCB 1260	**0.001**

C. Screening Value Limited Pollutants

Screening values have been developed for IOCs that are amenable to biological treatment. The limiting criterion for screening values is based on worker health and safety[2]. The presence of an IOC at a concentration above its screening value, in a facility's effluent, may result in the implementation of BMPs or the establishment of industrial user specific limits.

The primary worker health and safety concern is fume toxicity in publicly owned treatment works (POTW). Because of this potential health issue in the POTW collection system, the industrial user specific limits apply to pollutant concentrations at the "end-of-pipe". This means that the point of compliance (or the nearest point of accommodation) for *screening value limited pollutants* is the point where the industry's effluent enters the POTW collection system, for this is when worker exposure becomes a potential safety concern.

2. US-EPA Guidance to Protect POTW Workers From Toxic and Reactive Gases and Vapors, EPA 812-B-92-001

KMB00006273

Local Limit Parameters and Summary of Revisions, continued

C. Screening Value Limited Pollutants, continued

If your industry currently discharges, or has the potential to discharge, any of the following listed IOCs, contact your Permit Manager. Your Permit Manager will help you conduct an evaluation to determine whether industrial user specific limits need to be established. The new local limits include screening values for the following twenty IOCs:

PARAMETER	***SCREENING VALUE LIMIT (mg/L)***
Screening Value Limited IOCs	
Volatiles	
1,1,1-Trichloroethane	**1.60**
1,1,2,2-Tetrachloraethane	**0.40**
1,1-Dichloroethane	**2.30**
1,2-Dichloropropane	**3.60**
Acrolein	**0.10**
Benzene	**0.14**
Carbon Tetrachloride	**0.03**
Ethylbenzene	**1.60**
Methylene Chloride	**2.10**
Tetrachloroethene	**0.30**
Toluene	**1.40**
Trans 1,2-Dichloroethene	**0.30**
Trans-1,3,-Dichloropropene	**0.10**
Acid extractables	
2,4,6-Trichlorophenol	**0.60**
4,6,-Dinitro-2-Methylphenol	**3.50**
Base/Neutral extracables	
Benzo(a)pyrene	**10.0**
Chrysene	**4.70**
Hexachloroethane	**0.10**
Naphthalene	**2.70**
Pesticides	
Aldrin	**0.40**

KMB00006274

Local Limit Parameters and Summary of Revisions, continued

D. Conditional Discharge Pollutants

IOCs that are amenable to biological treatment and that have no limiting environmental criteria have conditional discharge provisions. Industrial user specific limits may be established for IOCs classified as a *conditional discharge pollutants* if an industry has the potential to discharge the pollutant at a level which would jeopardize worker health and safety in the POTW collection system.

If your industry currently discharges, or has the potential to discharge, any of the following listed IOCs, contact your Permit Manager. Your Permit Manager will help you conduct an evaluation to determine whether industrial user specific limits need to be established.

PARAMETER	***PARAMETER***
Conditional Discharge Pollutants	**Conditional Discharge Pollutants**
2 - chloroethyl vinyl ether	**benzo (k) fluoranthene**
2 - chloronaphthalene	**bis (2 - chloroethyl) ether**
2 - chlorophenol	**bis (2 - ethylhexyl) phthalate**
2 - nitrophenol	**butyl benzyl phthalate**
2, 4 - dichlorophenol	**di - benzo (a,h) anthracene**
2, 4 - dimethylphenol	**di - n - butyl phthalate**
2,4, - dinitrophenol	**di - octyl phthalate**
3,3 - dichlorobenzidine	**diethyl phthalate**
4 - chloro - 3 - methylphenol	**dimethyl phthalate**
4 - chlorophenyl - phenyl ether	**fluoranthene**
4 - nitrophenol	**fluorene**
acenaphthene	**indeno (1,2,3 - c,d) pyrene**
acenaphthylene	**isophorone**
anthracene	**n - nitrosodimethylamine**
benzidine	**n - nitrosodiphenylamine**
benzo (a) anthracene	**phenanthrene**
benzo (b) fluoranthene	**phenol**
benzo (g,h,i) perylene	**pyrene**

KMB00006275

Local Limit Parameters and Summary of Revisions, continued

There are no longer concentration-based local limits for ammonia, chlorinated hydrocarbons, phenolics, total sulfide, and sulfate. Permit-specific BMPs will be used as the control method for ammonia, sulfate, fluoride, and polar oils and grease.

If your facility pretreats wastewater to control the discharge level of any of the pollutants mentioned above, you are required to continue your current practices. If you would like to modify the nature or level of treatment for these pollutants, please consult with your Permit Manager. Control mechanisms may include:

- Enforcing prohibited discharge standards
- Requiring existing pretreatment to remain in place
- Controlling batch discharges
- Requiring spill prevention and containment
- Observe permit-specific, performance-based limits

Monitoring and Enforcement

In the coming weeks, your Permit Manger will be contacting you regarding modification of your wastewater discharge permit to incorporate the new local limits. Until then, an interim Schedule A containing the new local limits is included with this letter. The local limits are **effective immediately** regardless of whether your current permit includes these new limits.

First time offenses of the new or more stringent discharge local limits will be addressed with a Compliance Telephone Memorandum (CTM) with no attendant civil penalty regardless of the magnitude of the violation. Subsequent violations will be addressed with escalating enforcement action unless the industry has requested and is operating under a Compliance Order during that time.

A Compliance Certification form is also included with this letter. This form, detailing the compliance status of your facility with the new local limits, must be completed and ***returned by December 12, 1998.*** Your Permit Manager will work with you to establish a schedule for maintaining compliance.

Again, if you have any questions about how these local limit revisions affect your wastewater discharge permit, contact your Permit Manager.

Sincerely,

Gerald W Baumgartner

Gerald W. Baumgartner
Industrial Source Control Division Manager

enc.

KMB00006276

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

July 28, 1997

Brad Clinefelter
Hall-Buck Marine Terminal 4
11040 N. Lombard St.
Portland, OR 97283

Dear Mr. Clinefelter:

Please find the enclosed: Wastewater Discharge Permit for Hall-Buck Marine Terminal 4, Fact Sheet and Self-Monitoring Report for the first half of 1998. The discharge permit for Hall-Buck has been modified to reflect continuous pH monitoring. The reporting frequency has not changed, only the manner in which reporting takes place has changed. Please pay special attention to Schedules B and D of the permit. These sections detail the requirements for reporting pH and the policy regarding pH excursions.

A copy of HBM's fact sheet has also been included for your reference. The fact-sheet represents the City's understanding of the industrial user's processes and pretreatment history. Please review the document and contact me if you notice any inaccuracies.

If you have any questions or comments please feel free to contact me at 823-5556.

Respectfully

Stephen Rosenberger
Permit Manager

S:\IU-H\HALL-BUC\PERMIT\CORRESP\970728BC.DOC

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

MUNICIPAL PRETREATMENT PROGRAM
WASTEWATER DISCHARGE PERMIT

ISSUED TO:	Hall-Buck Marine Inc. Terminal 4
SIC CODE:	4491
PLANT TYPE:	Dry Bulk Marine Cargo
EPA CATEGORY:	400
LOCATION:	11040 N. Lombard, Terminal 4 Portland, Oregon 97283
MAILING ADDRESS:	Same As Above
RESPONSIBLE OFFICIAL:	Thomas B. Stanley - President
PHONE NUMBER:	(504) 293-9935; (800) 535-8170
FAX NUMBER:	(504) 675-5387
APPLICATION FEE RECEIVED:	05/03/95
EXPIRATION DATE:	08/01/00

INDUSTRIAL SOURCE CONTROL MANAGER — Gerald W. Baumgartner — 7-29-97 Effective Date

PREPARED BY: SDR
CHECKED BY: MAS MAS

S:\IU-H\HALL-BUC\PERMIT\97REV2.DOC

TABLE OF CONTENTS

COVER:		SIGNATURE PAGE	i
TABLE OF CONTENTS:			ii
INTRODUCTION:		PERMITTED ACTIVITIES	iii
SCHEDULE	A	WASTEWATER DISCHARGE LIMITATIONS	A1-1
	B	MONITORING AND REPORTING REQUIREMENTS	B1-4
	C	RESERVED: COMPLIANCE SCHEDULE	C1-1
	D	SPECIAL CONDITIONS	D1-1
	E	GENERAL CONDITIONS	E1-9
APPENDIX	1	DEFINITIONS	1.1-5
	2	SAMPLING LOCATION MAP	2.1-1
	3	ACCIDENTAL SPILL PREVENTION PLAN	3.1-1

KMB00006279

INTRODUCTION

PERMITTED ACTIVITIES

The permittee is authorized to discharge industrial wastewater to the City of Portland's sewer system in compliance with Chapter 17.34 of the City Code, the Bureau of Environmental Services Administrative Rules and any applicable provisions of federal or state laws or regulations and in accordance with discharge point(s), effluent limitations, monitoring requirements, and all other conditions set forth herein.

It is the permittee's duty to comply with all conditions of this permit. Any noncompliance with permit requirements constitutes a violation of Chapter 17.34 of Portland's City Code and, as such, subjects the permittee to enforcement action(s).

KMB00006280

Schedule A
WASTEWATER DISCHARGE LIMITATIONS

Listed below are the waste discharge limitations not to be exceeded after **the permit effective date**. Applicable regulations include Chapters 17.34 and 17.36 of the Code of the City of Portland and 40 CFR . The point of compliance with the discharge limitations shall be Sampling Manhole #1.

	Pollutant	Daily Maximum Concentration (mg/l)	Monthly Average Concentration mg/L
	Metals		
	Arsenic (total)	0.3	
	Cadmium (total)	0.7	
	Chromium (total)	3.8	
*	Copper (total)	2.3	
	Cyanide (total)	1.2	
*	Lead (total)	0.7	
	Mercury (total)	0.014	
	Nickel (total)	3.0	
	Silver (total)	0.4	
*	Zinc (total)	4.0	
	Non-Metals		
	Ammonia	50	
	Chlorinated Hydrocarbons	0.5	
*	Fats Oil and Grease		
	(non-polar)	100.0	
	(polar)	500.0	
*	pH (range)	5.5 - 11.5 S.U.	
	Phenolics	1.0	
	Sulfate	500.0	
	Sulfide	50.0	
	Closed Cup Flash Point	Discharges <140 F prohibited	

Notes:

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or as determined by the Director of Environmental Services.

2. In addition to the limits stated in Schedule A, the permittee shall comply with all other applicable City, State and Federal regulations.

3. The pollutant parameters marked with an asterisk (*) are the pollutants of concern. At a minimum, the permittee is required to monitor for pollutants of concern. All limits are applicable at the point of compliance.

KMB00006281

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report

Parameter	Sample Type	First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Metals													
Copper (total)	Composite	✓						✓					
Lead (total)	Composite	✓						✓					
Zinc (total)	Composite	✓						✓					
Non-Metals													
pH	Continuous	✓						✓					
Oil and Grease (total)	Grab	✓						✓					
Due Dates													
		Feb 15	Mar 15	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sept 15	Oct 15	Nov 15	Dec 15	Jan 15

Notes:

1. Periodic Compliance Reports are to be submitted to the Industrial Source Control Division by the 15th of the month following the conclusion of the reporting period. Sampling, analysis, and reporting will follow the schedule above.

2. All official sampling shall be taken at the approved sampling location. (See Appendix 2: sampling location map.)

3. The permittee shall analyze samples for all listed parameters plus any other which might be expected to be present in significant quantities.

4. The permittee shall submit all self-monitoring results to the Industrial Source Control Division as part of their monitoring and reporting requirements.

5. All monitoring results are to be mailed to:

   Industrial Source Control Division
   Bureau of Environmental Services
   City of Portland
   6543 N. Burlington Ave.
   Portland, OR 97203

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-Monitoring Report (Notes continued):

6. Periodic Compliance Reports are to be submitted by the 15th of each month following the report period for each sampling location. The reports shall consist of:

   a. Statement of compliance/noncompliance, signed by the officially designated contact person (statement is found on bottom of the self-monitoring report form).

   b. Sample analysis results recorded on the appropriate self-monitoring report form and chain of custody for sample collected.

   c. Originals of all laboratory analysis sheets showing who analyzed sample, date and time sample was analyzed, analytical methods used, method detection limit, test result, and quality assurance/quality control.

   d. Copies of pH charts (if any) showing violations (if any).

   e. Any other reports that may be required.

   f. Calculations of monthly average, if appropriate.

7. The permittee should instruct its laboratory that, if the oil and grease (total) concentration exceeds 100 mg/L, the laboratory should determine the concentrations of the polar and non-polar oil and grease fractions.

8. The City may reduce or increase the frequency of sampling, based on the analytical results submitted.

9. As per 40 CFR 403.12(g)(5), if an industrial user subject to the reporting requirements of Schedule B monitors any parameter from the official sampling location more frequently than required, using procedures specified in Schedule E14(c), the results of their monitoring must be submitted in the required report.

Schedule C
COMPLIANCE SCHEDULE

Not Applicable

Schedule D
SPECIAL CONDITIONS

1. pH

The Industrial Source Control Division has approved the method of monitoring of the wastewater pH at the time of discharge to the City Sewer system. This approval may be revoked at any time, if pH data are not representative of the sampling data obtained from the sampling manhole. To ensure that the basic City monitoring and reporting requirements are met, the permittee shall include a summary of significant pH excursions with its semi-annual reporting of parameters listed in Schedule B. **This is in addition to the mandatory reporting of discharge violations within 24 hours of learning of these violations.**

Significant excursions are defined as:

a. pH excursions outside your permit range for a total duration of more than 15 minutes in any 24 hour period.

b. pH excursions greater than 12.5 for a total duration of more than 5 minutes in any 24 hour period.

c. pH excursions less than 5.0 regardles of duration during a 24 hour period.

Each occurrence shall be reported with the date, time, duration and the maximum or minimum pH excursion reached. The monthly report shall contain the total time (in minutes) that the pH was outside the limits set in Schedule A.

The permittee is required to continue using a strip-chart-recording pH meter for continuous pH recording or any other pH control system recorder that meets with City approval. A daily record shall be kept for each day of plant operation, excluding those days when there is no process activity. The records shall be maintained and must be available for direct review or photo duplication by City representatives, if required.

Upon approval by the Industrial Source Control Division, pH monitoring may be performed at the designated point of accommodation instead of the point of compliance specified monitoring. The point of accommodation shall be located after all wastestreams have been combined and pretreatment has been completed. Performing the pH monitoring at the point of accommodation does not relieve the permittee of the responsibility for maintaining compliance at the sampling manhole--the pH limits are applicable at both the point of accommodation and the point of compliance.

KMB00006285

Schedule E
GENERAL CONDITIONS

1. Accidental Spill Prevention Plan

To comply with Section 17.34.090 of the City Code, the permittee shall submit a new or revised Accidental Spill Prevention Plan (ASPP) to the Industrial Wastewater Management Section 90 days after the effective date of this permit. The plans shall include the following elements.

a. A description of the hazardous substances handled and their potential points of entry into the City sewer system or storm runoff

b. A description of the measures to be taken to prevent entry at the described points before a spill occurs

c. Measures to be taken to contain a spill if one occurs

d. A description of employee training in the prevention and control of spills

e. A posted notice informing employees of the requirement to notify the Bureau of Environmental Services in case of spills or uncontrolled discharges.

2. Appeal

Upon receipt of a final industrial wastewater discharge permit, a permittee may appeal any of its terms or conditions to the Code Hearings Officer in accordance with procedures set out at Chapter 22.10 of the Portland City Code; provided that such an appeal shall include a copy of the permit that is the subject of the appeal, shall state the basis for the appeal, and shall be filed with the Code Hearings Officer and the Bureau of Environmental Services.

3. Authorized Discharge

All discharge and activities authorized herein shall be consistent with the terms and conditions of this permit, Chapter 17.34 of the City Code and the Administrative rules. The discharge of any pollutant in excess of these limits shall constitute a violation of the terms and conditions of this permit.

4. Bypass or Diversion

The diversion or bypass (the intentional diversion of wastestreams from any portion of a permittee's treatment facility) of any discharge, from facilities used by the permittee, to maintain

compliance with the terms and conditions of this permit is prohibited except:

a. When unavoidable to prevent loss of life or severe property damage.

b. When excessive storm drainage or runoff would damage facilities necessary for compliance with the terms and conditions of this permit.

KMB00006286

4. Bypass or Diversion (continued)

The permittee shall immediately notify the City in writing of each such diversion or bypass, in accordance with the procedure specified in condition No. 23.

5. Certification

Legible copies of all applications, reports, and information submitted to the City shall be signed and certified as follows in accordance with 40 CFR 403.12.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

6. Chemical Storage

Chemicals shall be stored in a manner that will prevent the entry of these substances into the sanitary, combined sewer, or storm sewer system, or waters of the state.

7. Continuous Compliance

Compliance with Schedule E, No. 23 shall not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit.

8. Dilution Prohibition

It is unlawful for a discharger to use dilution as a partial or complete substitute for adequate treatment to achieve compliance with the standards and limitations set forth in this permit. The Director may impose mass limitations on dischargers who are using dilution to meet the applicable pretreatment standards or the requirement set forth in this permit.

9. Enforcement Provision

A violation of any conditions, standards or requirements of this permit constitutes a violation of Chapter 17.34 of the City Code and any rules promulgated thereunder. Therefore, the City may seek any or all of the remedies or penalties provided for in Section 17.34.110 of the City Code, including recovery of costs incurred by the City, in response to the following:

a. Any violation by the permittee of the provisions in this Industrial Wastewater Discharge Permit.

b. Any violation by the permittee of the provisions of the City Code.

KMB00006287

9. Enforcement Provision (continued)

c. Any violation by the permittee of an Enforcement Action requirement with respect to provisions set forth in this Industrial Wastewater Discharge Permit and the City Code and Administrative Rules.

The range or severity of enforcement actions taken by the City against the permittee will be determined by, but not limited to, the nature, magnitude, duration, and frequency of the violation as provided by City Code and Administrative Rules.

10. Extra-Strength Sewer Charge (ESSC)

Discharges exceeding 300 mg/L for the 5-day biochemical oxygen demand (BOD) or 350 mg/L total suspended solids (TSS) concentrations (as defined in Section 17.36.060(1) of the City Code) shall be subject to the extra-strength sewer charge (ESSC) established in Section 17.36.060(1).

11. Hazardous Waste Notification

The industrial user shall notify the Industrial Source Control Division Section, the POTW, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into the POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent such information is known and readily available to the industrial user: an identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following 12 months.

12. Inspection and Entry

The permittee shall, at all reasonable times, allow authorized representatives of the City:

a. To enter the permittee's premises where an effluent source or disposal system is located or where any records associated with this permit are kept.

b. To have access to any required records and permission to copy these records. At no time can wastewater effluent data be claimed or held as confidential information.

c. To inspect and evaluate any monitoring equipment or monitoring methods required by this permit.

d. To sample any discharge to the sewer system.

KMB00006288

13. Liability

The City of Portland, its officers, agents or employees shall not sustain any liability due to the issuance of this permit or the construction or maintenance of facilities resulting from this permit.

14. Monitoring

a. The permittee shall record the following information:

* The exact date, time, and place of sampling
* Name of person who collected the sample(s)
* Type of sample(s) collected
* The dates analyses were performed
* Who performed the analyses
* The analytical techniques or methods used
* The results of all required analyses
* Whether quality assurance and quality control laboratory procedures are followed

b. Samples and measurements, taken to meet the requirements of the above condition, shall be representative of the effluent. Grab samples must be collected for pH, cyanide, phenol, sulfide, volatile organic compounds and oil and grease monitoring.

c. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless otherwise approved in writing by the City, conform to the Guidelines Establishing Test Procedures for the Analysis of

Pollutants as specified in 40 CFR, Part 136. Laboratory quality assurance and quality control programs should be documented. EPA QA/QC programs should be followed.

d. The permittee is required to document proper installation, and maintenance of flow monitoring and sampling equipment.

e. If the results of the permittee's wastewater analysis indicate that a noncompliance has occurred, the permittee must notify the City's Industrial Source Control Division Section within 24 hours of becoming aware of the noncompliance. The permittee must also repeat the sampling within 24 hours of the effluent noncompliance or next process day and submit the analysis to the City within 30 days after becoming aware of the noncompliance.

KMB00006289

Renewal —

14. Monitoring (continued)

f. The permittee shall take all reasonable steps to minimize or correct any adverse impact to the POTW or the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

g. If requested, the permittee shall provide or split discharge samples with the City of Portland Water Pollution Control Laboratory.

15. Permit Modification

This permit may be modified with 30 days prior written notification, in whole or in part, for causes including but not limited to the following:

a. A change in the City's NPDES permit or any other condition that requires either a temporary or permanent elimination of any authorized discharge.

b. To incorporate new or revised federal, state, or local pretreatment standards or requirements.

c. Information indicating that the permitted discharge poses a threat to the City's collection and treatment system, POTW personnel, or the receiving waters and sludge.

d. To correct typographical or other errors in the permit.

e. Any significant change in the volume of a permitted discharge.

16. Permit Renewal

This permit is issued to a specific entity and cannot be transferred by the industrial user and must be renewed pursuant to Section 17.34.070 of the Code of the City of Portland and Permit Applications must be received 90 days prior to:

a. Expiration date of current permit.

b. In the event the permittee plans to cease operations at the present location, and plans to relocate within the City of Portland's jurisdiction and continue the same permitted activities.

c. The permitted industrial process being significantly altered or changed so that pollutants not specifically mentioned in the current permit are present in the permittee's discharge.

17. Permit Suspension or Termination

a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the director of the Bureau of Environmental Services.

KMB00006291

17. Permit Suspension or Termination (continued)

b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts.

c. Falsifying self-monitoring reports.

d. Tampering with monitoring equipment.

e. Refusing to allow prompt access to the facility premises and records.

f. Failure to meet effluent limitations.

g. Failure to pay fines.

h. Failure to meet compliance schedules.

18. Plant Closure

In the event the permittee plans to cease operations at the present business location, and not to relocate within the City of Portland's jurisdiction, the permittee shall inform this office, in writing, 60 days prior to plant closure.

19. Property Rights or Privileges

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges; it does not authorize any injury to private property or any invasion of personal rights; and it does not authorize any infringements or federal, state, or local laws or regulations.

20. Records Retention

All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation (and calibration and maintenance records), shall be retained by the permittee for a minimum of three years. This retention period shall be extended during the course of any unresolved litigation pertaining to the discharge of pollutants by the permittee, or whenever it is requested by the City, the Approval Authority (DEQ), the Regional Administrator (EPA).

21. Reporting Requirements

a. Accidental or Slug Loading

The permittee shall notify the City immediately, either in person or by telephone (Duty Officer Pager # 323-3398 and Lead Operator CBWTP # 823-2530), if accidental or slug loading to the sanitary sewer occurs. A formal written report, discussing circumstances and remedies, shall be submitted to the City within 5 days of the occurrence.]*

KMB00006292

21. Reporting Requirements (continued)

b. Changes in Wastewater Characteristics

The permittee shall give notice to the Industrial Source Control Division Section 90 days before any facility expansion, production increase, or process modifications that result in new or substantially increased discharges or a change in the nature of the discharge.

c. Change in representative

If the responsible corporate official changes, notify the City within 10 days, as per 40 CFR 403.12 (1) (4).

22. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to the other circumstances and the remainder of this permit shall not be affected.

23. Slug Load Notification

If the permittee is unable to comply with all the conditions of this permit due to a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, or should any condition cause the release of any slug load, the permittee shall:

a. Immediately take action to stop, contain, clean up the unauthorized discharges, and correct the problem.

b. Immediately call the Lead operator of the Columbia Boulevard Wastewater Treatment Plant (823-2530) so that plant personnel can evaluate the impact of the discharge and take corrective action. Notify Industrial Source Control by calling the Duty Officer, pager # 323-3398.

c. Within five (5) days submit a detailed written initial report to the City describing the breakdown, the actual quantity of resultant waste discharges, the corrective action taken, the steps taken to prevent recurrence, and any other pertinent information.

Samples shall be taken immediately upon discovery of the Slug load. Within 15 days, a follow-up report shall be submitted. The report shall contain analysis of samples taken during such discharge and samples taken after normal conditions have been restored. The samples, at a minimum, shall be analyzed for the parameters required in Schedule B. Sampling shall be continued until all parameters are within discharge limits.

KMB00006293

24. Upset

a. Definition:

For the purposes of this section, upset means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an Upset:

An upset will constitute an affirmative defense to an action brought for noncompliance with applicable pretreatment standards, if the requirements of paragraph c are met.

c. Conditions Necessary for a Demonstration of an Upset:

A permittee who wishes to establish the affirmative defense of an upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and the permittee can identify the specific cause(s) of the upset.

(2) The facility was, at the time, being operated prudently, efficiently, and in compliance with applicable operation and maintenance procedures.

(3) The permittee has submitted the following information to the Industrial Source Control Division within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within 5 days).

* A description of the indirect discharge and cause of noncompliance

* The period of noncompliance, including exact dates and times or, if not corrected, the anticipated duration of noncompliance

* Steps planned or now being taken to reduce, eliminate, and prevent recurrence of the noncompliance

d. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset shall have the burden of proof.

e. Permittee Responsibility in Case of an Upset.

24. Upset (continued)

If reduction, loss, or failure of its treatment facility occurs, the permittee shall control production of all discharges in order to maintain compliance with applicable pretreatment standards until the facility is restored or an alternative method of treatment is provided. This requirement especially applies if the primary source of the treatment facility power is reduced, lost, or failed.

Appendix 1
DEFINITIONS

Abbreviations

BOD_5	Five-day biochemical oxygen demand
mg/L	Milligrams per liter
k	Kilograms
m^3/d	Cubic meters per day
ppm	Parts per million (assumed equal to milligrams per liter)
POTW	Publicly owned treatment works
WPCL	Water Pollution Control Laboratory

Averages for BOD, TSS, and chemical parameters are based on arithmetic mean of samples taken.

Definitions

Bypass

The intentional diversion of wastestreams from any portion of a permittee's treatment facility..

Compatible Pollutant

Biochemical oxygen demand, suspended solids, pH and fecal coliform bacteria, and additional pollutants that the City treatment works is designed to treat.

Conventional Pollutants

Classification of industrial pollutants, which includes BOD (biochemical oxygen demand), suspended solids, fecal coliform, pH (acidity/alkalinity), and other pollutants so designated by EPA, as defined by Section 304(a)(4) of the Clean Water Act.

Director of Environmental Services

The Director of Environmental Services of the City of Portland, Oregon, or that person's duly authorized representative or agent.

City, or City of Portland

The municipality of Portland, Oregon, a municipal corporation of the State of Oregon, acting through the City Council or any board, committee, body, official, or person to whom the Council shall have lawfully delegated the power to act on behalf of the City. Unless a particular board, committee, official, or person is specifically designated in these rules and regulations, wherever action by the City is explicitly required or implied herein, it shall be understood to mean action by the Director of Environmental Services of Portland, Oregon, or that person's duly authorized representative or agent.

KMB00006296

Effective Date of this Permit

The date this permit is signed by the Director of the Bureau of Environmental Services.

Expiration Date

From 1 to 5 years beyond the effective date of this permit.

Hazardous or toxic substances

Hazardous or toxic substances are those substances referred to in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S. Code 9601 et seq.), section 502(13) of the Clean Water Act, and any other substances so designated by the Director of Environmental Services and contained in rules adopted pursuant to this Chapter.

Industrial Waste

Any liquid, solid, or gaseous substance (or combination thereof) resulting from any process of industry, manufacturing, commercial food processing, business, agriculture, trade, or research, including but not limited to the development, recovery, or processing of natural resources and leachate from landfills or other disposal sites.

Industrial Wastewater Discharge Permit

A permit to discharge industrial wastewater into the City sewer system issued under the authority of the City Code, which prescribes certain discharge requirements and limitation.

Interference

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts the normal operation of the City sewer system, or which causes a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or any increase in the cost of treatment of sewage or in the cost of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations); Section 405 of the Clean Water Act, the Solid Waste Disposal Act (including Title II, more commonly referred to as the Resource Conservation and Recovery Act), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of RCRA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum Daily Discharge Limitation

The highest allowable daily discharge.

Nonconventional Pollutants

All pollutants that are not specifically designated as either conventional or toxic.

KMB00006297

Oil and Grease

Fats, Oils and Grease. Fats, oils and grease are those substances which are measured by USEPA Method 1664: N-Hexane Extractable Method (HEM) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM).

(a) Non-polar fats, oils and grease are that portion of fats, oils and grease which is measured as non-polar (from petroleum sources) by USEPA Method 1664.

(b) Polar fats, oils and grease are that portion of fats, oils and grease which is determined to be polar (of animal or vegetable origin) by USEPA Method 1664.

Pass Through

Pass through means a discharge which exits the POTW into waters of the United States in Quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Phenolics

Phenol and cresol compounds identified in Method #625, "Manual for Methods for Chemical Analysis of Water and Wastes," U.S. Environmental Protection Agency, or equivalent method from other references cited in 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants."

POTW

POTW means Publicly Owned Treatment Works, which includes any devices and systems, owned by a State or municipality, used in the collection, transportation, storage, treatment, recycling and reclamation of wastewater.

Pretreatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alternation of the nature of pollutant properties in wastewater to a non-harmful state, prior to or in lieu of discharge of such pollutants into the City sewer system.

Sampling

a. The "monthly average" other than pH is the arithmetic mean of samples collected curing a calendar month.

b. The "daily maximum" is defined as the greatest allowable value for any calendar day.

KMB00006298

c. A "24-hour composite" sample shall mean a flow-proportioned mixture of not less than eight discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and preserved in accordance with 40 CFR part 136 and amendments.

d. A "Grab" sample is an individual sample collected in less than 15 minutes, without regard for flow or time.

e. A "Grab-Composite" is a minimum of four grab samples collected and preserved over a 24-hour period and combined to provide a representative sample of effluent being discharged.

Schedule of Compliance

A schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with an effluent limitation or other limitation, prohibition, or standard.

Severe Property Damage

Substantial physical damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Slugload

A slugload is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge.

Solid Waste

Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits.

Solid Waste Disposal

The final placement of refuse that cannot be salvaged or recycled.

Solvent Management Plan

A plan that specifies the toxic organic compounds used, the method of disposal used (instead of dumping into wastestreams), and procedures for ensuring that toxic organics do not spill or leak into wastewater discharged to the City sewer system.

Total Dissolved Solids

The total dissolved (filterable) solids as determined by use of the method specified in the list of approved test procedures.

Total Organic Active Ingredients

The sum of all organic active ingredients covered by the organic pesticide chemicals manufacturing subcategory, which are manufactured at a facility subject to the effluent guidelines for pesticides chemicals manufacturing.

Total Solids

The sum of dissolved and undissolved constituents in water or wastewater, usually expressed as milligrams per liter.

Total Suspended Solids

Total suspended matter that either floats on the surface or is in suspension in water or wastewater and that are removable by laboratory filtering (as described in *Standard Methods for the Examination of Water and Wastewaters,* current edition) or Guidelines Establishing Test Procedures for the analysis of Pollutants, contained in 40 CFR 136, as published in the *Federal Register.*(Bureau of Environmental Services Administrative Rules I[22])

Upset

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Waste

Unwanted materials left over from manufacturing processes, or refuse from places of human or animal habitation.

Wastewater

Industrial waste, sewage, or any other waste, including that which may be combined with any groundwater, surface water, or stormwater that may be discharged to the city sewer system.

Water Pollution

The addition of enough harmful or objectionable material to damage water quality.

Appendix 2
SAMPLING LOCATION MAP

To be prepared and submitted by the permittee

Appendix 3
RESERVED: ACCIDENTAL SPILL PREVENTION PLAN

To be prepared by the permittee and approved by the City.

Permit Amendments

Parameter	Sample Type	First Quarter			Second Quarter			Third Quarter			Fourth Quarte		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	D
Metals													
Copper (total)	**Composite**	✓						✓					
Lead (total)	**Composite**	✓						✓					
Zinc (total)	**Composite**	✓						✓					
Non-Metals													
pH	**Grab**	✓						✓					
Oil and Grease (total)	**Grab**	✓						✓					
Due Dates													
		Feb 15	Mar 15	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sept 15	Oct 15	Nov 15	Dec 15	

VOID

CITY OF PORTLAND
INDUSTRIAL DISCHARGE REPORT
SELF MONITORING REPORT

INDUSTRY NAME: Hall Buck Marine

PERMIT NUMBER: 400-027

SAMPLING PERIOD: January 1998

REPORT DUE DATE: **February 15, 1998**

REPORT TYPE :

PERIODIC COMPLIANCE

For City Use Only

CONTINUOUSLY MONITORED pH (CODE 843)

SAMPLE LOCATION>		METER BRAND>		METER MODEL>		pH LIMIT: 5.5 - 11.5
DATE	STARTING TIME (military time)	MOST EXTREME pH EXCURSION	DURATION (minutes)	VIOLATION ? (circle one)		COMMENTS
				YES	NO	
				YES	NO	
				YES	NO	

Source Control must be notified of all discharge violations within 24 hours of your knowledge of the violation. Report all apparent pH violations on this form and indicate if they represent a violation. Violations include:

1. pH excursions outside your permit range for a total duration of more than 15 minutes in any 24 hour period.
2. pH excursions greater than 12.5 for a duration of more than 5 minutes in any 24 hour period
3. pH excursions less than 5.0 regardless of duration.

SAMPLE DATE:	SAMPLE TIME:		SAMPLE LOCATION: Sample Manhole #1		SAMPLE TYPE: Grab
PARAMETER	CODE	REPORTED CONCENTRATION (mg/l)	LIMIT (mg/l) DAILY	VIOLATION? (circle one)	COMMENTS
Oil & Grease (total)	799		N/A	N/A	
Non-Polar	906		100	Y N	
Polar	905		500	Y N	

The permittee shall instruct its laboratory that oil and grease the oil and grease analysis shall be performed using USEPA Methodology 1664 (HEM). The permittee shall instruct its laboratory that, if the oil and grease (total) concentration exceeds 100 mg/L, the laboratory shall determine the concentrations of the polar and non-polar oil and grease fractions.

SAMPLE DATE:	SAMPLE TIME:		SAMPLE LOCATION: Sample Manhole #1		SAMPLE TYPE: Composite
PARAMETER	CODE	REPORTED CONCENTRATION (mg/l)	LIMIT (mg/l) DAILY	VIOLATION? (circle one)	COMMENTS
Copper (Total)	752		2.3	Y N	
Lead (Total)	811		0.7	Y N	
Zinc (Total)	874		4.0	Y N	

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:_____ Date:_____

S:\IU-H\HALL-BUC\PERMIT\FORMS\97SMR.DOC

CITY OF PORTLAND
INDUSTRIAL SOURCE CONTROL DIVISION

INDUSTRIAL USER INFORMATION

Company Name:	Hall-Buck Marine, Inc. - Portland Bulk Terminal		
General Activity:	Marine Cargo Handling		
Facility Address:	11040 N. Lombard St., Terminal 4, Pier 4 Portland, Oregon 97283		
Mail Address:	P.O. Box 83838 Portland, Oregon 97283-0838		
Contact(s):	Brad Clinefelter Terminal Manager	Telephone: Facsimile:	(503) 285-2990 (503) 285-4467
	Brent McMullin Safety and Environmental Coordinator	"	"
Permit No.:	400-027	S.I.C. No.:	4491
Expiration:	08/01/00	USEPA Category:	400 - Reserved
Last update:	08/25/95 prev.: 07/17/95	Regulated Process:	Facility Washdown
Permit Manager:	Stephen Rosenberger	COP Classification:	P-2
Description:	Hall-Buck Marine handles bulk material and transports this material between ships and rail cars. Wastewater is generated from the washdown of conveyor belts and associated marine cargo transfer equipment. Wastewater is pretreated prior to discharge to the sanitary sewer.		

POLLUTANTS OF CONCERN

1.	pH	3.	Copper	5.	Zinc
2.	Non-polar O/G	4.	Lead	6.	

PERMIT FILE INFORMATION

XXX	A.	Permit Application	XXX	E.	Monitoring Summary
XXX	B.	Environmental Survey	XXX	F.	Compliance Summary
XXX	C.	Permit	XXX	G.	ASPP
XXX	D.	Compliance Monitoring Schedule	XXX	H.	Signatory Authorization

S:\IU-H\HALL-BUC\PERMIT\FORMS\95FACT.SHT

INDUSTRIAL WASTEWATER DISCHARGE PERMIT

FACT SHEET

1. Description and Background Information:

Hall-Buck Marine, Inc. (HBM) receives and transports marine cargo: soda ash, bentonite clay, talc, pencil pitch (coal tar pitch), aluminum trihydrate, soybean meal, sodium sulfite and calcined coke. There exists a series of conveyor belts and associated marine cargo transfer equipment. This equipment and surrounding premises are washed down with influent from Port of Portland water account #1689693. This wastewater is directed through sumps which channel it to a settling pond (max. capacity: 48,000-gallon) where it is collected. Washdown occurs between product changes. All wastewater is collected in the settling pond and discharged as needed. The collection pond feeds via float activated pump into an automated pH neutralization system.

HBM upgraded their pH neutralization system to an automated system with continuous pH metering. In addition they have added an oil skimmer/activated carbon treatment system between the settling pond and the neutralization basin. This system was inspected on 4/23/97. Their discharge permit has been modified to reflect continuous pH reporting on 7/22/97.

The soda ash storage building (stores approx. 30, 000 tons) was constructed with expansion joints to allow for settling of the building. Ground water seepage occurs due to this feature. There is a ground water sump which then pumps this wastestream to the settling pond. Verified during July 25, 1995, bentonite clay handling has been transferred to the Port of Vancouver; because of this, HBM has experienced a decrease in volume of wastewater used and subsequently discharged. The bulk of cargo handled is soda ash mainly and pencil pitch. The handling of pencil pitch will be phased out in 1997. Other cargo described as being handled above is less frequent.

Sludge is removed by Metropolitan Disposal & Recycling Corporation and Spencer Environmental. Pretreatment consists of settling, filtration and pH neutralization.

2. File Information Used to Develop Permit:

- Old Permit(s) - **08/01/90**
- Permit Application - **Rec'd April 29, 1995**
- Inspection Forms - **July 25, 1995**
- Compliance History - **1990 - present**
- Self Monitoring and WPCL Test Data - **WATCH data 12/88 - 07/95**

Diagrams - **SMH map**
Other - **MSDSs**

3. Process Generating Wastewater:

- Conveyor belts and cargo handling equipment washdown.
- Equipment steam cleaning (determined 07-25-95).
- Soda ash building groundwater sump (determined 07-25-95).

4. Pollutants of Concern:

A. Potential: Local Limits

B. Regulated: Local Limits - pH, NP-O/G, Cu, Pb, Zn

C. Observed: pH, NP-O/G, Standard Metals, TTO, TSS, BOD5

5. Classification Analysis:

A. Federal Classification: 400 - Reserved

B. COP IU Classification: P-2

6. Compliance History:

Enforcement	Date of Violation	Nature of Violation
WN-1995-018	July 18, 1995	NP-O/G = 240 mg/L
SNC	1st Qtr. 1995	33% [NP-O/G] > T.R.C. (1.4 x 100 mg/L)
WN-1995-004	February 18, 1995	NP-O/G = 260 mg/L
CTM	May 15, 1991	Late Monthly Report
CTM	March 15, 1991	Late Monthly report
CTM	December 20, 1990	Failure to analyze for O/G

7. Pretreatment and Waste Disposal Practices:

Settling, pH adjustment, filtration. Sludge from settling pond is removed by Metropolitan Disposal & Recycling Corp. and Spencer Environmental.

8. Discharge Point(s) of Compliance (Attach Diagrams):

Sampling Manhole #1 - see permit, appendix 2

*** Hall-Buck Marine has permission to sample at the end of the pretreatment system at the discharge to the sanitary sewer which may be revoked at any time if the sampling data is not representative to sampling data collected at the sampling manhole.

*** Effective April 25, 1995 (date final version of renewed permit completed), BOTH city and self-monitored samples shall be collected at the sampling manhole (see diagram). HBM will no longer be required to submit analytical results of samples collected at the effluent discharge point to the sampling manhole to the City as this is no longer the approved sampling location.

9. Applicable Discharge Limitations (Attach Calculations):

Local limits are applicable.

10. Monitoring and Reporting Requirements:

Parameter		Points
Q_{flow}	40,000 gallon settling pit ≈ 1315 gpd	0
$N_{potential\ pollutants}$	10+	6
$BOD_{average}$	45.5 mg/l	0
$TSS_{average}$	1615 mg/l	1
$pH_{potential}$	alkaline	2
$C_{hemical}\ S_{torage}$		2
$P_{retreated\ pollutants}$	2	2
TOTAL:		13

	MONITORING FREQUENCY	
Analysis	Sampling	Inspection
Minimum Regulatory Monitoring Requirement	2 samples/year	1 inspection/year
Discharge Risk Analysis Results	6 samples/year	1 inspection/year
Recommended sampling/inspections	**2 samples/year**	**1 inspection/year**
Recommended inspectors (major)		**1 inspector**

11. Special Conditions:

Hall-Buck Marine, Inc. has approval to sample at the discharge of the pretreatment system. Permission can be revoked at any time if sampling data is not representative of sampling data at the sampling manhole. As of 08/25/95, this special condition has been rescinded. All samples are to be collected from the approved sampling location, sampling manhole #1 (see diagram).

Hall-Buck Marine T-4 will continuously monitor pH and submit documentation stating compliance with the City's continuous pH monitoring policy.

12. Other:

Prepared by: Stephen Rosenbyn Date: 7/28/98

S:\IU-H\HALL-BUC\PERMIT\FORMS\95FACT.SHT

TL Approval: M A Smith Date: 7-29-97

For New/Renewed Permits:

ISCD Approval: J. Baumgartner Date: 7-29-97

S:\IU-H\HALL-BUC\PERMIT\FORMS\95FACT.SHT

LOG of CHANGES

Date	Changes		Changes, Comments
	Permit	Fact Sheet	
07-17-95	X	X	Prepared fact sheet and draft copy of renewed permit.
08-25-95	X	X	Updated fact sheet to include changes/observations discovered 07/25/95 during facility inspection; developed final permit.
07/22/97	X	X	Updated factsheet to reflect changes to pretreatment system and continuous pH monitoring submission

File: PBT - 4 - Water: City Water Permit. (original 1995)

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1211 S.W. 5th Ave., Suite 800, Portland, Oregon 97204-3713
(503) 823-5320, FAX (503) 823-5559

ROUTE TO:
RE:
TBS
SJD
DWD
MKS

August 28, 1995

RECEIVED
AUG 20

Mr. Brad Clinefelter
Hall-Buck Marine, Inc.
11040 N. Lombard St.
Portland, OR 97283

Certified Mail No.: ~~Z 109 692 585~~

RECEIVED
AUG 29 1995

Dear Brad:

Enclosed is the new Industrial Wastewater Discharge Permit (permit) #400.027. In addition, I have enclosed a blank self-monitoring reporting form (photocopy as needed) and an industrial user information summary (fact sheet). The fact sheet is a non-binding, companion document to permit #400.027 for quick reference about Hall-Buck Marine, Inc.'s history.

The pollutants of concern (POC) for which Hall-Buck Marine, Inc. is required to monitor for at a minimum are marked by an asterisk in Schedule A of permit #400.027. Schedule B details the periodic self-monitoring schedule. Please remember that POCs are to be monitored during the month marked with a check (√) and due by the 15th day of the following month. It is important that these reports are received in our office or postmarked by the due date listed.

Because a minimum of two (2) self-monitoring events is required by federal regulations per year, Hall-Buck Marine, Inc. must sample during the month of November and submit these results by December 15th as stated in the former discharge permit. Once this reporting period is complete, Hall-Buck Marine Inc. will commence with the monitoring as stated in Schedule B of this renewed version of permit #400.027, starting in January, 1996.

This is the final version of permit #400.027. You have thirty days to appeal any of the terms or conditions in this permit. If you have any questions or concerns, don't hesitate to call me. Again, my telephone number is (503) 823-7376.

Cordially,

Angela B. Henderson

Angela B. Henderson

enc.

cc: Industry file

S:\IU-G\GALVANIZ\PERMIT\CORRESP\95FINPMT.LTR

RECEIVED
SEP 07 1995

KMB00006311

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1211 S.W. 5th Ave., Suite 800, Portland, Oregon 97204-3713
(503) 823-5320, FAX (503) 823-5559

Expiration Date: 08/01/00
Permit Number: 400-027
Page: i

MUNICIPAL PRETREATMENT PROGRAM

WASTEWATER DISCHARGE PERMIT

ISSUED TO:	HALL-BUCK MARINE, INC. - PORTLAND BULK TERMINAL
SIC CODE:	4491
PLANT TYPE:	MARINE CARGO HANDLING
EPA CATEGORY:	400 - RESERVED
LOCATION:	11040 N. LOMBARD, TERMINAL 4 PORTLAND, OREGON 97283
MAILING ADDRESS:	SAME AS ABOVE
RESPONSIBLE OFFICIAL: PHONE NUMBER:	THOMAS B. STANLEY, PRESIDENT (504) 293-9935; (800) 535-8170
APPLICATION FEE RECEIVED:	MAY 03, 1995
EXPIRATION DATE:	AUGUST 01, 2000
INDUSTRIAL AND SOLID WASTE MANAGER:	Susan D. Keil — 8/25/95 Effective Date
PREPARED BY:	Angela B. Henderson
CHECKED BY:	

S:\IU-H\HALL-BUC\PERMIT\95PERMIT.FNL

CONTENTS

COVER: SIGNATURE PAGE.....i

TABLE OF CONTENTS:.....ii

INTRODUCTION: PERMITTED ACTIVITIES.....iii

SCHEDULE A WASTEWATER DISCHARGE LIMITATIONS.....A1-1

B MONITORING AND REPORTING REQUIREMENTS.....B1-2

C COMPLIANCE SCHEDULE.....C1-1

D SPECIAL CONDITIONS.....D1-1

E GENERAL CONDITIONS.....E1-9

APPENDIX 1 DEFINITIONS.....1.1-5

2 SAMPLING LOCATION MAP.....2.1-1

3 ACCIDENTAL SPILL PREVENTION PLAN.....3.1-1

KMB00006313

INTRODUCTION

PERMITTED ACTIVITIES

The permittee is authorized to discharge industrial wastewater to the City of Portland's sanitary sewer system in compliance with Chapter 17.34 of the City Code, the Bureau of Environmental Services Administrative Rules and any applicable provisions of federal or state laws or regulations and in accordance with discharge point(s), effluent limitations, monitoring requirements, and all other conditions set forth herein.

Schedule A
WASTEWATER DISCHARGE LIMITATIONS

Waste Discharge Limitations Not To Be Exceeded After the Effective Date (signature date on cover) (See note 1).

Applicable Regulations: Chapters 17.34 and 17.36 of the Code of the City of Portland and 40CFR.

The point of compliance with the discharge limitations shall be the sampling manhole (See Appendix 2: sampling location map). Local limits are the applicable discharge limitations.

	Pollutant Property	Daily Maximum Concentration mg/L	Monthly Average Concentration mg/L
	Ammonia	50.0	[if applicable]
	Arsenic..(total)	0.3	"
	Cadmium..(total)	0.7	"
	Chromium (total)	3.8	"
*	Copper...(total)	2.3	"
	Cyanide..(total)	1.2	"
	Nickel...(total)	3.0	"
*	Lead.....(total)	0.7	"
	Mercury..(total)	0.014	"
*	Zinc.....(total)	4.0	"
	Silver...(total)	0.4	"
	Sulfate	500.0	"
	Sulfide	50.0	"
	Phenolics	1.0	
	Chlorinated Hydrocarbons	0.5	
	Total Toxic Organics (TTO)	2.13	
	Fats Oil and Grease.....		
	*(non-polar)	100.0	"
	(polar)	500.0	"
*	pH (range)	5.5-11.5	
	Closed Cup Flash Point	Discharges <140° F prohibited	

Notes:

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or as determined by the Director of Environmental Services.

2. In addition to the limits stated in Schedule A, the permittee shall comply with all other applicable City, State and Federal regulations.

3. The pollutant parameters marked with an asterisk (*) are the pollutants of concern. At a minimum, the permittee is required to monitor for pollutants of concern. All limits are applicable at the point of compliance.

KMB00006315

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-monitoring Report Requirements

Note: ✓ indicates the month(s) for monitoring, the parameters to be tested, and the sample types required. Shaded areas indicate the date(s) periodic compliance monitoring reports are due.

Parameters	Sample Type	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
pH	Grab	✓						✓					
Non-polar Fats, Oil and Grease	Grab	✓						✓					
Copper	Composite	✓						✓					
Lead	Composite	✓						✓					
Zinc	Composite	✓						✓					
→→→ **Report Due Date** →→→		15 Feb	15 Mar	15 Apr	15 May	15 Jun	15 Jul	15 Aug	15 Sep	15 Oct	15 Nov	15 Dec	15 Jan

1. The permittee shall analyze samples for all listed parameters plus any other which might be expected to be present in significant quantities.

2. The permittee shall submit all self-monitoring results to Industrial Source Control Division (see page B2) as part of their monitoring and reporting requirements.

3. 24-hour composite samples must be obtained through flow-proportional composite sampling techniques where feasible. The City may waive flow-proportional composite sampling for any Industrial User that demonstrates that flow-proportional sampling is infeasible. In such cases, samples may be obtained through time-proportioning composite sampling techniques.

4. The permittee should instruct its laboratory that, if the oil and grease (total) concentration exceeds 100 mg/L, the laboratory should determine the concentration of the polar and non-polar oil and grease fractions.

KMB00006316

Schedule B
MONITORING AND
REPORTING REQUIREMENTS

I. Periodic Compliance Self-monitoring Report Requirements (cont.)

Notes:

A. Periodic Compliance Reports are to be submitted to Industrial Source Control Division by the 15th of the month following the conclusion of the reporting period and shall include the following:

   a. Statement of compliance/noncompliance, signed by the officially designated contact person

   b. Sample analysis report submitted on City form No. 13-1

   c. Copies of all laboratory analysis sheets showing analytical methods used and quality assurance/quality control

   d. Any other reports that may be required

B. All monitoring results are to be mailed to:

   Industrial Source Control Division
   Bureau of Environmental Services
   City of Portland
   1211 S.W. 5th Ave, Suite 800
   Portland, Oregon 97204-3713

D. The City may reduce or increase the frequency of sampling, based on the analytical results submitted.

E. As per 40CFR 403.12(g)(5), if an industrial user subject to the reporting requirements of Schedule B monitors any parameter, from the official sampling location(s), more frequently than required, using procedures specified in Schedule E4(c), the results of their monitoring must be submitted in the required report.

KMB00006317

Schedule C
COMPLIANCE SCHEDULE

1. The permittee shall submit periodic compliance reports by the corresponding due dates as stated in Schedule B, page B1-1 of this permit.

Schedule D
SPECIAL CONDITIONS

1. Hall-Buck Marine may monitor wastewater at the discharge of the pretreatment system. This approval may be revoked at any time if data is not representative of sampling data monitored from the sampling manhole. Hall-Buck Marine shall report within 24-hours of becoming aware of any wastewater discharge limit excursion.

2. No discharge of sludge from the settling pond is allowed to the City of Portland (City) sewerage system. The permittee shall maintain records of all sludge disposal showing the date and name of the approved contract hauler. These records shall be available for review upon request from the City.

3. Hall-Buck Marine, Inc. shall operate and maintain the pH monitoring and recording system for measurement of pH prior to discharge. This pH adjustment system shall be calibrated routinely. The date, time and calibrating technician's signature shall be documented on the pH chart or a separate log if a chart recorder is not available.

Schedule E
GENERAL CONDITIONS

1. Accidental Spill Prevention Plan

To comply with Section 17.34.090 of the City Code, the permittee shall submit a new or revised Accidental Spill Prevention Plan (ASPP) to the Industrial Source Control Division 90 days after the effective date of this permit. The plans shall include the following elements.

a. A description of the hazardous substances handled and their potential points of entry into the City sewer system or storm runoff

b. A description of the measures to be taken to prevent entry at the described points before a spill occurs

c. Measures to be taken to contain a spill if one occurs

d. A description of employee training in the prevention and control of spills

e. A posted notice informing employees of the requirement to notify the Bureau of Environmental Services in case of spills or uncontrolled discharges.

2. Appeal

Upon receipt of a final industrial wastewater discharge permit, a permittee may appeal any of its terms or conditions to the Code Hearings Officer in accordance with procedures set out at Chapter 22.10 of the Portland City Code; provided that such an appeal shall include a copy of the permit that is the subject of the appeal, shall state the basis for the appeal, and shall be filed with the Code Hearings Officer and the Bureau of Environmental Services.

3. Authorized Discharge

All discharge and activities authorized herein shall be consistent with the terms and conditions of this permit, Chapter 17.34 of the City Code and the Administrative rules. The discharge of any pollutant in excess of these limits shall constitute a violation of the terms and conditions of this permit.

4. Bypass or Diversion

The diversion or bypass (the intentional diversion of wastestreams from any portion of a permittee's treatment facility) of any discharge, from facilities used by the permittee, to maintain compliance with the terms and conditions of this permit is prohibited except:

KMB00006320

4. Bypass or Diversion (continued)

a. When unavoidable to prevent loss of life or severe property damage.

b. When excessive storm drainage or runoff would damage facilities necessary for compliance with the terms and conditions of this permit.

The permittee shall immediately notify the City in writing of each such diversion or bypass, in accordance with the procedure specified in condition No. 23.

5. Certification

Legible copies of all applications, reports, and information submitted to the City shall be signed and certified as follows in accordance with 40CFR 403.12.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

6. Chemical Storage

Chemical storage shall conform to hazardous waste storage requirements, as stipulated in the DEQ Hazardous Waste Management Rules, contained in Oregon Administrative Rules Chapter 340.

Chemicals shall be stored in a manner that will prevent the entry of these substances into the sanitary, combined sewer, or storm sewer system, or waters of the state.

7. Continuous Compliance

Compliance with Schedule E, No. 23 shall not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit.

8. Dilution Prohibition

It is unlawful for a discharger to use dilution as a partial or complete substitute for adequate treatment to achieve compliance with the standards and limitations set forth in this permit. The Director may impose mass limitations on dischargers who are using dilution to meet the applicable pretreatment standards or the requirement set forth in this permit.

KMB00006321

9. Enforcement Provision

A violation of any conditions, standards or requirements of this permit constitutes a violation of Chapter 17.34 of the City Code and any rules promulgated thereunder. Therefore, the City may seek any or all of the remedies or penalties provided for in Section 17.34.110 of the City Code, including recovery of costs incurred by the City, in response to the following:

a. Any violation by the permittee of the provisions in this Industrial Wastewater Discharge Permit.

b. Any violation by the permittee of the provisions of the City Code.

c. Any violation by the permittee of an Enforcement Action requirement with respect to provisions set forth in this Industrial Wastewater Discharge Permit and the City Code and Administrative Rules.

The range or severity of enforcement actions taken by the City against the permittee will be determined by, but not limited to, the nature, magnitude, duration, and frequency of the violation as provided by City Code and Administrative Rules.

10. Extra-Strength Sewer Charge (ESSC)

Discharges exceeding 300 mg/L for the 5-day biochemical oxygen demand (BOD) or 350 mg/L total suspended solids (TSS) concentrations (as defined in Section 17.36.060(1) of the City Code) shall be subject to the extra-strength sewer charge (ESSC) established in Section 17.36.060(1).

11. Hazardous Waste Notification

The industrial user shall notify the Industrial Source Control Division, the POTW, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into the POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent such information is known and readily available to the industrial user: an identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following 12 months.

KMB00006322

12. Inspection and Entry

The permittee shall, at all reasonable times, allow authorized representatives of the City:

a. To enter the permittee's premises where an effluent source or disposal system is located or where any records associated with this permit are kept.

b. To have access to any required records and permission to copy these records. At no time can wastewater effluent data be claimed or held as confidential information.

c. To inspect and evaluate any monitoring equipment or monitoring methods required by this permit.

d. To sample any discharge to the sewer system.

13. Liability

The City of Portland, its officers, agents or employees shall not sustain any liability due to the issuance of this permit or the construction or maintenance of facilities resulting from this permit.

14. Monitoring

a. The permittee shall record the following information:

* The exact date, time, and place of sampling
* Name of person who collected the sample(s)
* Type of sample(s) collected
* The dates analyses were performed
* Who performed the analyses
* The analytical techniques or methods used
* The results of all required analyses
* Whether quality assurance and quality control laboratory procedures are followed

b. Samples and measurements, taken to meet the requirements of the above condition, shall be representative of the effluent. Grab samples must be collected for pH and fats, oil and grease monitoring; composite samples must be collected for lead, zinc and copper.

KMB00006323

14. Monitoring (continued)

c. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless otherwise approved in writing by the City, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants as specified in 40CFR, Part 136. Laboratory quality assurance and quality control programs should be documented. EPA QA/QC programs should be followed.

d. The permittee is required to document proper installation, and maintenance of flow monitoring and sampling equipment.

e. If the results of the permittee's wastewater analysis indicate that a noncompliance has occurred, the permittee must notify the City's Industrial Source Control Division within 24 hours of becoming aware of the noncompliance. The permittee must also repeat the sampling within 24 hours of the effluent noncompliance or next process day and submit the analysis to the City within 30 days after becoming aware of the noncompliance.

f. The permittee shall take all reasonable steps to minimize or correct any adverse impact to the POTW or the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

g. If requested, the permittee shall provide or split discharge samples with the City of Portland Water Pollution Control Laboratory.

15. Permit Modification

This permit may be modified within 30 days prior written notification, in whole or in part, for causes including but not limited to the following:

a. A change in the City's NPDES permit or any other condition that requires either a temporary or permanent elimination of any authorized discharge.

b. To incorporate new or revised federal, state, or local pretreatment standards or requirements.

c. Information indicating that the permitted discharge poses a threat to the City's collection and treatment system, POTW personnel, or the receiving waters and sludge.

d. To correct typographical or other errors in the permit.

e. Any significant change in the volume of a permitted discharge.

KMB00006324

16. Permit Renewal

This permit is issued to a specific entity and cannot be transferred by the industrial user and must be renewed pursuant to Section 17.34.070 of the Code of the City of Portland and Permit Applications must be received 90 days prior to:

a. Expiration date of current permit.

b. In the event the permittee plans to cease operations at the present location, and plans to relocate within the City of Portland's jurisdiction and continue the same permitted activities.

c. The permitted industrial process being significantly altered or changed so that pollutants not specifically mentioned in the current permit are present in the permittee's discharge.

17. Permit Suspension or Termination

a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the director of the Bureau of Environmental Services.

b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts.

c. Falsifying self-monitoring reports.

d. Tampering with monitoring equipment.

e. Refusing to allow prompt access to the facility premises and records.

f. Failure to meet effluent limitations.

g. Failure to pay fines.

h. Failure to meet compliance schedules.

18. Plant Closure

In the event the permittee plans to cease operations at the present business location, and not to relocate within the City of Portland's jurisdiction, the permittee shall inform this office, in writing, 60 days prior to plant closure.

19. Property Rights or Privileges

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges; it does not authorize any injury to private property or any invasion of personal rights; and it does not authorize any infringements or federal, state, or local laws or regulations.

KMB00006325

20. Records Retention

All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation (and calibration and maintenance records), shall be retained by the permittee for a minimum of three years. This retention period shall be extended during the course of any unresolved litigation pertaining to the discharge of pollutants by the permittee, or whenever it is requested by the City.

21. Reporting Requirements

a. Accidental or Slug Loading

The permittee shall notify the City immediately, either in person or by telephone (Duty Officer Pager # 323-3398 and Lead Operator CBWTP # 823-2530), if accidental or slug loading to the sanitary sewer occurs. A formal written report, discussing circumstances and remedies, shall be submitted to the City within 5 days of the occurrence.

b. Changes in Wastewater Characteristics

The permittee shall give notice to the Industrial Source Control Division 90 days before any facility expansion, production increase, or process modifications that result in new or substantially increased discharges or a change in the nature of the discharge.

c. Change in representative

If the responsible corporate official changes, notify the City within 10 days, as per 40CFR 403.12 (1) (4).

22. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to the other circumstances and the remainder of this permit shall not be affected.

23. Slug Load Notification

If the permittee is unable to comply with all the conditions of this permit due to a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, or should any condition cause the release of any slug load, the permittee shall:

KMB00006326

23. Slug Load Notification (continued)

a. Immediately take action to stop, contain, clean up the unauthorized discharges, and correct the problem.

b. Immediately call the Lead operator of the Columbia Boulevard Wastewater Treatment Plant (823-2530) so that plant personnel can evaluate the impact of the discharge and take corrective action. Notify Industrial Source Control by calling the Duty Officer, pager # 323-3398.

c. Within five (5) days submit a detailed written initial report to the City describing the breakdown, the actual quantity of resultant waste discharges, the corrective action taken, the steps taken to prevent recurrence, and any other pertinent information.

Samples shall be taken immediately upon discovery of the Slug load. Within 15 days, a follow-up report shall be submitted. The report shall contain analysis of samples taken during such discharge and samples taken after normal conditions have been restored. The samples, at a minimum, shall be analyzed for the parameters required in Schedule B. Sampling shall be continued until all parameters are within discharge limits.

24. Upset

a. Definition:

For the purposes of this section, upset means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an Upset:

An upset will constitute an affirmative defense to an action brought for noncompliance with applicable pretreatment standards, if the requirements of paragraph c are met.

c. Conditions Necessary for a Demonstration of an Upset:

A permittee who wishes to establish the affirmative defense of an upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and the permittee can identify the specific cause(s) of the upset.

(2) The facility was, at the time, being operated prudently, efficiently, and in compliance with applicable operation and maintenance procedures.

KMB00006327

24. Upset (continued)

(3) The permittee has submitted the following information to the Industrial Source Control Division within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within 5 days).

* A description of the indirect discharge and cause of noncompliance

* The period of noncompliance, including exact dates and times or, if not corrected, the anticipated duration of noncompliance

* Steps planned or now being taken to reduce, eliminate, and prevent recurrence of the noncompliance

d. Burden of Proof:

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset shall have the burden of proof.

e. Permittee Responsibility in Case of an Upset:

If reduction, loss, or failure of its treatment facility occurs, the permittee shall control production of all discharges in order to maintain compliance with applicable pretreatment standards until the facility is restored or an alternative method of treatment is provided. This requirement especially applies if the primary source of the treatment facility power is reduced, lost, or failed.

KMB00006328

Appendix 1
DEFINITIONS

Abbreviations

BOD_5	Five-day biochemical oxygen demand
TSS	Total Suspended Solids
mg/L	Milligrams per liter
k	Kilograms
m^3/d	Cubic meters per day
ppm	Parts per million (assumed equal to milligrams per liter)
POTW	Publicly owned treatment works
WPCL	Water Pollution Control Laboratory
CBWTP	Columbia Boulevard Wastewater Treatment Plant

Averages for BOD, TSS, and chemical parameters are based on arithmetic mean of samples taken.

Definitions

Bypass

The intentional diversion of wastestreams from any portion of a permittee's treatment facility.

Compatible Pollutant

Biochemical oxygen demand, suspended solids, pH and fecal coliform bacteria, and additional pollutants that the City treatment works is designed to treat.

Conventional Pollutants

Classification of industrial pollutants, which includes BOD (biochemical oxygen demand), suspended solids, fecal coliform, pH (acidity/alkalinity), and other pollutants so designated by EPA, as defined by Section 304(a)(4) of the Clean Water Act.

Director of Environmental Services

The Director of Environmental Services of the City of Portland, Oregon, or that person's duly authorized representative or agent.

City, or City of Portland

The municipality of Portland, Oregon, a municipal corporation of the State of Oregon, acting through the City Council or any board, committee, body, official, or person to whom the Council shall have lawfully delegated the power to act on behalf of the City. Unless a particular board, committee, official, or person is specifically designated in these rules and regulations, wherever action by the City is explicitly required or implied herein, it shall be understood to mean action by the Director of Environmental Services of Portland, Oregon, or that person's duly authorized representative or agent.

Effective Date of this Permit

The date this permit is signed by the Director of the Bureau of Environmental Services.

KMB00006329

Expiration Date

From 1 to 5 years beyond the effective date of this permit.

Hazardous or toxic substances

Hazardous or toxic substances are those substances referred to in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S. Code 9601 et seq.), section 502(13) of the Clean Water Act, and any other substances so designated by the Director of Environmental Services and contained in rules adopted pursuant to this Chapter.

Industrial Waste

Any liquid, solid, or gaseous substance (or combination thereof) resulting from any process of industry, manufacturing, commercial food processing, business, agriculture, trade, or research, including but not limited to the development, recovery, or processing of natural resources and leachate from landfills or other disposal sites.

Industrial Wastewater Discharge Permit

A permit to discharge industrial wastewater into the City sewer system issued under the authority of the City Code, which prescribes certain discharge requirements and limitation.

Interference

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts the normal operation of the City sewer system, or which causes a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or any increase in the cost of treatment of sewage or in the cost of sewage sludge use or disposal incompliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations); Section 405 of the Clean Water Act, the Solid Waste Disposal Act (including Title II, more commonly referred to as the Resource Conservation and Recovery Act), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of RCRA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum Daily Discharge Limitation

The highest allowable daily discharge.

Nonconventional Pollutants

All pollutants that are not specifically designated as either conventional or toxic.

Oil and Grease

Fats, Oils and Grease. Fats, oils and grease are those substances which are measured by Standard Methods, current edition, freon extraction Method 5520B:

(a) Non-polar fats, oils and grease are that portion of fats, oils and grease which is measured as non-polar (from petroleum sources) by Standard Methods, current edition, Method 5520F.

(b) Polar fats, oils and grease are that portion of fats, oils and grease which is determined to be polar (of animal or vegetable origin) by Standard Methods, current edition, Method 5520F.

Pass Through

Pass through means a discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

POTW

POTW means Publicly Owned Treatment Works, which includes any devices and systems, owned by a State or municipality, used in the collection, transportation, storage, treatment, recycling and reclamation of wastewater.

Pretreatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a non-harmful state, prior to or in lieu of discharge of such pollutants into the City sewer system.

Sampling

a. The "monthly average" other than pH is the arithmetic mean of samples collected curing a calendar month.

b. The "daily maximum" is defined as the greatest allowable value for any calendar day.

c. A "24-hour composite" sample shall mean a flow-proportioned mixture of not less than eight discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and preserved in accordance with 40CFR part 136 and amendments.

d. A "Grab" sample is an individual sample collected in less than 15 minutes, without regard for flow or time.

e. A "Grab-Composite" is a minimum of four grab samples collected and preserved over a 24-hour period and combined to provide a representative sample of effluent being discharged.

Schedule of Compliance

A schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with an effluent limitation or other limitation, prohibition, or standard.

Severe Property Damage

Substantial physical damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Slugload

A slugload is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge.

Solid Waste

Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits.

Solid Waste Disposal

The final placement of refuse that cannot be salvaged or recycled.

Solvent Management Plan

A plan that specifies the toxic organic compounds used, the method of disposal used (instead of dumping into wastestreams), and procedures for ensuring that toxic organics do not spill or leak into wastewater discharged to the City sewer system.

Total Dissolved Solids

The total dissolved (filterable) solids as determined by use of the method specified in the list of approved test procedures.

Total Organic Active Ingredients

The sum of all organic active ingredients covered by the organic pesticide chemicals manufacturing subcategory, which are manufactured at a facility subject to the effluent guidelines for pesticides chemicals manufacturing.

Total Solids

The sum of dissolved and undissolved constituents in water or wastewater, usually expressed as milligrams per liter.

KMB00006332

Total Suspended Solids

Total suspended matter that either floats on the surface or is in suspension in water or wastewater and that are removable by laboratory filtering (as described in *Standard Methods for the Examination of Water and Wastewaters,* current edition) or Guidelines Establishing Test Procedures for the analysis of Pollutants, contained in 40CFR 136, as published in the *Federal Register.* (Bureau of Environmental Services Administrative Rules I[22])

Upset

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Waste

Unwanted materials left over from manufacturing processes, or refuse from places of human or animal habitation.

Wastewater

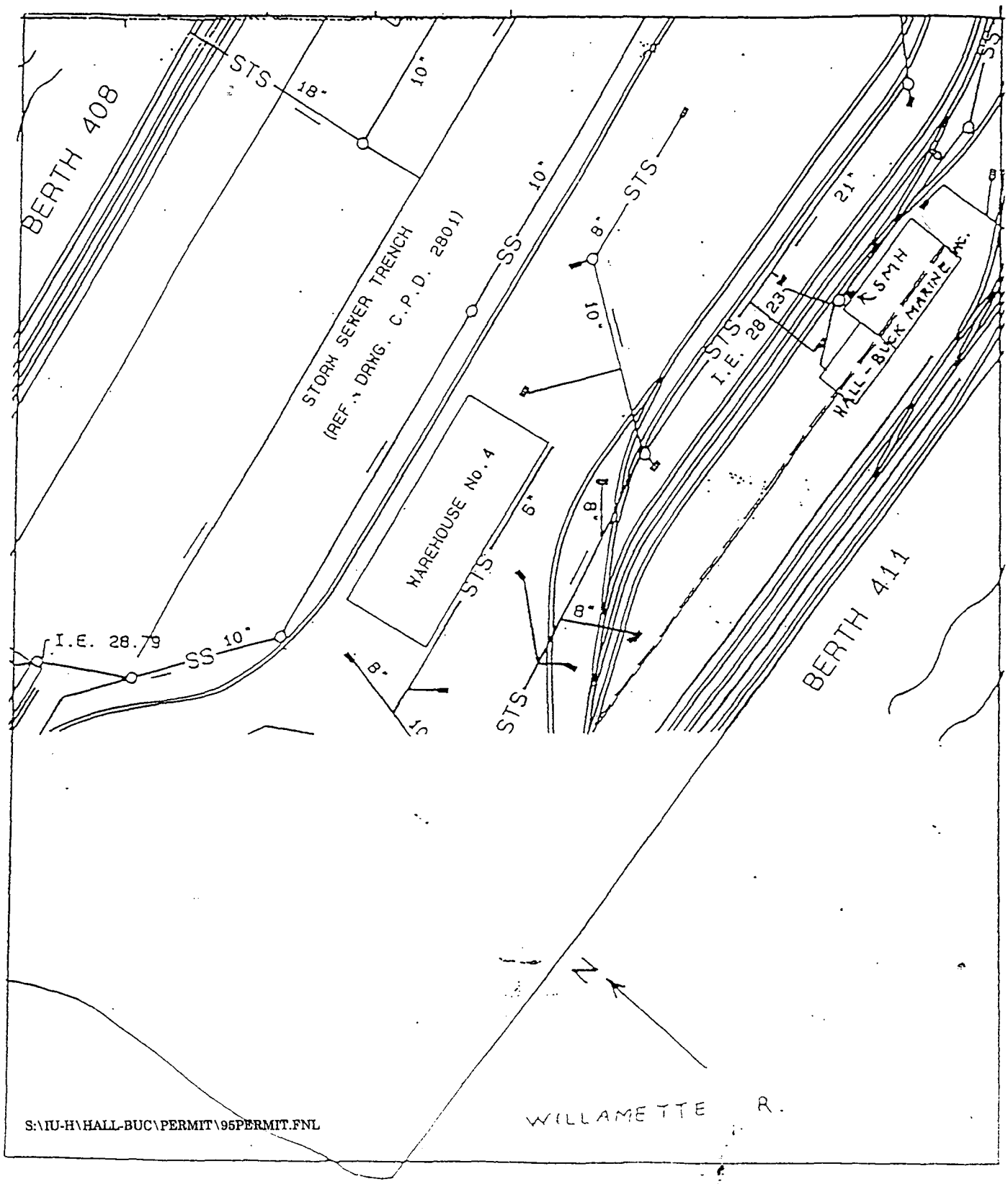
Industrial waste, sewage, or any other waste, including that which may be combined with any groundwater, surface water, or stormwater that may be discharged to the City sewer system.

Water Pollution

The addition of enough harmful or objectionable material to damage water quality.

KMB00006333

Appendix 2
SAMPLING LOCATION MAP



CITY OF PORTLAND
INDUSTRIAL SOURCE CONTROL DIVISION

INDUSTRIAL USER INFORMATION

Company Name:	Hall-Buck Marine, Inc. - Portland Bulk Terminal		
General Activity:	Marine Cargo Handling		
Facility Address:	11040 N. Lombard St., Terminal 4, Pier 4 Portland, Oregon 97283		
Mail Address:	P.O. Box 83838 Portland, Oregon 97283-0838		
Contact(s):	Brad Clinefelter Terminal Manager	Telephone: Facsimile:	(503) 285-2990 (503) 285-4467
	Mark Downing Safety and Environmental Coordinator	"	"
Permit No.:	400-027	S.I.C. No.:	4491
Expiration:	08/01/00	USEPA Category:	400 - Reserved
Last update:	08/25/95 prev.: 07/17/95	Regulated Process:	Facility Washdown
Permit Manager:	Angela Henderson	COP Classification:	P-2
Description:	Hall-Buck Marine handles bulk material and transports this material between ships and railcars. Wastewater is generated from the washdown of conveyor belts and associated marine cargo transfer equipment. Wastewater is pretreated prior to discharge to the sanitary sewer.		

POLLUTANTS OF CONCERN

1.	pH	3.	Copper	5.	Zinc
2.	Non-polar O/G	4.	Lead	6.	

PERMIT FILE INFORMATION

XXX	A.	Permit Application	XXX	E.	Monitoring Summary
XXX	B.	Environmental Survey	XXX	F.	Compliance Summary
XXX	C.	Permit	XXX	G.	ASPP
XXX	D.	Compliance Monitoring Schedule	XXX	H.	Signatory Authorization

S:\IU-H\HALL-BUC\PERMIT\FORMS\95FACT.SHT

INDUSTRIAL WASTEWATER DISCHARGE PERMIT

FACT SHEET

1. Description and Background Information:

Hall-Buck Marine, Inc. (HBM) receives and transports marine cargo: soda ash, bentonite clay, talc, pencil pitch (coal tar pitch), aluminum trihydrate, soybean meal, sodium sulfite and calcined coke. There exists a series of conveyor belts and associated marine cargo transfer equipment. This equipment and surrounding premises are washed down with influent from Port of Portland water account #1689693. This wastewater is directed through sumps which channel it to a settling pond (max. capacity: 48,000-gallon) where it is collected. Washdown occurs between product changes. All wastewater is collected in the settling pond and discharged as needed (average of 3-4 days a month). There is no continuous discharge. Average batch size is 40,000 gallons ≈ 1315 gpd.

As determined July 25, 1995, an automatic float triggered pump, pumps wastewater from the settling pond through the pretreatment system. The soda ash storage building (stores approx. 30, 000 tons) was constructed with expansion joints to allow for settling of the building. Ground water seepage occurs due to this feature. There is a ground water sump which then pumps this wastestream to the settling pond. Verified during July 25, 1995, bentonite clay handling has been transferred to the Port of Vancouver; because of this, HBM has experienced a decrease in volume of wastewater used and subsequently discharged. Port of Portland is currently in the process of valving on-site catchment basins covered under HBM's NPDES permit. The bulk of cargo handled is soda ash mainly and pencil pitch. Other cargo described as being handled above is less frequent.

Sludge is removed by Metropolitan Disposal & Recycling Corporation and Spencer Environmental. Pretreatment consists of settling, filtration and pH neutralization.

2. File Information Used to Develop Permit:

- Old Permit(s) - **08/01/90**
- Permit Application - **Rec'd April 29, 1995**
- Inspection Forms - **July 25, 1995**
- Compliance History - **1990 - present**
- Self Monitoring and WPCL Test Data - **WATCH data 12/88 - 07/95**
  Diagrams - **SMH map**
  Other - **MSDSs**

3. Process Generating Wastewater:

- Conveyor belts and cargo handling equipment washdown.
- Equipment steam cleaning (determined 07-25-95).
- Soda ash building groundwater sump (determined 07-25-95).

KMB00006336

4. Pollutants of Concern:

A. Potential: Local Limits

B. Regulated: Local Limits - pH, NP-O/G, Cu, Pb, Zn

C. Observed: pH, NP-O/G, Standard Metals, TTO, TSS, BOD5

5. Classification Analysis:

A. Federal Classification: 400 - Reserved

B. COP IU Classification: P-2

6. Compliance History:

Enforcement	Date of Violation	Nature of Violation
WN-1995-018	July 18, 1995	NP-O/G = 240 mg/L
SNC	1st Qtr. 1995	33% [NP-O/G] > T.R.C. (1.4 x 100 mg/L)
WN-1995-004	February 18, 1995	NP-O/G = 260 mg/L
CTM	May 15, 1991	Late Monthly Report
CTM	March 15, 1991	Late Monthly report
CTM	December 20, 1990	Failure to analyze for O/G

7. Pretreatment and Waste Disposal Practices:

Settling, pH adjustment, filtration. Sludge from settling pond is removed by Metropolitan Disposal & Recycling Corp. and Spencer Environmental.

8. Discharge Point(s) of Compliance (Attach Diagrams):

Sampling Manhole #1 - see permit, appendix 2

*** Hall-Buck Marine has permission to sample at the end of the pretreatment system at the discharge to the sanitary sewer which may be revoked at any time if the sampling data is not representative to sampling data collected at the sampling manhole.

*** Effective April 25, 1995 (date final version of renewed permit completed), BOTH city and self-monitored samples shall be collected at the sampling manhole (see diagram). HBM will no longer be required to submit analytical results of samples collected at the effluent discharge point to the sampling manhole to the City as this is no longer the approved sampling location.

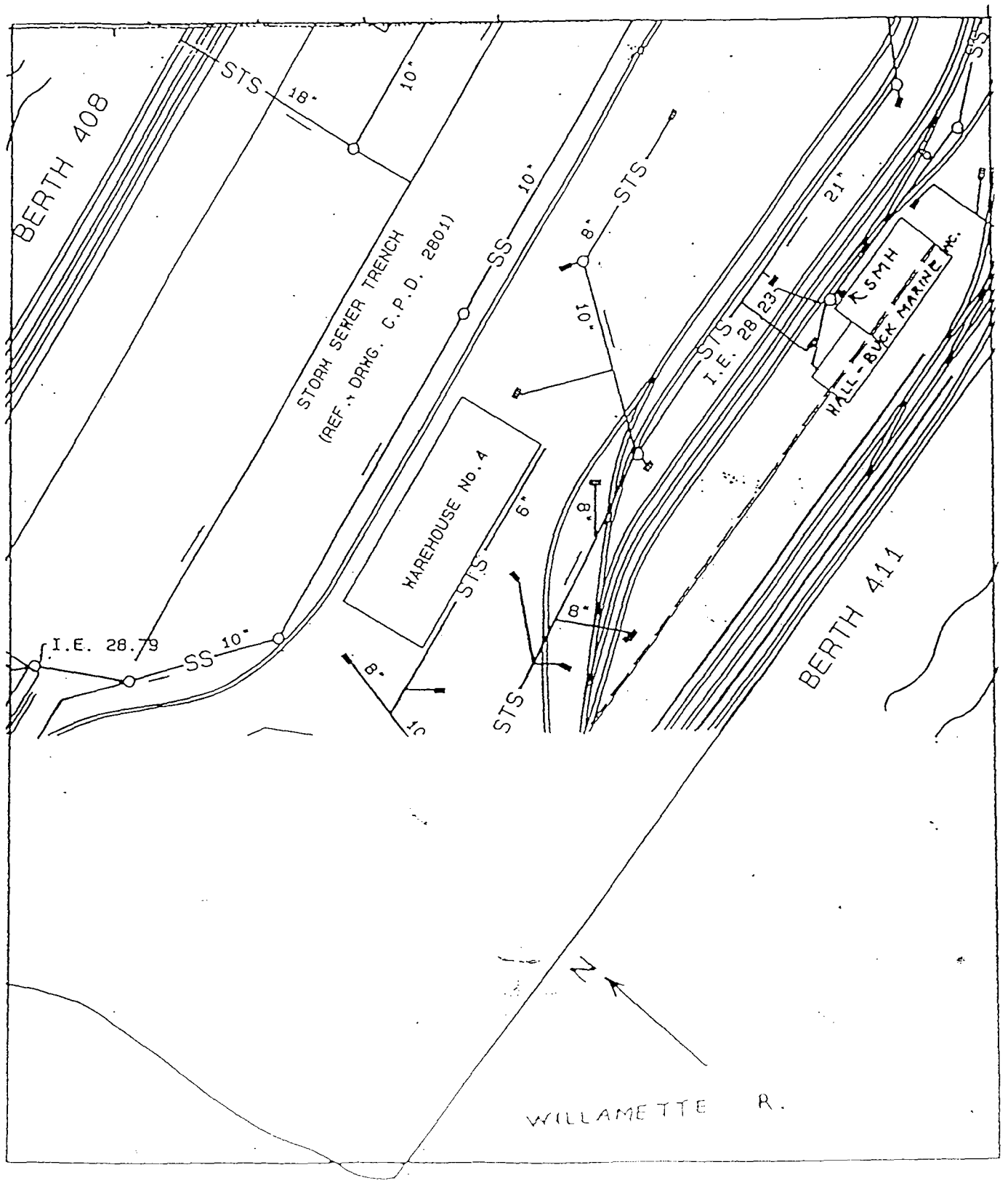
9. Applicable Discharge Limitations (Attach Calculations):

Local limits are applicable.

Appendix 3
ACCIDENTAL SPILL PREVENTION PLAN

Prepared by the permittee and approved by the City.
Received April 29, 1995.

KMB00006338


BERTH 408
STS
18"
10"
STORM SEWER TRENCH
(REF. DRWG. C.P.D. 2801)
SS
10"
8"
STS
10"
WAREHOUSE No. 4
6"
STS
8"
8"
STS
I.E. 28.79
SS
10"
8"
10
STS
I.E. 28
23
21"
SS
KSMH
HALL-BUCK MARINE INC.
BERTH 411
N
WILLAMETTE R.

CITY OF PORTLAND
INDUSTRIAL DISCHARGE REPORT
SELF-MONITORING REPORT - FORM 13-1A

INDUSTRY NAME: Hall-Buck Marine, Inc.

PERMIT NUMBER: 400-027

REPORT DUE DATE: ☐ **FEBRUARY 15** ☐ **AUGUST 15**

SAMPLING PERIOD: ☐ JANUARY ☐ JULY

TODAY'S DATE: _____

REPORT TYPE (CHECK ONE):

☐ BASELINE MONITORING

☐ PERIODIC COMPLIANCE

☐ SPECIAL COMPLIANCE

☐ OTHER _____

* * * * * * * * * * * * * * * * * *
(For City Use Only)
* * * * * * * * * * * * * * * * * *

SAMPLE DATE >		SAMPLE LOCATION>		SAMPLE TYPE >	__ GRAB	DATE RECEIVED AT LAB >		DATE OF SAMPLE ANAYSIS >	

PARAMETER	CODE	REPORTED CONCENTRATION (mg/L)	LIMIT (mg/L) Daily	LIMIT (mg/L) Monthly	VIOLATION YES (X)	VIOLATION LEVEL	COMMENTS
pH	843		5.5 ≤ pH ≤ 11.5				
Total Oil & Grease	913						If concentration exceeds 100 mg/L, instruct laboratory to determine the non-polar and polar fractions.
Non-polar Oil & Grease	915		100.0				
Polar Oil & Grease	914		500.0				

SAMPLE DATE >		SAMPLE LOCATION>		SAMPLE TYPE >	__ COMPOSITE	DATE RECEIVED AT LAB >		DATE OF SAMPLE ANALYSIS>	

PARAMETER	CODE	REPORTED CONCENTRATION (mg/L)	LIMIT (mg/L) Daily	LIMIT (mg/L) Monthly	VIOLATION YES (X)	VIOLATION LEVEL	COMMENTS
Copper	752		2.3				
Lead	811		0.7				
Zinc	874		4.0				

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

HALL-BUCK MARINE, INC.

P.O. Box 35 • Burnside, LA 70738 • TWX 510-994-3131 • Cable-HALLBUCK, Baton Rouge • Phone (504) 675-5387

ROUTE TO:

TO:			
RE:	PBT Permit Renewal		
TBS		MRD	C
SJD			
DWD	DWD		
MKS	C		
KPP	C		

April 25, 1995

Ms. Angela B. Henderson
City of Portland, Oregon
Bureau of Environmental Services
1120 S. W. Fifth, Room 400
Portland, OR 97204-1972

Dear Ms. Henderson:

RE: APPLICATION FOR RENEWAL OF PERMIT
PERMIT NO. 400-027

Hall-Buck Marine, Inc., hereby submits the enclosed application for renewal of the Wastewater Discharge Permit issued to our terminal located at the Port of Portland, Terminal 4. A check for the permit renewal fee of $50.00, payable to the City of Portland, is enclosed.

If you have any questions, please contact the facility Safety and Environmental Coordinator, Mr. Mark Downing, at (503) 285-2990 or me at (800) 535-8170.

Sincerely yours,

HALL-BUCK MARINE, INC.

Marie E. Krien-Schmidt
Environmental Manager

MKS:tl
Enclosures

cc: Mr. Mark Downing - PBT
Mr. Kermit Pitre - PBT

VENDOR: *41111 HALL-BUCK MARINE, INC. CHECK NO. 114070

VOUCHER NO	INVOICE NO	INVOICE DATE	INVOICE AMOUNT	AMOUNT PAID	DISCOUNT TAKEN	NET CHECK AMOUNT
041111	2/09/95	04/26/95	50.00	50.00	.00	50.00
				Check Total		50.00

CHECK NO	CHECK DATE	VENDOR NO
114070	04/28/95	*41111

HIBERNIA NATIONAL BANK
PROCESSED AT CITIBANK DELEWARE
ONE PENN'S WAY
NEW CASTLE, DELEWARE 19720

62-20
311

HBM HALL-BUCK MARINE, INC.

CHECK AMOUNT
$*******50.00

PAY
FIFTY AND 00/100 DOLLARS

TWO SIGNATURES REQUIRED IF OVER $2500.00

To The Order Of
City of Portland
Environmental Services
1120 S.W. Fifth Ave., Room 400
Portland, OR 97204-1972

Thomas B. Hall
AUTHORIZED SIGNATURE

AUTHORIZED SIGNATURE

⑈114070⑈ ⑆031100209⑆ 38761753⑈

KMB00006342

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 S.W. Fifth Ave., Room 400, Portland, Oregon 97204-1972
(503) 823-7740, FAX (503) 823-6995

MUNICIPAL PRETREATMENT PROGRAM

INDUSTRIAL USER

COMPANY OFFICIAL SIGNATORY AUTHORIZATION

The undersigned person has been designated by HALL-BUCK MARINE, Inc. - PORTLAND BULK TERMINAL, PORTLAND, OREGON, as the duly authorized representative with the assigned responsibility for environmental matters and compliance with the firm's City of Portland Waste Discharge Permit (#400-027) and the Code of the City of Portland.

This authorization is made pursuant to 40 CFR 403.12(l)(1-3).

DESIGNEE: BRAD CLINEFELTER

FACILITY MANAGER
POSITION/TITLE

RESPONSIBLE CORPORATE OFFICIAL: THOMAS B. STANLEY, PRESIDENT
(PLEASE PRINT- NAME/TITLE)

SIGNATURE: Thomas B. Stanley 4-26-95
(DATE)

40 CFR 403.12(l)(4)
If an authorization under paragraph (l)(3) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for environmental matters for the company, a new authorization satisfying the requirement of paragraph (l)(3) of this section must be submitted to the Control Authority prior to or together with any reports to be signed by an authorized representative.

S:\IU-H\HALL-BUC\PERMIT\FORMS\95SIGNAU.FRM

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 S.W. Fifth Ave., Room 400, Portland, Oregon 97204-1972
(503) 823-7740, FAX (503) 823-6995

MUNICIPAL PRETREATMENT PROGRAM

INDUSTRIAL USER

COMPANY OFFICIAL SIGNATORY AUTHORIZATION

The undersigned person has been designated by HALL-BUCK MARINE, Inc. - PORTLAND BULK TERMINAL, PORTLAND, OREGON, as the duly authorized representative with the assigned responsibility for environmental matters and compliance with the firm's City of Portland Waste Discharge Permit (#400-027) and the Code of the City of Portland.

This authorization is made pursuant to 40 CFR 403.12(l)(1-3).

DESIGNEE: MARK R. DOWNING

SAFETY AND ENVIRONMENTAL COORDINATOR
POSITION/TITLE

RESPONSIBLE CORPORATE OFFICIAL: THOMAS B. STANLEY, PRESIDENT
(PLEASE PRINT- NAME/TITLE)

SIGNATURE: Thomas B. Stanley 4-26-95
(DATE)

40 CFR 403.12(l)(4)
If an authorization under paragraph (1)(3) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for environmental matters for the company, a new authorization satisfying the requirement of paragraph (1)(3) of this section must be submitted to the Control Authority prior to or together with any reports to be signed by an authorized representative.

S:\IU-H\HALL-BUC\PERMIT\FORMS\95SIGNAU.FRM

Leave Blank: City use only
Date Received: _____

GENERAL INFORMATION

Complete all applicable sections. Information must be typewritten or clearly printed. Attach requested information as needed. Signing official must have authorization to provide such information on behalf of the company, corporation, or partnership.

1. Company Name/Telephone number: Hall-Buck Marine, Inc.
   Division name: (if applicable) Portland Bulk Terminal

2. Mailing Address: Street or P.O. Box: 11040 Lombard Street
   City, State, Zip Code: Portland, OR 97283

3. Facility Address: (if different from mailing address)
   Street or P.O. Box: Same as Above
   City, State, Zip Code: _____

4. Person to be contacted about this form:
   Name: Marie E. Krien-Schmidt
   Address: P. O. Box 625
   City, State, Zip Code: Sorrento, LA 70778
   Title: Environmental Manager
   Phone Number: (800) 535-8170

5. Person to be contacted in case of an emergency:
   Name: Brad Clinefelter
   Address: 11040 Lombard Street
   City, State, Zip Code: Portland, OR 97283
   Title: Facility Manager
   Phone Number: (503) 285-2990

Confidentiality

Please indicate those sections of this questionnaire that you wish to remain confidential and your basis for requiring confidentiality.

Qualified Professional Certification

I hereby certify under penalty of law that this information was obtained in accordance with the applicable procedures and requirements as specified in the Federal General Pretreatment Regulations and amendments thereto, and the City's Sewer Use Ordinance. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Marie E. Krien-Schmidt
Name (print)

Signature	Title	Date	Phone
Marie E. Krien-Schmidt	Environmental Manager	04/25/95	(504) 293-9935

Authorized Representative Statement

I certify under penalty of law that I have personally examined and I am familiar with the information in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report. I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the sampling results reported are representative of normal work cycles and expected pollutant discharges.

Thomas B. Stanley
Name (print)

Signature	Title	Date	Phone
Thomas B Stanley	President	04/25/95	(504) 293-9935

KMB00006345

Section I--Water/Wastewater Data

1. Water use and distribution--Estimate the average quantity of water received and wastewater discharged daily (for new businesses, estimate flows).

	Supply From(gal/day)		Discharged To(gal/day)	
Water Used for:	City Water	Other Source	Sanitary Sewer	Other
Sanitary	245 g/da		245 g/da	
Processes (see No. 10 for categorical users)				
Boiler/Cooling Tower				
Cooling Water Contact				
Washing (equipment washdown)	1080		See Note 1	
Irrigation				
Air Pollution Control				
Surface Water				
Water Hauler				
Other(Describe)				
Note 1: Total:				

Water Account Number POP 1689693*

2. Are, or will, the discharges be continuous [ ] or batch [X]?

3. If batch discharge occurs or will occur, indicate:

   (a) Percent processing as batch 100%

   (b) Percent processing as continuous 0%

   (c) Number of batch discharges 1/month (per week) at 25-30 hrs. (hours per discharge)

   (d) Average quantity per batch 32,400 gallons

   (e) Flow rate 20 gallons/minute

4. Discharge Period

   (a) Hours of Day Operated or planned: M 8-4 T 8-4 W 8-4 Th 8-4 F 8-4 Sat - Sun -

   (b) Duration of Discharge (hrs/day): M____ T____ W____ Th____ F____ Sat____ Sun____
   8 hours/day; day of week varies

5. Variation of Operation

   Is the business or proposed activity:
   Continuous through the year [X], or
   Seasonal [ ]--Circle the months of the year during which discharge occurs:

   J F M A M J J A S O N D

6. Process flow schematic: draw appropriate diagram(s) using the form in Attachment A.

7. Building layout: Draw layout of building using Attachment B.

*City water obtained through account with Port of Portland

KMB00006346

Section I--Water/Wastewater Data

8. List existing or proposed plant sewer outlets, size, and flow (assign sequential reference number to each sewer starting with No. 1, see Attachments A and B):

Reference No.	Sewer Size (inches)	Descriptive location of sewer connection or discharge point	Daily Avg. flow (gal/day)
001	4"	Treated washdown water	(batch)
002		Sanitary discharge	245

9. General characteristic of wastewater or proposed wastewater discharge: (provide specific values for a. b. d. e. f. if known)

(a) Temperature: ambient Don't know _____
(b) pH level: 10.3 Don't know _____
(c) Flammable or explosive materials: Yes [ ] No [X] Don't know [ ]
(d) Fats, oils, and grease (mg/L): 12 Don't know [ ]
(e) 800 (mg/L): _____ Don't know [ ]
(f) TSS (mg/L): _____ Don't know [X]
(g) Solid or viscous material Yes [ ] No [X] Don't know [ ]
(h) Toxics: Yes [ ] No [X] Don't know [ ] *** REVIEW ENVIRONMENTAL SURVEY B ATTACHMENT "A".
(i) Solvents: Yes [ ] No [X] Don't know [ ]

N/A 10. For categorical facilities, provide the following flows for each of your regulated processes or proposed regulated process (i.e., manufacturing process line covered by categorical pretreatment standards).

(a) Total Plant Flow in Gallons Per Day (gpd) discharged to the sewer system:

Average _____ Maximum _____

(b) Individual Process Flows in Gallons Per Day (gpd):

No.	Regulated Process	Average flowrate (gpd)	Maximum flowrate (gpd)	Type of Discharge (batch, continuous, none)

11. Is an inspection and sampling manhole structure available onsite? Yes [X] No [ ]

- If yes, provide location below and include as part of the process flow schematic (see Attachment A).
- Location description:
- If no, is one planned? Yes [ ] No [ ]

12. Do you or plan to have automatic sampling equipment or continuous wastewater flow metering equipment currently in use or included in future plans?

Current: Sampling Equipment Yes [ ] No [ ] N/A [X] Flow Metering Yes [ ] No [ ] N/A [ ]
Planned: Sampling Equipment Yes [ ] No [ ] N/A [X] Flow Metering Yes [ ] No [ ] N/A [ ]

If so, please indicate the present or future location of this equipment on the sewer schematic and describe the equipment below:

13. Does your facility pretreat or plan on pretreating any wastewater prior to discharge to a sanitary sewer?

Yes [X] No [ ] N/A [ ]

KMB00006347

Section II-Business/Facility Description

PURPOSE--The business description is primarily used to determine the substances which may enter into the wastewater discharge from the business activity.

1. Business activity--(Complete a separate sheet for each major or proposed business activity or product line on premises.)

Activity: Marine Cargo handling SIC Nos.: 4491

(a) Raw materials used or planned for use:

NONE

(b) Chemicals used or planned for use:

Miscellaneous lubricants and solvents; flocculant and sulphuric acid.

(c) Product (new businesses provide best estimates):

Type of Product (Brand Names)	Past Calendar Year Amounts Per Day (Daily Units) Average	Past Calendar Year Amounts Per Day (Daily Units) Maximum	Estimate This Calendar Year Amounts Per Day (Daily Units) Average	Estimate This Calendar Year Amounts Per Day (Daily Units) Maximum
See Attachment C				

(d) Description--Describe each wastewater generating or proposed operations or manufacturing process. Indicate variations in production and operations during the year. (Use additional sheets as necessary.)

Wash down of conveyors and other equipment. Little variation in operations.

(e) Substances Discharged--Give common and technical names of each major raw material and product that may be discharged to the sewer. Briefly describe the physical and chemical properties of each substance and products. (use additional sheets if necessary.)

NAME	DESCRIPTION
See C above	

KMB00006348

Instructions for Completing Section III

The remaining section will facilitate the collection of the necessary quantitative wastewater information to assist the City in establishing applicable pretreatment limits and requirements. NONCATEGORICAL FACILITIES are required to complete Section III, **PART A ONLY**. CATEGORICAL FACILITIES covered by federal categorical pretreatment standards ("categorical users") are required to complete Section III **PARTS A and B**.

Section III–Permit Application Monitoring Report: **PARTS A and B**

Section III **PART A** is to be completed by all facilities.

Section III **PART B** is additionally required for categorical industries.

Note:

New Facilities (categorical and noncategorical): new businesses moving into existing facilities and new business proposing to construct a new building. No discharge of process wastewaters has occurred. However, supply as much information as possible providing best estimates where appropriate.

Contact the City if there are any questions on what limits apply to the discharge, what pollutants to sample, sampling requirements, and where to take samples. The general instructions on the back of the form provide general information on sampling.

KMB00006349

PART A: NON-CATEGORICAL INDUSTRIES

Note: Samples should be taken of the final effluent prior to discharge to the City's collection system. If there is more than one discharge of process wastewater to the City's sewer lines, xerox off this page and supply the analytical results for multiple discharges.

1. Existing Noncategorical Facility (report results in concentrations (mg/L) or mass (lbs))

   (a) Each noncategorical facility will sample, have analyzed, and report on all pollutants as specified by the City. Samples collected must be representative and taken during peak production. Where mass limits apply, the facility must report results on a mass limit basis [concentration (x) regulated process flow]. Attach all calculations.

2. New Noncategorical Facility

   (a) Supply as much information as possible providing best estimates where appropriate.

ANALYTICAL RESULTS OF PROCESS WASTEWATER DISCHARGES

Pollutant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Monthly Avg. Limit									N/A								
Reported Average									N/A								
Daily Max. Limit						Combination not-to-exceed 2.13 mg/l*											
Reported Maximum	0.003	0.003	0.016	0.043	0.044	0.022	0.043	0.001	0.012	0.010	0.022	0.018	1.000	0.027	0.007	0.810	0.022

1. Specify units used (mg/L or lb): mg/l
2. Sample type (grab, composite): composite
3. Number of samples collected (explain): one (1) Composite (aliquots hourly over 8 hours)
4. Dates and times samples collected: 09/27/91
5. Sample collection location: manhole in warehouse
6. Where samples analyzed: Coffey Labs, Inc.
7. Methods of analyses: See Attached Lab Reports
8. Provide name and address of commercial labs who are performing analysis:

   Name: Coffey Labs, Inc. Address: 12423 N.E. Whitaker Way

   Name: _____ Address: Portland, OR 97230

*Per Permit Limitations

1. acenaphthene
2. anthracene
3. benzo (a) anthracene
4. benzo (a) pyrene
5. benzo (b) fluoranthene
6. benzo (g,h,i) perylene
7. bis (2-ethylhexyl) phthalate
8. 2-chlorophenol
9. chrysene
10. dibenzo (a,h) anthracene
11. di-n-octyl phthalate
12. fluoranthene
13. fluorne
14. indeno (1,2,3-cd) pyrene
15. phenanthrene
16. phenol
17. pyrene

FOR ADDITIONAL INFORMATION, SEE ATTACHMENT 5 TO SECTION B.

KMB00006350

PART A: NON-CATEGORICAL INDUSTRIES

1(b) Compliance certification:

Are all applicable pretreatment standards being met on a consistent basis?

Yes [X] No [ ]

If not, what additional operations and maintenance procedures are being considered for compliance? Also, list additional pretreatment being considered to meet standards.

(c) Provide a compliance schedule for standards to be met. Specify the major events along with corresponding dates. Note that this schedule will require comment by the City and will be subject to changes. N/A

2. Qualified Professional Certification:

I hereby certify under penalty of law that this information was obtained in accordance with the applicable procedures and requirements as specified in the General Pretreatment Regulations and amendments thereto and the City's sewer use ordinance. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Marie E. Krien-Schmidt
Name (print)

Marie E. Krien-Schmidt — Environmental Manager — 04/25/95 — (504) 293-9935
Signature — Title — Date — Phone

Authorized Representative Statement

I certify under penalty of law that I have personally examined and I am familiar with the information in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report. I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the sampling results reported are representative of normal work cycles and expected pollutant discharges.

Thomas B. Stanley
Name (print)

Thomas B. Stanley — President — 04/25/95 — (504) 293-9935
Signature — Title — Date — Phone

KMB00006351

N/A **PART B: CATEGORICAL USERS**

1. *Summarize Each Regulated Process:*

Process Description	Production Rate	Pretreatment Standard Category	Subpart	Flow

Total plant flow: _____

2. Nature and Concentration of Pollutants (report concentrations in mg/L or mass in lbs):

   a. Analysis of Regulated Flows

   The industrial user must perform sampling and analysis of the effluent from all regulated process (after treatment, if applicable). Provide the analytical data for the regulated processes in the space provided below. Attach additional sheets if necessary (simply xerox the table and questions below). Only those pollutants specifically regulated by the applicable category need be reported. Refer to backside for further instructions on where to take samples and how many samples to take. If the effluent samples were taken at one combined point, indicate alongside the regulated process line what process flows are commingled at this point.

   Regulated Process line(s): _____

   Process Flow(s) (Daily ave. in mgd): _____

ANALYTICAL RESULTS OF PROCESS WASTEWATER DISCHARGES

Pollutant

Monthly Avg. Limit

Reported Average

Daily Max. Limit

Reported Maximum

   b. Sample type (grab, composite): _____

   c. Number of samples collected (explain): _____

   d. Dates and times samples collected: _____

   e. Sample collection location: _____

   f. Where samples analyzed: _____

   g. Methods of analyses: _____

   h. Provide name and address of commercial labs performing analyses:

   Name: _____ Address: _____

   Name: _____ Address: _____

KMB00006352

N/A **PART B: CATEGORICAL USERS**

4. Total Toxic Organics (TTOs):

Facilities who use toxic organics listed by EPA in its published categorical pretreatment standards are required to meet TTO pretreatment standards and must initially sample for TTO and determine compliance. Facilities found to be in compliance with TTO standards can develop a solvent management plan in lieu of having to periodically sample for toxic organics. If you do not use toxic organics in your manufacturing process, you will not be required to sample for TTO but you must answer question "A" below.

(a) We presently do not or plan to use any of the toxic organics that are listed under the TTO standard located in the applicable categorical pretreatment standards published by EPA. [ ]

(b) We presently use or plan to use organic toxicants listed in the categorical pretreatment standards. [ ] Complete Parts c and d.

(c) A PAMF has previously been submitted which contains TTO information.
Yes [ ] No [ ]

(d) A solvent management plan has been developed and is attached.
Yes [ ] No [ ]

5. Compliance Certification

(a) Is the facility meeting applicable categorical pretreatment standards on a consistent basis?
Yes [ ] No [ ]

(b) If no, do you require:

(1) Additional operation and maintenance (O&M) to achieve compliance? Yes [ ] No [ ]
(2) New or additional pretreatment facilities to achieve compliance? Yes [ ] No [ ]

(c) If additional O&M or new or additional pretreatment will be required to meet categorical pretreatment standards on a consistent basis, attach a description of it and a schedule on separate sheets. Project increments of progress indicating dates for the commencement and completion of major events leading to compliance with the standard. Note: The final compliance date in this schedule shall not be later than the compliance date for the applicable pretreatment standard. Written progress reports are required within 14 days of each of the compliance dates specified in the compliance schedule.

(d) _____ I have provided a compliance schedule.

Qualified Professional Certification:
I hereby certify under penalty of law that this information was obtained in accordance with the applicable procedures and requirements as specified in the General Pretreatment Regulations and amendments thereto and the City's sewer use ordinance. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____
Name (print)

_____ _____ _____ _____
Signature Title Date Phone

Authorized Representative Statement:
I certify under penalty of law that I have personally examined and I am familiar with the information in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report. I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the sampling results reported are representative of normal work cycles and expected pollutant discharges.

_____
Name (print)

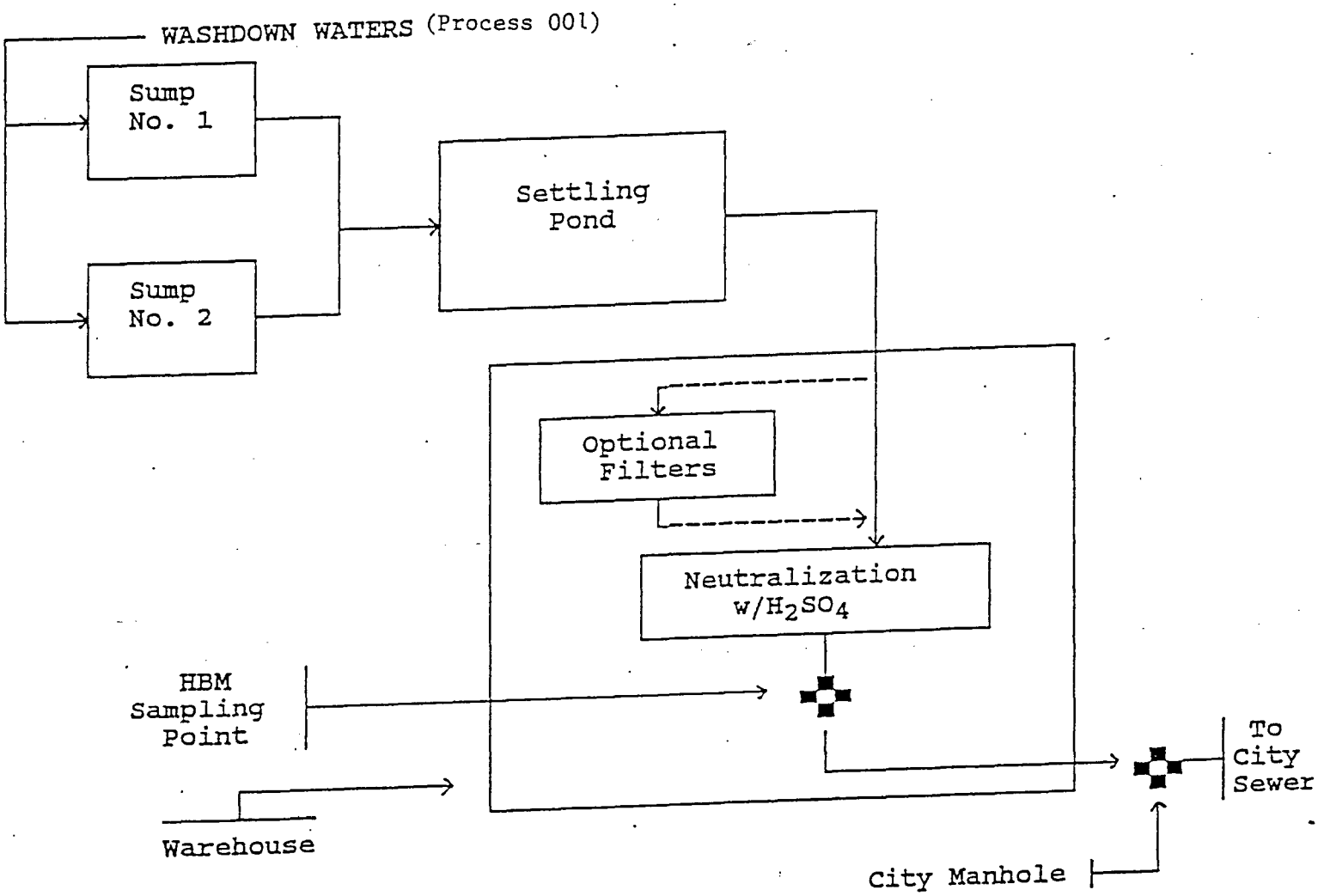
_____ _____ _____ _____
Signature Title Date Phone

KMB00006353

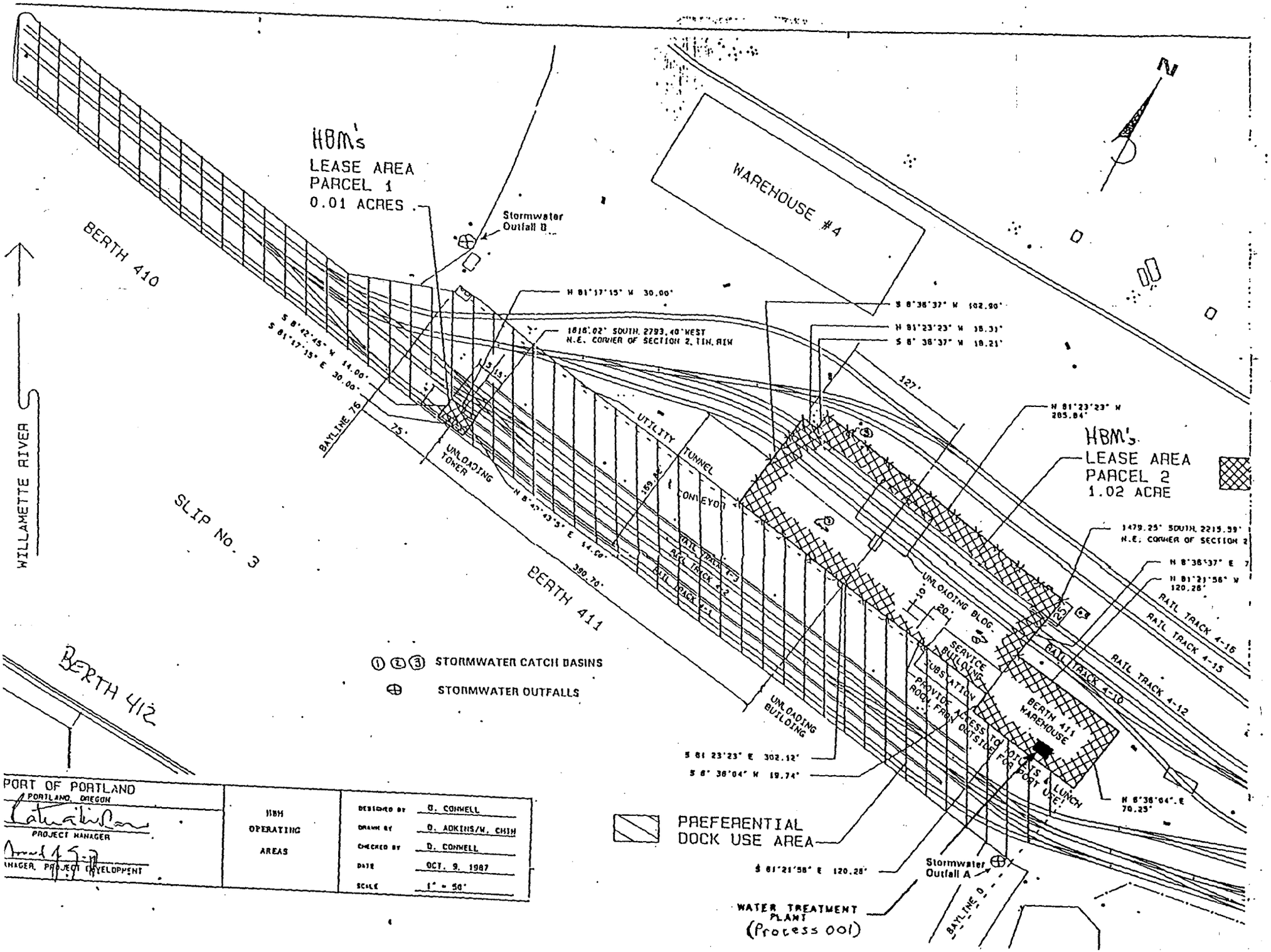
ATTACHMENT A

ATTACHMENT A-SCHEMATIC FLOW DIAGRAM

For each major activity in which wastewater is generated, draw a diagram of the flow of materials and water from start to completed activity, showing all unit processes generating wastewater. Number each unit process having wastewater discharges to the community sewer. Use these numbers when showing this unit process in the building layout in schematic. Use the space below or additional sheets of 8x11 paper. An example is provided on the backside.



KMB00006354



KMB00006355

ATTACHMENT C

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

LIST OF PRODUCTS HANDLED
AND
ESTIMATED VOLUMES

LIST OF PRODUCTS HANDLED AND ESTIMATED VOLUMES

Product	Estimated Volume Per Year (000 Tons)	Chemical Constituent(s)
Soda Ash	1,200	Sodium Carbonate
Bentonite Clay	200	See Attached MSDS
Coal Tar Pitch	40	See Attached MSDS
Calcined Coke	5	See Attached MSDS
Sodium Sulfite	15	Sodium Sulfite
Talc	5	Hydrated Magnesium Silicate
Hydrate Scale	3	Aluminum Trihydates

CITY OF
PORTLAND, OREGON
BUREAU OF ENVIRONMENTAL SERVICES

Environmental Survey

SECTION B - DETAILED WASTEWATER INFORMATION

Company Name Hall-Buck Marine, Inc./Portland Bulk Terminal
Facility Address 11040 N. Lombard St., Portland, OR 97283

B1. Please describe processes to be used in your facility that will result or may result in wastewater discharge to the public sewer system.
Washdown of conveyor belts and other marine cargo transfer equipment; sanitary system.

B2. This facility generates or will generate the following types of wastes (check all that apply):

	Average gallons per day	Peak gallons per day
[X] Domestic wastes (restrooms, employee showers, etc. Estimate 35 gallons per day for each employee)	245	270
[ ] Cooling water, noncontact		
[ ] Boiler/Tower blowdown		
[ ] Cooling water, contact		
[ ] Process		
[X] Equipment/Facility Washdown	Note 1	Note 1
[ ] Air Pollution Control Unit		
[ ] Stormwater runoff to sewer		
[ ] Other (describe)		
[ ] Cleanup		
Total		

Time and Duration of Discharge: M-F; 6 Hrs./Day
Cleanup Time: N/A

NOTE 1: Batch discharges only; 3-4 days/month; no "daily" discharges; average batch size is 32,370 gals., maximum batch size is 48,000 g

B3. Products ~~Produced~~ Handled: (Attach additional sheets as necessary)

Type	Amount and Rate of Production	Process
	SEE ATTACHMENT 1	

B4. Water supplied from: (Best estimate if not metered)
(City, Well, etc.)

Water Source(s)	Water Acct No.	Water Quantities* Estimated	Meter	
a. City*	POP1689693	4,200	4,175	gal/day
b.				gal/day
c.				gal/day
		*1 ccf = 748 gallons		
Total				

B5. Wastes are discharged or may be discharged to: (check all that apply)

	Average gallons per day	Peak gallons per day
[X] Sanitary sewer	245	270
[ ] Storm sewer		
[X] Surface water	2,800	26,900
[ ] Groundwater (onsite disposal)		
[ ] Waste haulers		
[ ] Other (describe)		
Total		

Are the discharges batch [X]? continuous [ ]?

*City water received via account with Port of Portland.

KMB00006358

B6. Are any liquid wastes or sludges from this firm disposed of by means other than discharge to the sewer system?
[ ] Yes [ ] No If "no," skip Items B7 and B8: If "yes," complete items B7 and B8.

B7. These wastes may best be described as:

Item No.		Estimated gallons or pounds per year
[ ]	Acids	
[ ]	Alkalies	
[ ]	Heavy metal sludges	
[ ]	Inks/dyes	
[ ]	Oil and/or grease	
[ ]	Organic compounds	
[ ]	Paints	
[ ]	Pesticides	N/A
[ ]	Plating wastes	
[ ]	Pretreatment sludges	
[ ]	Solvents/thinners	
[ ]	Other hazardous wastes (specify)	
[X]	Other wastes (specify)*	
1)	Dry product residues	194,000 lbs./yr.
2)	Sump sludges	12,000 gals./yr.

B8. For the above checked wastes, does your company practice:

[ ] Onsite storage
location
[ ] Offsite storage
hauler's name
address
hauler's DEQ permit #
phone number
[ ] Onsite disposal
[X] Offsite disposal
hauler's name Metropolitan Disposal & Recycling Corp.
address P. O. Box 11229, Portland, OR 97211-0229
hauler's DEQ permit # N/A
phone number (503) 285-0571

Spenser Environmental Services
P.O. Box 5207
Oregon City, OR 97045
ORD 088590575
(503) 655-0896

Describe the method(s) of storage or disposal checked above.

All wastes* are landfilled at appropriate industrial site.

Do you have an EPA or DEQ permit for storage or hauling? [ ] Yes [X] No If yes, attach a copy of the permit.

*No hazardous wastes are generated at this facility.

B9. List all principal materials regularly used in your facility that may be present in your wastewater discharge (such as cleaning agents, solvents, food processing waste, plating solutions, catalysts, milk wastes, ink, etc.). Identify chemical constituents, if known, or brand name. Attach material safety data sheets.

Generic Type	Amount Per Year (000 tons)	* Discharged to Storm	Discharged to Sanitary	Spill Potential Storm	Spill Potential Sanitary	Chemical Constituents or Brand Name
a. Example: Degreaser	3 gallons			X		Trichloroethylene
b. soda ash	1200				X	sodium carbonate
c. bentonite clay	200				X	See MSDS attached
d. coal tar pitch	40				X	See MSDS attached
e. calcined coke	5				X	See MSDS attached
f. sodium sulfite	15				X	sodium sulfite
g. talc	5				X	hydrous magnesium silicate
h. hydrate scale	3				X	aluminum trihydrate
i.						
j.						
k.						

(Attach additional sheets if necessary)

*Approximate/amount handled annually varies considerably

B10. Have you listed with the Fire Bureau the onsite storage of flammable or combustible liquids or solids, hazardous chemicals, or radioactive materials? [ ] Yes [X] No

If yes, list materials, if any, and their scientific or common and brand names and what quantities are being stored (use extra sheets if needed or attach a copy of Fire Bureau list).

	S-Scientific/C-Common	Brand Name	Lbs or Gallons
a.			
b.			
c.			
d.			

B11. Do you have an accidental spill prevention program for the facility? [X] Yes [ ] No Emergency response plan? [ ] Yes [X] No
If yes, attach plans. See Attachment 2

B12. Characteristics of Wastewater:

a. Temperature ambient Don't know [ ]
b. pH level 10.3 Don't know [ ]
c. Flammable or explosive materials Yes [ ] No [X] Don't know [ ]
d. Solid or viscous materials Yes [ ] No [X] Don't know [ ]
e. Priority pollutants Yes [X] No [ ] Don't know [ ] If yes, complete Attachment A.
(See Attachment A for the priority pollutants list.)

B13. Attach any wastewater analysis that has been performed on the wastewater discharge(s) from your facilities in the last year. Attach a copy of the most recent lab data to this questionnaire. Be sure to include the date of the analysis, name of laboratory performing the analysis, and location(s) from which sample(s) were taken (attach sketches, plans, etc., as necessary). SEE ATTACHMENT 5

KMB00006360

B14. If your facility uses processes in any of the industrial categories or business activities listed below and any of these processes generate or cogenerate wastewater or waste sludge, place a check beside the category or business activity (check all that apply).

a. Industrial Categories

EPA Category Code		Category
467	[ ]	Aluminum forming
461	[ ]	Battery manufacturing
434	[ ]	Coal mining
465	[ ]	Coil coating
468	[ ]	Copper forming
469	[ ]	Electric & electronic components
413	[ ]	Electroplating (If checked, please complete Attachment B)
415	[ ]	Inorganic chemicals
420	[ ]	Iron & steel
425	[ ]	Leather tanning & finishing
433	[ ]	Metal Finishing (If checked, please complete Attachment B)
464	[ ]	Metal molding & casting (Foundries)
471	[ ]	Nonferrous metals forming
421	[ ]	Nonferrous metals manufacturing
414 & 416	[ ]	Organic chemicals, plastics, & synthetic fibers
455	[ ]	Pesticides
419	[ ]	Petroleum refining
439	[ ]	Pharmaceuticals
463	[ ]	Plastics processing
466	[ ]	Porcelain enamel
430 & 431	[ ]	Pulp, paper, and fiberboard
428	[ ]	Rubber
423	[ ]	Steam electric
410	[ ]	Textile mills
429	[ ]	Timber products (wood preserving)

b. Other Business Activity

	[ ]	Adhesives
	[ ]	Analytical laboratories
	[ ]	Auto laundries
	[ ]	Beverage bottler
	[ ]	Can making
405	[ ]	Dairy products
	[ ]	Dry Cleaners
457	[ ]	Explosives manufacturing
	[ ]	Food/edible products processor
	[ ]	Gas stations
454	[ ]	Gum & wood chemicals
	[ ]	Health services
460	[ ]	Hospital
	[ ]	Laundries
	[ ]	Machine shops
	[ ]	Mechanical products
440	[ ]	Ore mining
446 & 447	[ ]	Paint & ink
459	[ ]	Photographic supplies
	[ ]	Printing & publishing
	[ ]	Radiator Shops
	[ ]	Slaughter/meat packing/rendering
417	[ ]	Soaps & detergents
	[ ]	Used oil reclaimers
	[ ]	Waste recycler
	[x]	Other Marine Cargo Handling

KMB00006361

B15. Attach a simple schematic drawing(s) of your facility, indicating: (Drawings should be 11 x 17, or smaller) SEE ATTACHMENT 3

a. Location and size of all service outlets, process drains, floor drains
b. Existing sampling manholes or locations where samples may be collected
c. Current or planned flow metering equipment
d. Current or planned automatic sampling equipment
e. Location of pretreatment processes, treated flows, and untreated flows
f. Location and name of pertinent streets
g. Flow schematic to indicate process and process discharge in gpd
h. Chemical storage location
i. Storm drain location, if known

B16. Pretreatment devices or processes used for treating wastewater or sludge (check as many as appropriate).

[ ] Air flotation
[ ] Carbon filtration
[ ] Centrifuge
[ ] Chemical precipitation
[ ] Chlorination
[ ] Cyclone
[ ] Evaporation
[X] Filtration
[ ] Filtration, Multi-media
[ ] Filtration, Rotary
[ ] Filtration, Sand
[ ] Flow equalization
[ ] Grease or oil separation, type _____
[ ] Grease trap
[ ] Grinding filter
[ ] Grit removal
[ ] Ion exchange
[x] Neutralization, pH correction
[ ] Ozonation
[ ] Reverse osmosis
[ ] Screen
[ ] Sedimentation
[ ] Septic tank
[ ] Solvent separation
[ ] Spill protection
[X] Sump
[ ] Biological treatment, type _____
[ ] Rainwater diversion or storage _____
[ ] Other chemical treatment, type _____
[ ] Other physical treatment, type _____
[ ] Other, type _____
[ ] No pretreatment provided

B17. Is additional pretreatment required? [ ] Yes [x] No [ ] Don't know If yes, describe necessary pretreatment.

B18. Is industry in compliance with City industrial pretreatment ordinance? [X] Yes [ ] No [ ] Don't Know
See ordinance.

B19. Is industry in compliance with Federal Categorical standards? [X] Yes [ ] No [ ] Don't Know

B20. Are any process changes or expansions planned during the next three years? [x] Yes [ ] No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions. SEE ATTACHMENT 4

B21. Please describe any previous spill events and remedial measures taken to prevent their reoccurrence:

NONE

KMB00006362

B22. Comments: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature* Marie E. Breitschwerdt Title Environmental Manager Date April 25, 1995

*This form should be signed by a responsible corporate officer, a general partner, or by a duly authorized representative. See 40 CFR 403.12(l) for full definition.

KMB00006363

Attachment A

PRIORITY POLLUTANT INFORMATION

Please indicate by placing an "X" in the appropriate space by each listed chemical whether it is Suspected to be Absent, Known to be Absent, Suspected to be Present, or Known to be Present in your manufacturing or service activity or generated as a byproduct. Some compounds are known by other names. Please refer to the Priority Pollutant Synonym Listing for those compounds which have an asterisk (*).

Item No.	CASRN	Chemical Compound	Suspected Absent	Known Absent	Suspected Present	Known Present
1	7664417	ammonia	X			
2	1332214	asbestos (fibrous)		X		
3	57125	cyanide (total)	X			
4	7440360	antimony (total)	X			
5	7440382	arsenic (total)	X			
6	7440417	beryllium (total)	X			
7	7440439	cadmium (total)		X		
8	7440473	chromium (total)		X		
9	7440508	copper (total)				X
10	7439921	lead (total)				X
11	7439976	mercury (total)	X			
12	7440020	nickel (total)		X		
13	7782492	selenium (total)	X			
14	7440224	silver (total)	X			
15	7440280	thallium (total)	X			
16	7440666	zinc (total)				X
17	83329	acenaphthene				X
18	208968	acenaphthylene		X		
19	107028	acrolein	X			
20	107131	acrylonitrile	X			
21	309002	aldrin		X		
22	120127	anthracene				X
23	71432	benzene	X			
24	92875	benzidine		X		
25	56553	benzo(a)anthracene*				X
26	50328	benzo(a)pyrene*				X
27	205992	benzo(b)fluoranthene				X
28	191242	benzo(g,h,i)perylene*				X
29	207089	benzo(k)fluoranthene*		X		
30	319846	a-BHC(alpha)		X		
31	319857	b-BHC(beta)		X		
32	319868	d-BHC(delta)		X		
33	58899	g-BHC*(gamma)		X		
34	111444	bis(2-chloroethyl)ether*		X		
35	111911	bis(2-chloroethoxy)methane*		X		
36	108601	bis(2-chloroisopropyl)ether*		X		
37	542881	bis(chloromethyl)ether*	X			

Item No.	CASRN	Chemical Compound	Suspected Absent	Known Absent	Suspected Present	Known Present
38	117817	bis(2-ethylhexyl)phthalate*				X
39	75274	bromodichloromethane*	X			
40	75252	bromoform*	X			
41	74839	bromomethane*	X			
42	101553	4-bromophenylphenyl ether		X		
43	85687	butylbenzyl phthalate		X		
44	56235	carbon tetrachloride*	X			
45	57749	chlordane		X		
46		4-chloro-3-methylphenol*		X		
47	108907	chlorobenzene	X			
48	75003	chloroethane*	X			
49	110758	2-chloroethylvinyl ether	X			
50	67663	chloroform*	X			
51	74813	chloromethane*	X			
52	91587	2-chloronaphthalene		X		
53	95578	2-chlorophenol*				X
54	7005723	4-chlorophenylphenyl ether		X		
55	218019	chrysene*				X
56	72548	4,4'-DDD*		X		
57	72559	4,4'-DDE*		X		
58	50293	4,4'-DDT*		X		
59	53703	dibenzo(a,h)anthracene*				X
60	124481	dibromochloromethane*	X			
61	95501	1,2-dichlorobenzene*		X		
62	541731	1,3-dichlorobenzene*		X		
63	106467	1,4-dichlorobenzene*		X		
64	91941	3,3-dichlorobenzidine		X		
65	75718	dichlorodifluoromethane*	X			
66	75343	1,1-dichloroethane*	X			
67	107062	1,2-dichloroethane*	X			
68	75354	1,1-dichloroethene*	X			
69	111444	trans-1,2-dichloroethene*	X			
70	120832	2,4-dichlorophenol		X		
71	78875	1,2-dichloropropane*	X			
72	542756	(cis & trans)1,3-dichloropropene*	X			
73	60571	dieldrin		X		
74	84662	diethyl phthalate*		X		
75	105679	2,4-dimethylphenol*		X		
76	131113	dimethyl phthalate		X		
77		di-n-butyl phthalate		X		
78		di-n-octyl phthalate*				

KMB00006365

Attachment A (Continued)

Item No.	CASRN	Chemical Compound	Suspected Absent	Known Absent	Suspected Present	Known Present
79		1,6-dinitro-2-methylphenol*	X			
80	51285	2,4-dinitrophenol		X		
81	121142	2,4-dinitrotoluene		X		
82	606202	2,6-dinitrotoluene		X		
83	122667	1,2-diphenylhydrazine*	X			
84	959988	endosulfan I*		X		
85	33213659	endosulfan II*		X		
86	1031078	endosolfan sulfate	X			
87	72208	endrin	X			
88	7421934	endrin aldehyde		X		
89	100414	ethylbenzene	X			
90	206440	fluoranthene				X
91	86737	fluorene*				X
92	76448	heptachlor		X		
93	1024573	heptachlor epoxide		X		
94	118741	hexachlorobenzene*		X		
95	87683	hexachlorobutadiene		X		
96	77474	hexachlorocyclopentadiene*		X		
97	67721	hexachloroethane*		X		
98	193395	indeno (1,2,3-cd)pyrene*				X
99	78591	isophorone*		X		
100	74873	methylene chloride*	X			
101	91203	naphthalene		X		
102	98953	nitrobenzene		X		
103	88755	2-nitrophenol*		X		
104	100027	4-nitrophenol*		X		
105	62759	n-nitrosodimethylamine*		X		
106	621647	n-nitrosodipropylamine*		X		
107	86306	n-nitrosodiphenylamine*		X		
108	12674112	PCB-1016*		X		
109	11104282	PCB-1221*		X		
110	11141165	PCB-1232*		X		
111	53469219	PCB-1242*		X		
112	12672296	PCB-1248*		X		
113	11097691	PCB-1254*		X		
114	11096825	PCB-1260*		X		
115	87865	pentachlorophenol		X		
116	85018	phenanthrene				X
117	108952	phenol				X
118	129000	pyrene				X
119	1746016	2,3,7,8-tetrachlorodibenzo-p-dioxin*	X			

ATTACHMENT 1

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

LIST OF PRODUCTS HANDLED

LIST OF PRODUCTS HANDLED

Soda Ash*

Bentonite Clay*

Talc

Pencil Pitch (Coal Tar Pitch)

Aluminum Trihydrate

Soybean Meal

Sodium Sulfite

Calcined Coke

*Over 95% of throughput is comprised of these two products.

ATTACHMENT 2

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ACCIDENTAL SPILL PREVENTION PLAN

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ACCIDENTAL SPILL PREVENTION PLAN

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ACCIDENTAL SPILL PREVENTION PLAN

This Plan has been prepared to meet the requirements of Industrial Wastewater Discharge Permit No. 400-027 issued by the City of Portland for discharges from HBM's Portland Bulk Terminal.

A. Hazardous Substances Handled and Potential points of entry into City sewer system or stormwater runoff:

- "Sulphuric Acid 66 BE": Used as needed for neutralization of wastewater prior to discharges to sewer.
- Leakage from storage tanks and from drums could possibly flow out of warehouse to ground outside. There is no accessible point of entry to sewer system.

B. Measures to prevent entry of spills into sewer system or stormwater runoff:

- Sulphuric Acid is stored in a tank with full containment.
- The Acid Tank and container of lube oils and other chemicals are stored inside the Warehouse. The Warehouse is designed with a center sump and all spills would drain to the sump.

C. Measures to be taken to contain spills:

See Attachment 1.

D. Description of Employee Training in prevention of spills:

This Plan is reviewed with all new employees. At regular Safety meetings, the Plan is reviewed with all employees.

E. The NOTICE shown in Attachment 2 and a copy of this Plan are posted in the warehouse near the Wastewater Treatment System.

Signed: David A. Chamberlain

Date: April 26, 1995

ATTACHMENT 1

MEASURES TO BE TAKEN IN EVENT OF SULPHURIC ACID SPILL

Step 1. Review M.S.D.S. sheet to familiarize yourself with precautions.

Step 2. Use Protective Equipment.

a) Respirator with cartridge for acid gas.
b) Chemical goggles and full face shield.
c) Acid-resistant slicker suit with rubber apron, rubber boots and pants outside and rubber gloves with sleeves outside.

Step 3. Remove all sources of ignition.

Step 4. Small spills and leaks.

a) Mop or wipe up and dispose of in DOT approved container.

Step 5. Large Spills.

a) Contain spill with dirt or other non-combustible material by diking. After containment, pump acid into empty drum using acid pump.

Step 6. Carefully neutralize remaining acid with soda ash or lime. Be sure area is well-ventilated to dissipate the carbon dioxide gas, which is caused from neutralizing.

Step 7. Keep non-neutralized material out of sewers, storm drains, surface water and soils.

Step 8. Notify supervision for proper instructions of disposal as per federal, state and local procedures.

Step 9. Wash protective equipment thoroughly after handling.

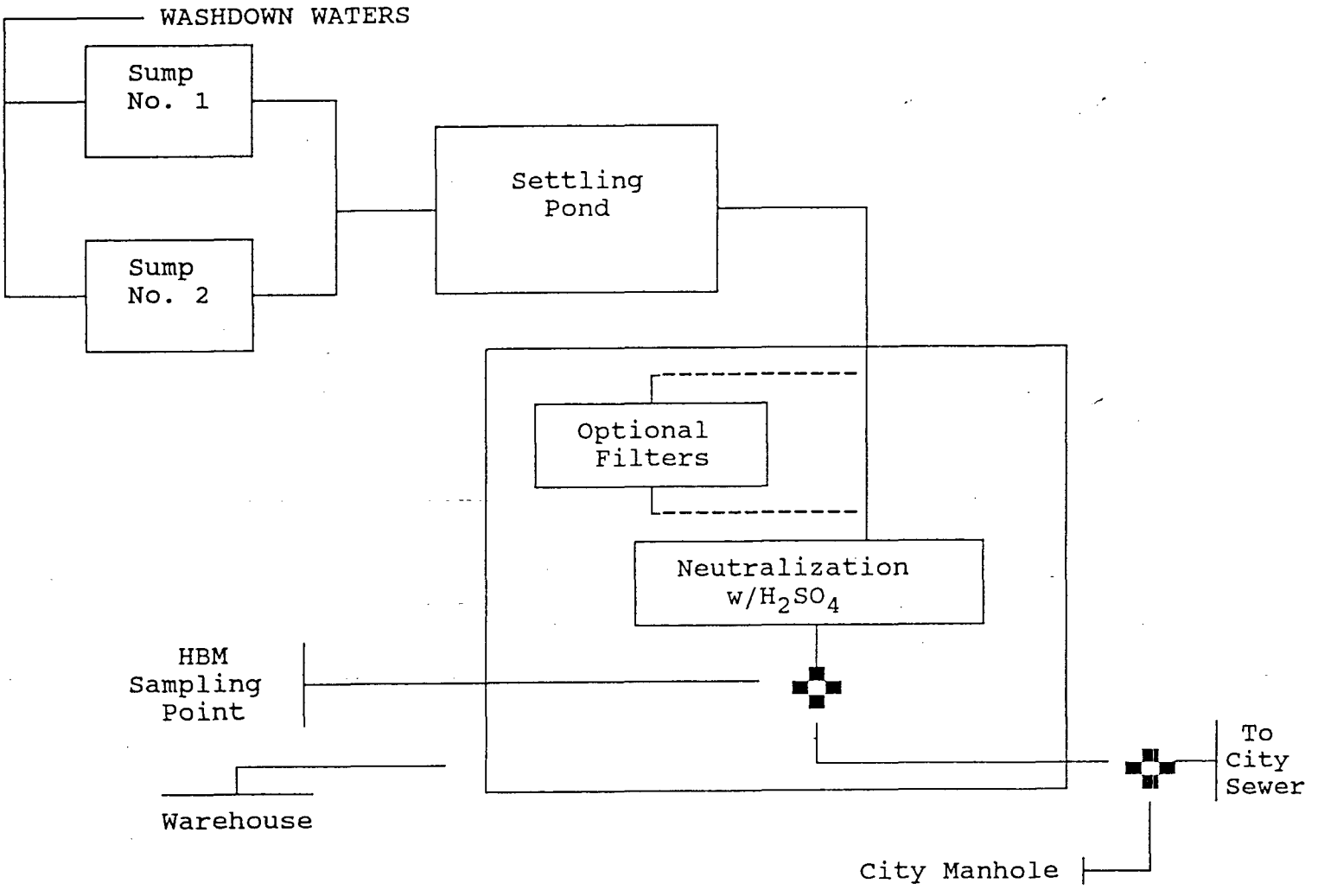
Step 10. Do not get into eyes, on skin, or on clothing. If so, immediately flush eyes and skin with water for thirty (30) minutes. Remove all contaminated clothing. Get immediate medical attention.

ATTACHMENT 2

NOTICE TO EMPLOYEES

IN THE EVENT OF A SPILL OF SULPHURIC ACID WHICH MAY GET INTO THE CITY OF PORTLAND'S SEWER SYSTEM, THE SUPERVISOR ON DUTY MUST IMMEDIATELY NOTIFY THE CITY OF PORTLAND, BUREAU OF ENVIRONMENTAL SERVICES AT (503) 769-7740.

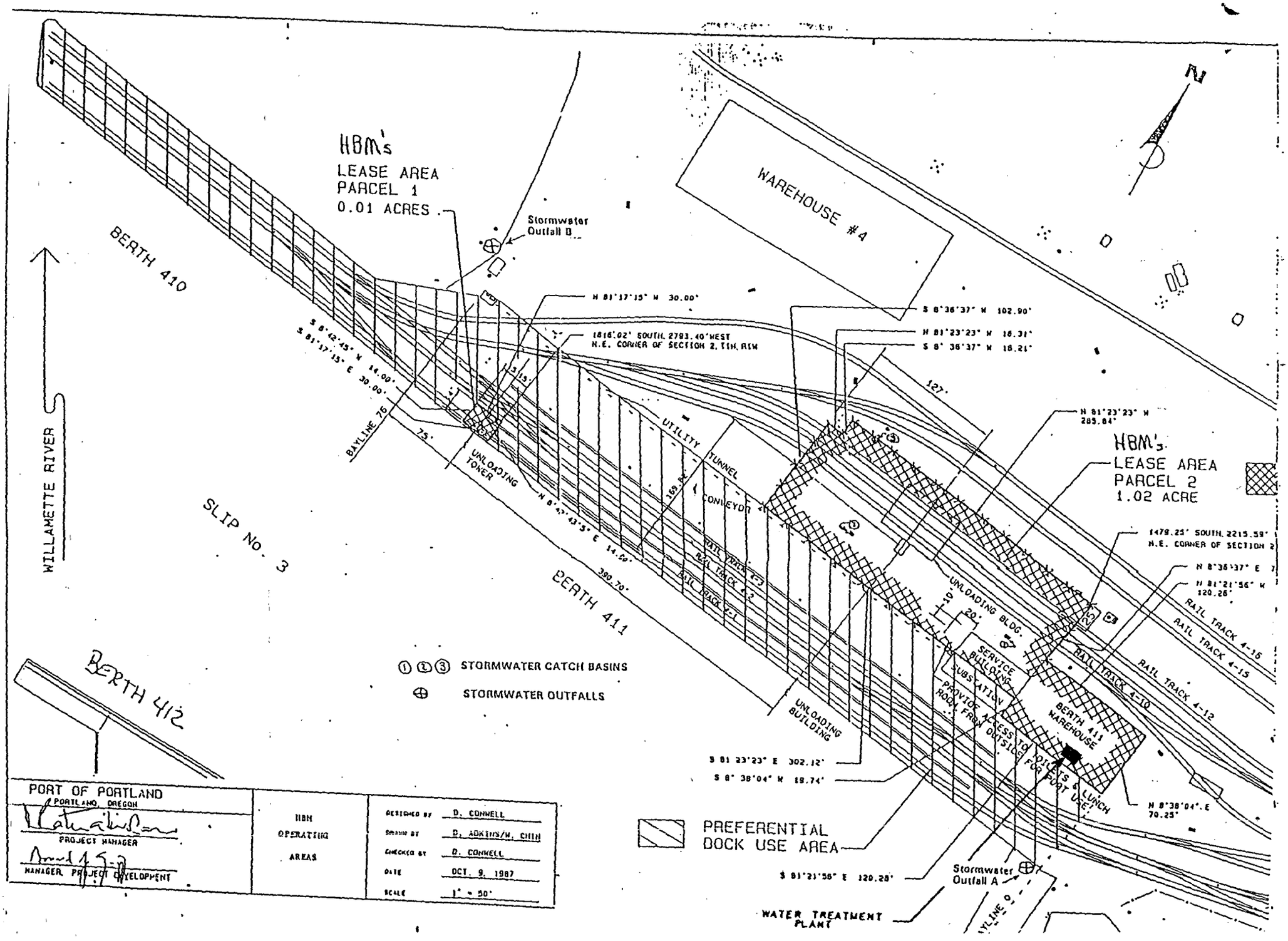
SAMPLING LOCATION MAP



ATTACHMENT 3

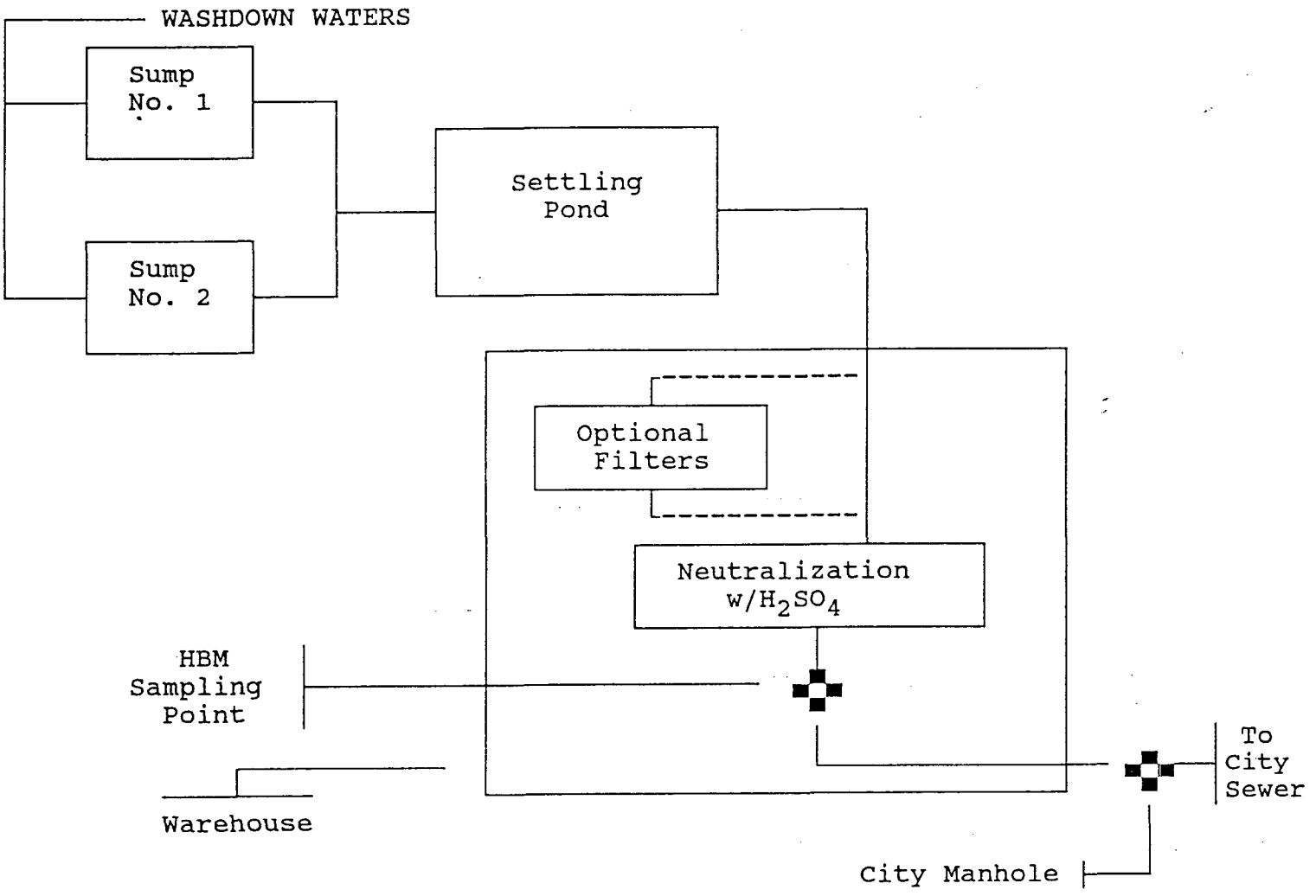
HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

SITE PLAN AND SAMPLING SCHEMATIC



KMB00006376

SAMPLING LOCATION MAP



ATTACHMENT 4

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

ANTICIPATED EXPANSION

ANTICIPATED EXPANSION

No major expansion of the facility is anticipated over the next three (3) years.

ATTACHMENT 5

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

WASTEWATER ANALYSES

2nd Quarter, 1994

Test Results

CITY OF PORTLAND
INDUSTRIAL DISCHARGE REPORT

INDUSTRY NAME:	HALL-BUCK MARINE, INC.
PERMIT NUMBER:	400-027
REPORT DUE DATE:	DECEMBER 15, 1994
SAMPLING PERIOD:	
SAMPLE CODE:	
TODAY'S DATE:	

REPORT TYPE (CHECK ONE)
- [ ] INITIAL MONITORING
- [ ] REPORT ON COMPLIANCE
- [X] PERIODIC COMPLIANCE
- [ ] SPECIAL COMPLIANCE

(FOR CITY USE ONLY)

SAMPLE DATE >		SAMPLE LOCATION >		SAMPLE TYPE >	_ COMPOSITE _ GRAB	DATE RECEIVED AT LAB >		DATE OF SAMPLE ANALYSIS >	

PARAMETER	CODE	REPORTED CONCENTRATION mg/L	LIMIT mg/l Daily	LIMIT mg/l Monthly	VIOLATION YES(X)	VIOLATION LEVEL	COMMENTS
							Full compliance has--has not*--
PH	643	10.7 S.U.	5.5 TO 11.5				been achieved this reporting perio
CADMIUM (TOTAL)	736	.01	0.7	---			
CHROMIUM (TOTAL)	748	.03	3.8	---			
COPPER (TOTAL)	752	.08	2.3	---			
NICKEL (TOTAL)	824	ND	3.0	---			
LEAD (TOTAL)	811	ND	0.7	---			
ZINC (TOTAL)	874	.19	4.0	---			
TTO	838	---	2.13	---			See attached certification.
FATS, OILS AND GREASE	913		---	---			
POLAR	914	N.D.	500	---			
NON-POLAR	915	7	100	---			
Flash Point		7200					
Total Phenols		N.D.					
Volatile Organics							See attached lab report.

*See attached report.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Jack R. McDowning Date: 10/14/94

Analytical Data

Hall-Buck Marine, Inc.

Job Number: 940810BB
Page Number: 2 of 4

Lab Sample ID: 940810BB-1
Field ID: Permit Site - 24hr COMP.
Date/Time: 08/10/94 24hr
Matrix: Waste Water

EPA Category: Conventional Parameters

Parameter	Method	Detection Limit	Analytical Result	Units	Analysis Date	Analyst
Total Suspended Solids	EPA 160.2	1.	380	mg/L	08/11/94	TTN

EPA Category: Metals

Parameter	Method	Detection Limit	Analytical Result	Units	Analysis Date	Analyst
Cadmium	CFR 200.7	0.01	ND	mg/L	08/12/94	JEL
Chromium	CFR 200.7	0.01	0.03	mg/L	08/12/94	JEL
Copper	CFR 200.7	0.04	0.08	mg/L	08/12/94	JEL
Lead	CFR 200.7	0.1	ND	mg/L	08/12/94	JEL
Nickel	CFR 200.7	0.02	ND	mg/L	08/12/94	JEL
Zinc	CFR 200.7	0.06	0.19	mg/L	08/12/94	JEL

ND means none detected at or above the detection limit listed.

Analytical Data

Hall-Buck Marine, Inc.

Job Number: 940810BB
Page Number: 3 of 4

Lab Sample ID: 940810BB-2
Field ID: Permit Site - Grab
Date/Time: 08/10/94 1030
Matrix: Waste Water

EPA Category: Conventional Parameters

Parameter	Method	Detection Limit	Analytical Result	Units	Analysis Date	Analyst
Flash Point	EPA 1010	----	>200	°F	08/17/94	AEK
pH	EPA 150.1	----	10.7	S.U.	08/10/94	TTN
Total Phenols	EPA 420.1	0.05	ND	mg/L	08/12/94	SVS
Total Oil & Grease	SM 5520BF	3.	9.	mg/L	08/15/94	WKK
Polar Oil & Grease	SM 5520BF	3.	ND	mg/L	08/15/94	WKK
Total Petroleum Hydrocarbons	SM 5520BF	3.	7.	mg/L	08/15/94	WKK

ND means none detected at or above the detection limit listed.

The ">" symbol indicates greater than.

KMB00006384

Analytical Data

Hall-Buck Marine, Inc.

Job Number: 940810BB
Page Number: 4 of 4

Lab Sample ID: 940810BB-2
Field ID: Permit Site - Grab
Date/Time: 08/10/94 1030
Matrix: Waste Water

Analysis Performed: Volatile Organics in waste water, by EPA Method 624, GC/MS.
Analysis Date: 08/15/94
Analysis: DGJ

Parameter	Detection Limit	Laboratory Blank	Sample Results
Benzene	0.5	ND	ND
Bromodichloromethane	0.5	ND	0.6
Bromoform	0.5	ND	ND
Bromomethane	1.0	ND	ND
Carbon tetrachloride	0.5	ND	ND
Chlorobenzene	0.5	ND	ND
Chloroethane	0.5	ND	ND
2-Chloroethylvinyl ether	0.5	ND	ND
Chloroform	0.5	ND	9.3
Chloromethane	0.5	ND	ND
Dibromochloromethane	0.5	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND
1,1-Dichloroethane	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
1,1-Dichloroethene	0.5	ND	ND
trans-1,3-Dichloroethene	0.5	ND	ND
1,2-Dichloropropane	0.5	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
Ethyl benzene	0.5	ND	ND
Methylene chloride	1.0	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND
Tetrachloroethene	0.5	ND	ND
Toluene	0.5	ND	ND
1,1,1-Trichloroethane	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
Trichloroethene	0.5	ND	ND
Trichlorofluoromethane	0.5	ND	ND
Vinyl chloride	0.5	ND	ND
m-/p-Xylene	0.5	ND	ND
o-Xylene	0.5	ND	ND

Results expressed as µg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

COFFEY LABORATORIES, INC.
CHAIN OF CUSTODY AGREEMENT

PORTLAND BRANCH
12423 NE Whitaker Way
Portland, OR 97230
(503) 254-1794 FAX: (503) 254-1452

PENDLETON BRANCH
287 SE First
Pendleton, OR 97801
(503) 276-0385

Report Attention:
Company Name: Hall Buck Marine
Address:
Phone: ( ) FAX: ( )
Report Instructions:

Project Name: Quarterly Compliance
Project Number:
PO Number:

Sample Turnaround	Reporting Request
☐ Standard	☐ FAX (T-35)
☐ Priority (1.5x Std. Fee)	☐ Verbals (T-1157)
☐ Rush (2x Std. Fee)	☐ Extra Report Copy (T-1402) (Fees Associated)
☐ Emergency (3x Std. Fee)	Initials:

FOR LABORATORY USE ONLY Page of
Job Number:
Customer: ☐ NEW
☐ VISA ☐ MC Expires:
Card #:
Cash / Check: $ #:
Billing Code: 1 2 3 4
QC LEVEL: 1 2 3 4
FEDX BUS COURIER UPS LAB CLIENT MAIL

Sample ID	Loc.	ID	Collection Date	Collection Time	Media	Analysis Requested	Test/Profile
Permit Site - 24HR Comp	[illegible]	[illegible]	8-10-94	24HR	WW	Cd, Cr, Cu, Pb, Ni, Zn	
grab	[illegible]	[illegible]		1030		oil + grease polar/non	
	[illegible]	[illegible]				pH, CCFP	
	[illegible]	[illegible]				Phenol	
	[illegible]	[illegible]				EPA 634	
						sample collection	
24HR Comp	[illegible]	[illegible]		24HR		TSS	

Sample Comments:

Sampled by: (Please Print)	Relinquished by: (Please Sign)	Date	Time	Received by: (Sign)	Date	Time
GERALD BARBA	Gerald Barba	8-10-94	1445			
White Copy - Laboratory Copy Yellow Copy - Client Copy						
SHADED AREAS FOR LABORATORY USE ONLY				LAB		

SUBMISSION OF SAMPLES WITH TESTING REQUIREMENTS TO CLI WILL BE UNDERSTOOD TO BE AN AGREEMENT FOR SERVICES IN ACCORDANCE WITH THE CONDITIONS LISTED ON THE BACK OF THE CLIENT COPY.

Portland Bulk Terminal
Hall-Buck Marine, Inc.
Permit No. 400-27

CERTIFICATION
Regarding Total Toxic Organics

Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics has occurred since filing the last discharge monitoring report.

Mark M. Downing
Signature

10/14/94.
Date

TTO Testing

HALL-BUCK MARINE, INC.

P.O. Box 35 • Burnside, LA 70738 • TWX 510-994-3131 • Cable-HALLBUCK, Baton Rouge • Phone (504) 675-5387

December 3, 1991

City of Portland
Bureau of Environmental Services
1120 S.W. 5th, Room 400
Portland, OR 97204-1972

Dear Sir or Madam:

RE: SEMI-ANNUAL INDUSTRIAL DISCHARGE REPORT
PERMIT NO. 400-027

Enclosed is HBM's Industrial Discharge Report due on December 15, 1991. As required by our permit, sampling was conducted when Total Toxic Organics (TTO) and other contaminants were expected to be at a maximum (i.e., after a loading of pencil pitch).

Note that the TTO level was 0.374 mg/l, well below the permitted level of 2.13 mg/l. Accordingly, in lieu of further testing for TTO, our future reports will include the Certification referred to in Schedule D, Special Conditions, Item 5. (See page D2 of 2 in the permit.)

At this time, we would like to clarify the frequency of sampling and future reports required by the City. Schedule B, Part II, "Periodic Compliance Report" (Page B3 of 4) specifies semi-annual reporting on the 15th of December and June. Schedule C (Page C1 of 1) also states that reporting is due semi-annually. However, Note #1 in Schedule B, Part II (Page B3 of 4) and Special condition 1.d. in Schedule D (Page D1 of 1) indicate that sampling is to be done quarterly and that pH compliance reports must be filed quarterly. This would seem to indicate that although reporting frequency has been reduced to semi-annual, HBM is still required to sample and analyze on a quarterly basis, with the results of Q1 and Q2 submitted on June 15 and the results of Q3 and Q4 submitted on December 15. In addition, it appears that a quarterly pH report is required.

Would you please advise us as to whether we have correctly interpreted the permit requirements, or whether it was the City's intent to reduce all sampling and reporting to semi-annually. You can reach me at (800) 535-8170. Thank you for your assistance.

Sincerely yours,

HALL-BUCK MARINE, INC.

Marie E. Krien-Schmidt

Marie E. Krien-Schmidt
Environmental Manager

MKS:tl
Enclosure

cc: Mr. Kermit Pitre - PBT
Mr. Daniel Landry - PBT

CITY OF PORTLAND
INDUSTRIAL DISCHARGE REPORT

INDUSTRY NAME:	HALL-BUCK MARINE, INC.		(FOR CITY USE ONLY)
PERMIT NUMBER:	400-027	REPORT TYPE (CHECK ONE)	
REPORT DUE DATE:	DECEMBER 15, 1991	[X] INITIAL MONITORING	
SAMPLING PERIOD:		[ ] REPORT ON COMPLIANCE	
SAMPLE CODE:		[ ] PERIODIC COMPLIANCE	
TODAY'S DATE:		[ ] SPECIAL COMPLIANCE	

SAMPLE DATE >		SAMPLE LOCATION >		SAMPLE TYPE >	_ COMPOSITE _ GRAB	DATE RECEIVED AT LAB >		DATE OF SAMPLE ANALYSIS >	

PARAMETER	CODE	REPORTED CONCENTRATION mg/L	LIMIT mg/l Daily	LIMIT mg/l Monthly	VIOLATION YES(X)	VIOLATION LEVEL	COMMENTS
PH	843	S.U.	5.5 TO 11.5				10.14
CADMIUM (TOTAL)	736		0.7	---			ND*
CHROMIUM (TOTAL)	748		3.8	---			ND
COPPER (TOTAL)	752		2.3	---			0.29
NICKEL (TOTAL)	824		3.0	---			ND
LEAD (TOTAL)	811		0.7	---			0.2
ZINC (TOTAL)	874		4.0	---			0.15
TTO	858		2.13	---			~~0.384~~ 1.103*
FATS, OILS AND GREASE	913		---	---			
POLAR	914		500	---			2
NON-POLAR	915		100	---			10

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: [signature] Date: 12/3/91

* ND = None Detected

* corrected 11/30/92 mbs

KMB00006390

Report Date: October 30, 1991
Job#: WI-910927AD-2
PO#: 2090
Project: Quarterly Compliance

Attention: Kermit Pitre
Hall-Buck Marine, Inc.
P.O. Box 83838
Portland, OR 97283

SAMPLE INFORMATION:
Date Samples Were Received By Laboratory: 09/27/91

Lab No.	Field Identification	Sample Matrix	Date	Time
1	24 Hr. Comp	Waste Water	09-27-91	
2	Grab	Waste Water	09-27-91	9:21

ANALYTICAL RESULTS ARE ON THE FOLLOWING PAGE(S)

Sincerely,

Victor A. Perry,
Quality Assurance

Sincerely,

Susan M. Coffey,
President

SMC/mlh

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Job#: WI-910927AD-2

Hall-Buck Marine, Inc.
Page 2

Sample ID: #1 24 Hr. Comp
#2 Grab

PARAMETER	METHOD	DETECTION LIMITS	SAMPLE #1 RESULTS	PBTs Permit Limit (mg/L)
Cadmium	*	0.05	ND	0.7
Chromium	*	0.05	ND	3.8
Copper	*	0.05	0.29	2.3
Lead	EPA 239.1	0.1	0.2	0.1
Nickel	*	0.05	ND	3.0
Zinc	*	0.05	0.15	4.0

PARAMETER	METHOD	DETECTION LIMITS	SAMPLE #2 RESULTS
pH (S.U.)	EPA 150.1	---	10.14
Flash Point (°F)	EPA 1020	---	>200

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

* Federal Register, 40 CFR Part 136, Method 200.7, Friday, October 26, 1984, Part VIII.

SM means Standard Methods for the Examination of Water and Wastewater, 1985, 16th Edition.

The ">" symbol indicates greater than.

Analysis Performed: Polar and Non-Polar Oil & Grease in water, freon-extractable.

PARAMETER	METHOD	DETECTION LIMIT	Grab RESULTS	Permit Limit mg/L
Total Oil & Grease	SM 5520 C	0.5	12	
Polar Oil & Grease	SM 5520 C,F	0.5	2	500
Total Petroleum Hydrocarbons (Non-Polar)	SM 5520 F	0.5	10	100

Results expressed as mg/L unless otherwise noted.

SM means Standard Methods for the Examination of Water and Wastewater, 1989, 17th Edition.

REPORT CONTINUES

Job#: WI-910927AD-2

Hall-Buck Marine, Inc.
Page 3

Analysis Performed: Base Neutrals/Acid Extractables, by EPA Method 625, GC/MS

ANALYTE	DETECTION LIMIT	LABORATORY BLANK	Grab RESULTS (µg/mL)	
Acenaphthene	1	ND	3	.003 mg/l (ppm)
Acenaphthylene	1	ND	ND	
Aldrin	3	ND	ND	
Anthracene	1	ND	3	.003
Benzidine	200	ND	ND	
Benzo(a)anthracene	3	ND	16	.016
Benzo(b)fluoranthene	5	ND	44	.044
Benzo(k)fluoranthene	5	ND	ND	
Benzo(a)pyrene	5	ND	43	.043
Benzo(ghi)perylene	5	ND	22	.022
alpha-BHC	5	ND	ND	
beta-BHC	5	ND	ND	
delta-BHC	5	ND	ND	
gamma-BHC	5	ND	ND	
Bis(2-chloroethoxy)methane	1	ND	ND	
Bis(2-chloroethyl)ether	1	ND	ND	
Bis(2-chloroisopropyl)ether	10	ND	ND	
Bis(2-ethylhexyl)phthalate	2	3	43	.043
4-Bromophenyl phenyl ether	2	ND	ND	
Butyl benzyl phthalate	5	ND	ND	
Chlordane	50	ND	ND	
4-Chloro-3-methylphenol	4	ND	ND	
2-Chloronaphthalene	1	ND	ND	
2-Chlorophenol	1	ND	1	.001
4-Chlorophenyl phenyl ether	1	ND	ND	
Chrysene	3	ND	12	.012
4,4'-DDD	5	ND	ND	
4,4'-DDE	5	ND	ND	
4,4'-DDT	5	ND	ND	
Dibenzo(a,h)anthracene	5	ND	10	.010
Di-n-butylphthalate	1	ND	ND	
1,2-Dichlorobenzene	1	ND	ND	
1,3-Dichlorobenzene	1	ND	ND	
1,4-Dichlorobenzene	1	ND	ND	
3,3'-Dichlorobenzidine	200	ND	ND	
2,4-Dichlorophenol	2	ND	ND	

Results expressed as µg/L unless otherwise noted. (p1) .197 Total Toxics

ND means none detected at or above the detection limit listed.

REPORT CONTINUES

* total: (page 1 & 2) ≈ 0.374 } * permit limit = 2.13 mg/l

OK
[illegible]
11/6/91

COFFEY LABORATORIES, IN

12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 2

Job#: WI-910927AD-2

Hall-Buck Marine, Inc.
Page 4

Analysis Performed: Base Neutrals/Acid Extractables, by EPA Method 625, GC/MS

ANALYTE	DETECTION LIMIT	LABORATORY BLANK	Grab RESULTS (µg/ml) → (mg/l)	
Dieldrin	5	ND	ND	
Diethyl phthalate	5	ND	ND	
2,4-Dimethylphenol	2	ND	ND	
Dimethylphthalate	1	ND	ND	
2,4-Dinitrophenol	50	ND	ND	
2,4-Dinitrotoluene	5	ND	ND	
2,6-Dinitrotoluene	5	ND	ND	
Di-n-octylphthalate	2	ND	22	.022
Endosulfan sulfate	20	ND	ND	
Endrin aldehyde	100	ND	ND	.018
Fluoranthene	1	ND	18	
Fluorene	1	ND	trace, <1	
Heptachlor	2	ND	ND	
Heptachlor epoxide	5	ND	ND	
Hexachlorobenzene	1	ND	ND	
Hexachlorobutadiene	2	ND	ND	
Hexachlorocyclopentadiene	5	ND	ND	
Hexachloroethane	3	ND	ND	
Indeno(1,2,3-cd)pyrene	5	ND	27	.027
Isophorone	2	ND	ND	
2-Methyl-4,6-dinitrophenol	10	ND	ND	
Naphthalene	2	ND	ND	
Nitrobenzene	10	ND	ND	
2-Nitrophenol	10	ND	ND	
4-Nitrophenol	200	ND	ND	
N-Nitrosodimethylamine	1000	ND	ND	
N-Nitrosodiphenylamine	5	ND	ND	
N-Nitrosodi-n-propylamine	5	ND	ND	
Pentachlorophenol	5	ND	ND	
Phenanthrene	1	ND	7	.007
Phenol	5	ND	810	~~.081~~ .810
Polychlorinated biphenyls	100	ND	ND	
Pyrene	1	ND	22	.022
Toxaphene	100	ND	ND	
1,2,4-Trichlorobenzene	1	ND	ND	
2,4,6-Trichlorophenol	10	ND	ND	

Results expressed as µg/L unless otherwise noted. (p2) Total Toxics ~~.177~~ .906

ND means none detected at or above the detection limit listed.

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

.906
~~.177~~ (p.2)
+ .197 (p.1)
~~.374~~ total toxics

Corrected: 1.103
11/30/92 mb

COFFEY LABORATORIES, INC.

12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

KMB00006394

COFFEY LABORATORIES INC.
12423 N.E. WHITAKER WAY, PORTLAND, OR 97230
(503) 254-1794 • FAX (503) 254-1452

COFFEY LABORATORIES - PENDLETON BRA
287 S.E. FIRST, PENDLETON, OR 97
(503) 276-0

CHAIN OF CUSTODY

PROJECT #:	PROJECT NAME: Quarterly Compliance	P.O. #:	PAGE 1 of 1 PAGES PLEASE PRINT OR TYPE	FOR LABORATORY USE ONLY

COMPANY NAME: HALL BUCK MARINE
REPORT ATTENTION: Kermit Pitre
Copy of report: MARIE E. KRIENZ-SC DO BOX 35 BURNSIDE, LA 7073
SAMPLES COLLECTED BY:

FIELD IDENTIFICATION: ONE LINE PER SAMPLE CONTAINER	LAB LOC	LAB ID	COLLECTION DATE	COLLECTION TIME	MEDIA	ANALYSIS REQUESTED	ANALYSIS REMARKS
24 Hr Composite grab	[illegible]	[illegible]	9/27/91	24hr 9:21	WW	Cd, Cr, Cu, Pb, Ni, Zn	
	[illegible]	[illegible]	↓	↓	↓	FATS, oils + grease polar/non	
	[illegible]	[illegible]				pH	
	[illegible]	[illegible]				Closed cup flash point	
	[illegible]	[illegible]				TTO: ANTHRACENE, Benzo(a) pyrene, 2 b.th	
						phananthracene, pyrene	
						Sample collect. 2 HRS	

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME	LAB USE
RELINQUISHED BY: MJT 9-27-91 13:15	DATE/TIME	RECEIVED BY LAB: [signature]	DATE/TIME 9/27/91 1315	

SAMPLE REMARKS:

LEVEL 1 2 3 4 EXPRESS UPS MAIL CXX GREY TAXI

WHITE COPY - COFFEY LABORATORIES

PINK COPY - CLIENTS

(7/90)

SHADED AREA FOR LABORATORY USE ONLY

TOTAL P.06

KMB00006395

ATTACHMENT 6

HALL-BUCK MARINE, INC.
PORTLAND BULK TERMINAL

MATERIAL SAFETY DATA SHEETS

AMERICAN COLLOID COMPANY

One North Arlington • 1500 West Shure Drive
Arlington Heights, Illinois 60004-1434 • USA
(708) 392-4600 • Telex ITT 4330321
Fax (708) 506-6199

12001
101

MATERIAL SAFETY DATA SHEET - May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

PRODUCT NAME: DRIED & CRUSHED BENTONITE

Section I MANUFACTURER'S INFORMATION

Manufacturer's Name & Address:

American Colloid Company
1500 West Shure Drive
One North Arlington
Arlington Heights, Illinois 60004

Emergency Telephone Number: 708-392-4600
Telephone Number for Information: 708-392-4600
Date Prepared: November 29, 1989

Section II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components (Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Crystalline Quartz CAS# 14808-60-7	-	-	*	2-6%
Respirable Crystalline Quartz			NIOSH	
present (TWA)	0.1mg/m^3	0.1mg/m^3 TWA	50ug/m^3 TWA	<2%
proposed (TWA)		50ug/m^3 TWA	-	-
Nuisance Dust				
- Respirable	5mg/m^3	5mg/m^3	-	-
- Total Dust	15mg/m^3	10mg/m^3	-	-

* WARNING:
This clay product contains a small amount of crystalline silica which may cause delayed respiratory disease if inhaled over a prolonged period of time. Avoid breathing dust. Use NIOSH/MSHA approved respirator where TLV for crystalline silica may be exceeded. IARC Monographs on the evaluation of the Carcinogenic Risk of Chemicals to Humans (volume 42, 1987) concludes that there is "limited evidence" of the carcinogenicity of crystalline silica to humans. IARC classification 2A.

PRODUCT IDENTIFICATION

Chemical Name: Bentonite Clay
Chemical Family: Natural Mineral, Montmorillonite
CAS No.: 1302-78-9
FORMULA: Naturally occurring hydrated aluminosilicate of sodium, calcium, magnesium, and iron
NFPA/HMIS: Health - 0, Fire - 0, Reactivity - 0, Specific Hazard - See Section VI
Dot Class: Not Regulated

AMERICAN COLLOID COMPANY

One North Arlington • 1500 West Shure Drive
Arlington Heights, Illinois 60004-1434 • USA
(708) 392-4600 • Telex ITT 4330321
Fax (708) 506-6199

12001
101

PRODUCT NAME: DRIED & CRUSHED BENTONITE

Section VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled - Vacuum if possible to avoid generating airborne dust. Avoid breathing dust. Wear an approved respirator. Avoid adding water, the product will become slippery when wet.

Waste Disposal Method - Follow federal, state and local regulations for solid waste.

Precautions to Be Taken in Handling and Storing - Avoid breathing dust, use NIOSH/MSHA approved respirator where TLV limits for Crystalline Silica may be exceeded.

Other Precautions - Slippery when wet.

Section VIII CONTROL MEASURES

Respiratory Protection (Specify Type) - OSHA standard 1910.134 or ANSI Z88.2-1980 specification.

Ventilation - Local Exhaust - As appropriate
- Mechanical (General) - As appropriate

Protective Gloves - Not Required

Other Protective Clothing or Equipment - None

Work/Hygienic Practices - Use good housekeeping practices.

Special - None
Other - None
Eye Protection - Recommended

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, American Colloid Company cannot give any guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

SAFETY
DATA
SHEET

(IN PENNSYLVANIA CALL: 800-323-6571)

KOPPERS COMPANY, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219

CHEMTREC ASSISTANCE: 800-424-9300

CUSTOMER SERVICE: 800-556-7737

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: ELECTRODE,AROMATIC,BINDER,TARGET,CORE & COAL TAR PITCH

SYNONYM: COAL TAR PITCH

CHEMICAL FAMILY: POLYNUCLEAR AROMATIC HYDROCARBONS

FORMULA: COMPLEX MIXTURE OF HYDROCARBONS

FILE COPY

3.6.2

CAS NUMBER: 65996-93-2

DOT PROPER SHIPPING NAME: NONE

DOT HAZARD CLASS: NONE

UN/NA NUMBER: NONE

SECTION II - HEALTH/SAFETY ALERT

CHRONIC OVEREXPOSURE (AS DEFINED BY OSHA RECOMMENDED STANDARDS)
MAY CAUSE CANCER
WARNING
HARMFUL TO THE SKIN, OR IF INHALED OR SWALLOWED
CAUSES EYE AND SKIN IRRITATION
AVOID PROLONGED AND/OR REPEATED CONTACT
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD

SECTION III - HEALTH HAZARD INFORMATION

EYE: OVEREXPOSURE TO VAPOR CAN RESULT IN IRRITATION AND/OR CORNEAL CHANGES. DIRECT EYE CONTACT MAY CAUSE IRRITATION. CONTACT WITH HEATED MATERIAL MAY CAUSE THERMAL BURNS.

SKIN: CONTACT WITH SKIN CAN RESULT IN IRRITATION WHICH WHEN ACCENTUATED BY SUNLIGHT MAY RESULT IN A PHOTOTOXIC SKIN REACTION. REPEATED AND/OR PROLONGED CONTACT MAY CAUSE MORE SERIOUS SKIN DISORDERS INCLUDING CANCER. CONTACT WITH HEATED MATERIAL MAY CAUSE THERMAL BURNS.

INHALATION: OVEREXPOSURE TO VAPOR MAY RESULT IN RESPIRATORY TRACT IRRITATION. REPEATED AND/OR PROLONGED CONTACT TO HIGH CONCENTRATIONS OF VAPOR MAY RESULT IN RESPIRATORY DIFFICULTIES, CENTRAL NERVOUS SYSTEM (CNS) EFFECTS AND POSSIBLE CARDIOVASCULAR COLLAPSE.

INGESTION: INGESTION OF MATERIAL MAY CAUSE GASTROINTESTINAL DISTURBANCES INCLUDING IRRITATION, NAUSEA, VOMITING, ABDOMINAL PAIN AND IN EXTREME CASES CARDIOVASCULAR INVOLVEMENT.

OTHER: SEE SECTION XII (COMMENTS) FOR ADDITIONAL INFORMATION ON HEALTH EFFECTS.

REVISION DATE: 09/85
SPECIFICATION SHEET NUMBER: TP-1137-0
COMMODITY NUMBER: 41192501

CODE NUMBER: IND000F2SE8500
REPLACES SHEET: NA

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT): *FOR COAL TAR PITCH VOLATILES, OSHA-PEL IS 0.2 MG/M3 AVERAGED OVER AN 8 HOUR WORK SHIFT, BENZENE SOLUBLE FRACTION. THE ACGIH-TLV IS 0.2 MG/M3.

HAZARDOUS INGREDIENTS	CAS NUMBER	PERCENT	EXPOSURE LIMIT (PPM;MG/M3)
COAL TAR PITCH		*	

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: INDUSTRIAL SAFETY GLASSES, MINIMUM. AS NECESSARY TO COMPLY WITH 29 CFR 1910.133 AND WORK AREA CONDITIONS; USE SIDE SHIELDS, GOGGLES OR FACE SHIELD TO COMPLY WITH ANSI STANDARD Z87.1. CHEMICAL GOGGLES; FACE SHIELD (IF HANDLING MOLTEN MATERIAL).

SKIN PROTECTION: AS REQUIRED, INDUSTRIAL GRADE FABRIC-TYPE GLOVES, FOR SOLID PITCH. HEAT RESISTANT IF MOLTEN. WEAR INDUSTRIAL-TYPE WORK CLOTHING AND SAFETY FOOTWEAR. DEPENDING ON WORKING CONDITIONS, I.E., CONTACT POTENTIAL, WEAR PROTECTIVE GARMENTS SUCH AS HEAD/NECK COVER, APRONS, JACKETS, PANTS, COVERALLS, BOOTS, ETC.

RESPIRATORY PROTECTION: IF VENTILATION DOES NOT MAINTAIN INHALATION EXPOSURES BELOW TLV(PEL), USE MSNA/NIOSH APPROVED UNITS AS PER CURRENT 29CFR1910.134 AND MANUFACTURERS' "INSTRUCTIONS" AND "WARNINGS". COMBINATION FILTER/ORGANIC VAPOR CARTRIDGES OR CANISTERS MAY BE USED. FULL-FACE PIECE RESPIRATORY PROTECTIVE UNITS REQUIRED.

VENTILATION: PROVIDE SUFFICIENT GENERAL AREA/LOCAL EXHAUST VENT. IN PATTERN/VOLUME TO CONTROL INHALATION EXPOSURES BELOW CURRENT EXPOSURE LIMITS AND AREAS BELOW FLAMMABLE VAPOR/EXPLOSIVE DUST CONCENTRATIONS.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: AVOID PROLONGED OR REPEATED CONTACT WITH SKIN OR BREATHING OF DUSTS. OBSERVE GOOD PERSONAL HYGIENE PRACTICES AND RECOMMENDED PROCEDURES. APPLICATION OF CERTAIN PROTECTIVE CREAMS (SUN SCREENS FOR COAL TAR PRODUCTS) BEFORE WORKING/SEVERAL TIMES DURING WORK MAY BE BENEFICIAL.

STORAGE: KEEP IN A CLOSED, LABELED CONTAINER WITHIN A COOL (WELL SHADED), DRY -VENTILATED AREA. PROTECT FROM PHYSICAL DAMAGE. MAINTAIN GOOD HOUSEKEEPING.

OTHER: NOT FOR USE OR STORAGE IN OR AROUND THE HOME. DO NOT TAKE INTERNALLY. DO NOT USE UNTIL MANUFACTURER'S PRECAUTIONS HAVE BEEN READ/UNDERSTOOD. WASH EXPOSED AREAS PROMPTLY AND THOROUGHLY AFTER SKIN CONTACT AND BEFORE EATING, DRINKING, USING TOBACCO PRODUCTS OR REST ROOMS.

SECTION III - H E A L T H H A Z A R D D A T A (CONTINUED)

CHRONIC EFFECTS OF OVEREXPOSURE:
REPEATED OR PROLONGED CONTACT BY INHALATION OR SKIN ABSORPTION MAY PRODUCE LIVER OR KIDNEY DAMAGE OR DAMAGE TO THE CENTRAL NERVOUS SYSTEM (characterized by tingling or numbness in the extremities, blurred vision or confusion). SKIN WHICH IS DEFATTED BY REPEATED EXPOSURE TO SOLVENTS, IS MORE SUSEPTIBLE TO IRRITATION, INFECTION, AND DERMATITIS.
EXPOSURE TO SOME INGREDIENTS IN THIS PRODUCT CAN AGGRAVATE EXISTING LIVER DISEASE OR HEART RHYTHM DISORDERS.
NONE OF THE HAZARDOUS INGREDIENTS ARE LISTED AS CARCINOGENS BY IARC, NTP, & OSHA

EST'D PEL/TLV: NOT ESTABLISHED PRIMARY ROUTES OF ENTRY: INH, SKIN.

HMIS CODES: HEALTH 2; FLAM. 1; REACT. 1; PERS. PROTECT. X ; CHRONIC HAZ. YES

FIRST AID PROCEDURES:
SKIN : WASH CONTAMINATED SKIN THROUGHLY WITH SOAP OR A MILD DETERGENT. APPLY A SKIN CREAM WITH LANOLIN. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
EYES : IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING UPPER AND LOWER LIDS. GET MEDICAL ATTENTION AT ONCE.
INHALE: MOVE EXPOSED PERSON TO FRESH AIR AT ONCE. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. GET MEDICAL ATTENTION IMMEDIATELY.
INGEST: IF THIS PRODUCT IS SWALLOWED, DO NOT INDUCE VOMITING. IF VICTIM IS CONSCIOUS GIVE PLENTY OF WATER TO DRINK. GET MEDICAL ATTENTION AT ONCE.

SECTION IV - S P E C I A L P R O T E C T I O N I N F O R M A T I O N

PROTECTIVE CLOTHING : WEAR VITON GLOVES OR USE GLOVES WITH DEMONSTRATED RESISTANCE TO THE INGREDIENTS IN THIS PRODUCT.
EYE PROTECTION : WEAR TIGHT-FITTING SPLASH-PROOF SAFETY GLASSES ESPECIALLY IF CONTACT LENSES ARE WORN.
RESPIRATORY PROTECTION: KEEP FACE AWAY FROM SPRAY MIST AND DO NOT BREATHE VAPORS.
VENTILATION : VENTILATION SHOULD BE EQUAL TO OUTDOORS. USE EXHAUST FANS AND/OR EXHAUST HOOD IN ENCLOSED SPACES.

SECTION V - P H Y S I C A L D A T A (FOR FILL MATERIAL ONLY)

BOILING POINT (F)	: 105-620	SPECIFIC GRAVITY	: 1.5
VAPOR PRESSURE(MMHG)	: 122.5	PERCENT VOLATILE BY VOLUME (%)	: 43.7
VAPOR DENSITY(AIR=1)	: N/D	EVAPORATION RATE(CCL4 =1)	: 1.0
SOLUBILITY IN WATER	: NEGLIGIBLE	PH(CONCENTRATE)	: N/A
		PH(USE DILUTION OF N/A)	: N/A

APPEARANCE AND ODOR : A CLEAR, BROWN OILY LIQUID HAVING A STRONG, SWEET ODOR.

SECTION VI - F I R E A N D E X P L O S I O N D A T A

FLASH POINT(F) (METHOD USED): NOT FLAMMABLE (CSMA)
FLAMMABLE LIMITS LEL N/A UEL N/A
EXTINGUISHING MEDIA : CARBON DIOXIDE, DRY CHEMICAL AND FOAM.
SPECIAL FIRE FIGHTING: WEAR SELF-CONTAINED POSITIVE PRES. BREATHING APPARATUS.
UNUSUAL FIRE HAZARDS : CONCENTRATED VAPOR MAY IGNITE IF EXPOSED TO SPARK.

SECTION VII - R E A C T I V I T Y D A T A

STABILITY	:	STABLE
INCOMPATIBILITY(AVOID)	:	HEAT, OPEN FLAME, SPARK, AND OXIDIZING AGENTS
POLYMERIZATION	:	WILL NOT OCCUR.
HAZARDOUS DECOMPOSITION	:	HYDROGEN CHLORIDE, PHOSGENE, AND CHLORINE GAS

SECTION VIII - S P I L L A N D D I S P O S A L P R O C E D U R E S

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
OBSERVE SAFETY PRECAUTIONS IN SECTIONS 4 & 9 DURING SPILL CLEAN-UP. LARGE SPILLS ARE UNLIKELY DUE TO PACKAGING. SPILL MAY BE ABSORBED ON AN INERT ABSORBENT (eg ZEP-O-ZORB), PLACED IN A SUITABLE CONTAINER FOR DISPOSAL. WASH AREA THOROUGHLY WITH A DETERGENT SOLUTION AND RINSE WELL WITH WATER.

WASTE DISPOSAL METHOD:
PRODUCT IS CONSUMED IN USE. DO NOT CRUSH, PUNCTURE OR INCINERATE SPENT CONTAINERS. LARGE NUMBERS OF AEROSOL CONTAINERS MAY REQUIRE HANDLING AS A HAZARDOUS WASTE, BUT IN MOST STATES TOTAL HAZARDOUS WASTE QUANTITIES LESS THAN 220 LBS PER MONTH MAY ALLOW DISPOSAL IN A CHEMICAL OR INDUSTRIAL WASTE LANDFILL. CONSULT LOCAL, STATE AND FEDERAL AGENCIES FOR THE PROPER DISPOSAL METHOD IN YOUR AREA.

RCRA HAZ. WASTE NOS. : F002

SECTION IX - S P E C I A L P R E C A U T I O N S

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING:
DO NOT STORE AT TEMPERATURES ABOVE 120F. OR IN DIRECT SUNLIGHT. DO NOT PUNCTURE OR INCINERATE CONTAINER.
DO NOT BREATHE SPRAY MISTS OR VAPORS.
AVOID PROLONGED CONTACT WITH SKIN.
KEEP PRODUCT OUT OF EYES.
VAPORS ARE HEAVIER THAN AIR AND WILL ACCUMULATE AT LOW POINTS. VENTILATION SHOULD INCLUDE FLOOR LEVEL EXHAUSTING.
KEEP OUT OF THE REACH OF CHILDREN.

SECTION X - T R A N S P O R T A T I O N D A T A

DOT PROPER SHIPPING NAME
CONSUMER COMMODITY
DOT HAZARD CLASS: N/A
DOT I.D. NUMBER : N/A DOT LABEL/PLACARD: ORM-D
EPA TSCA CHEMICAL INVENTORY - ALL INGREDIENTS ARE LISTED
EPA CWA 40CFR PART 117 SUBSTANCE(RQ IN A SINGLE CONTAINER): NONE

ANSAC
AMERICAN NATURAL SODA ASH CORP.
8 Wright Street • Westport, CT 06880, USA • Tel. 203-226-9056 • Telex 4750189 or 179095

Material Safety Data Sheet

soda ash

PRODUCT IDENTIFICATION

Brand Name ..... soda ash
Chemical Name ..... Sodium carbonate
Common Name ..... Soda ash
Formula ..... Na_2CO_3
DOT Proper
Shipping Name ..... Not applicable
DOT Hazard
Class ..... Not applicable
DOT I.D. Number ..... Not applicable
Reportable Quantity (RQ) .. Not applicable
CAS Number 497-19-8

PHYSICAL AND CHEMICAL PROPERTIES

State ..... Granular solid
Melting Point C 851
Boiling Point C ..... Decomposes
Color ..... White
Odor ..... None
Bulk Density, lb/cu. ft. ..... 50 to 65
Weight Per Gallon ..... Not applicable
Specific Gravity @ 20C 2.5
Water Solubility, % by wt. @ 20C .. 22.6
Flash Point And Method ..... Not applicable
pH ..... Not applicable

HAZARDOUS INGREDIENTS

Chemical Name	Common Name(s)	CAS Number	Hazard
Sodium carbonate	Soda ash	497-19-8	Irritant to eyes, mucous membranes and skin.

PHYSICAL HAZARD INFORMATION

Explosive: No — Upper Explosive Limit: Not applicable — Lower Explosive Limit: Not applicable

Pyrophoric: No

Flammable: No — Flammability Class: Not applicable

Combustible: No — Organic Peroxide: No

Oxidizer: No — Compressed Gas: No

Reactivity: Normally stable. May react violently with strong acids. Carbon dioxide gas and large quantities of heat can be evolved. Reacts with hydrated lime in the presence of moisture to form caustic soda, a corrosive.

Incompatibilities: Keep away from aluminum powder, fluorine, phosphorous pentoxide, sulfuric acid, ammoniacal silver nitrate and molten lithium.

Hazardous Decomposition: Soda ash decomposes at temperatures above 1000C, releasing carbon dioxide gas (CO_2). Carbon dioxide is an asphyxiant and may affect respiration rate or interfere with breathing. The sodium oxide residue sublimes at 1275C, forming vapors and mists of caustic soda on contact with moisture or water.

Conditions To Avoid: Do not expose to intense heat.

KMB00006403

Reported As A Potential Carcinogen Or Carcinogen	☒ Not Applicable	☐ National Toxicology Program
	☐ OSHA	☐ International Agency For Research On Cancer

PRECAUTIONS FOR SAFE HANDLING AND USE

Avoid contact with eyes, skin, and clothing.
Avoid breathing dust.
Use with adequate ventilation.
Keep container closed when not in use.
Wash thoroughly after handling.

SPILL AND LEAK PROCEDURES

Soil Release:	Shovel and sweep up. Dispose of in a chemical waste facility as permitted by federal (RCRA), state and local regulations.
Water Spill:	Dilute and disperse with water jets, propellers or similar agitation techniques.
Air Spill:	Keep upwind. Treat impact site as appropriate for soil or water spill.
Occupational Spill:	Shovel and sweep up. As permitted, small spills may be washed to an industrial sewer. Large amounts can be disposed of in a chemical waste facility as permitted by federal, state and local regulations.
RCRA Waste Number:	Not applicable.

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	Use general dilution and local exhaust ventilation techniques to meet nuisance dust exposure limit.
Respirator:	Use NIOSH/MSHA approved dust type respirator.
Eye Protection:	Use safety glasses or safety goggles. Ensure eyewash fountain is located in immediate work area.
Gloves:	Use gloves that will not allow alkaline solutions to penetrate.
Clothing:	Wear easily washable clothing. Change daily or more often if contaminated. Wash clothing before reuse.

MATERIAL SAFETY DATA SHEET

September, 1990

I. MATERIAL IDENTIFICATION

Name
Calcined Petroleum Coke

Manufacturers Name
Petrocokes Limited

Transportation Emergency Phone
415-788-5400 (Sumitomo San Francisco)

II. OSHA HAZARD DETERMINATION

The material is not known to be hazardous as defined by OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Refer to Sections VII and XI of the MSDS for more information.

III. PHYSICAL DATA

Appearance and Odor
Dark gray or black solid;

% Volatiles (Volume %)
0 - 1%

Boiling Point
Solid

Solubility in Water
Insolubie

Melting Point
Nonmelting solid

Bulk Density
Approximately 52 lb/cu ft

IV. REACTIVITY DATA

Stable: X Unstable: ___
Reactivity: Not reactive under normal conditions.
Hazardous Decomposition Materials: Combustion may produce oxides of sulfur and carbon. Incomplete combustion can produce carbon monoxide.

Hazardous Polymerization: Will not polymerize.

KMB00006405

Carcinogencity:
This material is not known to contain any chemical listed as a carcinogen or suspected carcinogen by OSHA, IARC, or NTP at a concentration greater than 0.1%.

VIII. EMERGENCY AND FIRST AID INFORMATION

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Skin: In case of contact, immediately wash skin with soap and plenty of water. If irritation develops, consult a physician.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: If swallowed, do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconsious person. Call a physician.

IX. SPILL, LEAK, AND DISPOSAL INFORMATION

In Case of Spill or Leak: Contain spill immediately in smallest possible area. Recover as much of the product as possible by shovel or mechanical means. Nonrecyclable product and contaminated soils and other materials should be placed in proper container for storage and ultimate disposal. Avoid washing, draining, or directing material to storm or sanitary sewers.

NOTE: Review FIRE AND EXPLOSION HAZARDS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.

Waste Disposal Method: Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

X. PRECAUTIONARY MEASURES

Respiratory Protection: Select appropriate NIOSH-approved respiratory protection where necessary to maintain exposures below the acceptable limits in Section VII. Proper respirator selection should be determined by adequately trained personnel and based on the contaminant(s), the degree of potential exposure, and published respiratory protection factors.

#PV 119G

FONHANCE, CA 91

KMB00006406

TOXIC SUBSTANCES CONTROL ACT (TSCA), 40 CFR 710
This material is in the TSCA Inventory of Chemical Substnaces and/or is otherwise in compliance with TSCA.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA),40, CFR 261, SUBPART C AND D
The material, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however, it could be considered hazardous if it meets criteria for being toxic, corrosive, ignitable, or reactive according to the U.S.EPA definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This material could also become a hazardous waste if it is mixed with or comes in contact with a listed hazardous waste. If such contact or mixing occurs, check 40 CFR 261 to determine wheter it is a hazardous waste. If it is a hazardous waste, regulations 40 CFR 262, 263, 264,, and 268 may apply.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 116.4A, SECTION 311
The material is not known to contain any ingredient(s) subject to the Act.

HAZARDOUS MATERIALS TRANSPORTATION REGULATIONS, 49 CFR 171-178
The material is not known to contain any ingredient(s) subject to the Regulations.

FOREIGN REGULATIN
CANADIAN HAZARDOUS PRODUCTS ACT (WHMIS)
The material is not a WHMIS Controlled Product.

STATE REGULATIONS
CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 ("PROPOSITION 65")
The material contains ingredient(s) known to the State of California to cause cancer, birth defects, or other reproductive harm. Read and follow label directions and use care when handling or using all petroleum products.

Ingredient(s):
Nickel (<1.0%)

KMB00006407

OCT 29 1990

BETZ LABORATORIES,INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19047
BETZ MATERIAL SAFETY DATA SHEET
24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 215/355-3300

PRODUCT : POLYMER 1154L

EFFECTIVE DATE 10-18-90
PRINTED: 18-Oct-1990

REVISIONS TO SECTIONS: 1;EDIT:2

PRODUCT APPLICATION : FLOCCULANT.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD IS LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

ISOPARAFFINIC PETROLEUM DISTILLATE***CAS#64742-47-8;COMBUSTIBLE LIQUID; IRRITANT;MANUFACTURER'S RECOMMENDED EXPOSURE LIMIT:10MG/M3;PEL/TLV:NONE.

ISOPROPYL ALCOHOL***(IPA);CAS#67-63-0;FLAMMABLE LIQUID;CHRONIC OVEREXPOSURE MAY CAUSE LIVER AND KIDNEY TOXICITY;PEL/TLV:400PPM (500PPM-STEL).

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: 1% SOL. (APPROX.) 4.0	ODOR: SLIGHT HYDROCARBON
FL.PT.(DEG.F): >200 P-M(CC)	SP.GR.(70F)OR DENSITY: 1.028
VAPOR PRESSURE(mmHG): 18	VAPOR DENSITY(AIR=1): <1
VISC cps70F: 560	%SOLUBILITY(WATER): 1
EVAP.RATE: <1 ETHER=1	APPEARANCE: OFF-WHITE
PHYSICAL STATE: EMULSION	FREEZE POINT(DEG.F): -2

-----SECTION 3----------REACTIVITY DATA----------

STABLE.MAY REACT WITH STRONG OXIDIZERS.DO NOT CONTAMINATE.BETZ TANK CLEAN-OUT CATEGORY 'B'

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

OCT 29 1990

PRODUCT: POLYMER 1154L

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
MODERATELY IRRITATING TO THE SKIN

ACUTE EYE EFFECTS ***
MODERATELY IRRITATING TO THE EYES

ACUTE RESPIRATORY EFFECTS *** PRIMARY ROUTE OF EXPOSURE
VAPORS,GASES,MISTS OR AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.PROLONGED EXPOSURE MAY CAUSE DIZZINESS AND HEADACHE.

CHRONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED EXPOSURES MAY CAUSE DEFATTING-TYPE DERMATITIS.

MEDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

POLY-VU
#PV-119G

SYMPTOMS OF EXPOSURE ***
EXCESSIVE SKIN CONTACT MAY CAUSE DEFATTING OR DRYING OF SKIN;EXCESSIVE INHALATION OF VAPORS MAY CAUSE DIZZINESS,HEADACHE AND NAUSEA.

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

INGESTION***
DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

SPILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL, SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
FLUSH AREA WITH WATER. WET AREA MAY BE SLIPPERY. SPREAD SAND/GRIT.

DISPOSAL INSTRUCTIONS***
WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER TREATMENT FACILITY,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A PERMITTED WASTE TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT
PRODUCT(AS IS)-
INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA: DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

K&M Compa
TORRANCE, CA 90

REVISION DATE: 2/91

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: SUL-FLOW, ANHYDROUS SODIUM SULFITE, TECHNICAL GRADE
SULF-LITE, ANHYDROUS SODIUM SULFITE, PHOTOGRAPHIC GRADE
ANHYDROUS SODIUM SULFITE, INDUSTRIAL GRADE

SYNONYM: Sodium Sulfite, Anhydrous

COMPANY NAME:
TENNECO MINERALS COMPANY
(Corporate Office)
12136 West Bayaud Avenue
P.O. Box 281300
Lakewood, CO 80228

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPLOSION OR ACCIDENT:
IN CONTINENTAL U.S.: Call CHEMTREC
24 Hour Number 1-800-424-9300
IN CANADA: Call CANUTEC Collect
24 Hour Number 0-613-996-6666

GENERAL PRODUCT INFORMATION:
Call Tenneco Minerals Company, Green River, WY Customer Service Informati
Number 1-800-443-2785 (8:00 A.M.- 5:00 P.M., Monday through Friday)

PRODUCT USE: Paper pulping, anti-chlor, corrosion inhibitor.
CHEMICAL FAMILY: Inorganic Salt
FORMULA: Na_2SO_3
CAS NUMBER: 7757-83-7
DOT PROPER SHIPPING NAME: Not Applicable
DOT HAZARD CLASS: None
UN/NA NUMBER: None

SECTION II - INGREDIENTS/RECOMMENDED EXPOSURE LIMITS

HAZARDOUS INGREDIENTS	CAS NUMBER	PERCENT	EXPOSURE LIMIT (MG/M^3)
None			

OTHER INGREDIENTS	CAS NUMBER	PERCENT	EXPOSURE LIMIT (MG/M^3)	
Sodium Sulfite	7757-83-7	>94	None	See Note Below *
Sodium Sulfate	7757-82-6	<5	None	See Note Below *
Sodium Chloride	7647-14-5	<2	None	See Note Below *

* NOTE: Control as a particulate not otherwise classified (PNOC) so-called "nuisance" dust (ACGIH 1990-1991 Threshold Li Values). Current OSHA PEL values for inert or nuisance dusts 15 mg/m^3 (total dust) and 5 mg/m^3 (respirable dust); AC 1990-1991 value for PNOC's is 10 mg/m^3 (total dust).

SECTION III - PHYSICAL DATA

GENERAL APPEARANCE: Free-flowing white crystal
ODOR: Odorless
BOILING POINT: Not Applicable
BULK DENSITY: 85-95 lbs/ft^3
MELTING POINT: Decomposes
VAPOR PRESSURE: Not Applicable
VAPOR DENSITY (AIR=1): Not Applicable
SOLUBILITY (WATER, % by weight): 21% at 68^oF
pH: 9-10 (1% solution)

file: PBT-4 - Waste permits

PERMIT TO DISPOSE

SANIFILL SOLUTIONS®... NON-HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

HILLSBORO LANDFILL 202 expiration: 1 year from approval date

TRANSPORTER: MDC CERCLA RQ = none

SPECIAL INSTRUCTIONS: NONE 1000 tons or 500 TONS ☐ pcs ☒ special waste

BILLING INFORMATION: LANDFILL ACCOUNT MET001 PO # N/A job # N/A

APPROVED BY: [signature] 02/29/96

202

→ A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER ← FAXED

there is a minimum charge of $50 - $60 for each load/profile of special waste

✓WHAT IS THE WASTE CALLED? Soda Ash: CAS # 497-19-8
Coal Tar Pitch: CAS # 65996-93-2

✓HOW WAS THE WASTE CREATED?
Waste material from cargo loading

✓WHO CREATED THE WASTE? (generator)
Hall-Buck Marine, Inc.
Portland Bulk Terminal

✓WHERE WAS THE WASTE CREATED? (site name / address / city / state / county)
11040 N. Lombard, T-4, Pier 4
Portland, Oregon 97203 MULTNOMAH

$70 + $20 = $90 ÷ 10 = $9/T

✓HOW MUCH WASTE IS THERE? (tons or yards or drums) 10 cubic yards/week

✓WHAT COLOR IS THE WASTE? Soda Ash=white; Coal Tar Pitch= Black

✓WHAT DOES IT SMELL LIKE? Odorless

✓WHO CAN WE CONTACT ABOUT THE WASTE? (name / company / voice / fax):
Brad Clinefelter, Hall-Buck Marine, Inc.
(503) 285-2990 Fax: (503) 285-7392

✓HOW OFTEN WILL THE WASTE BE DISPOSED OF? weekly
OR IS THIS A ONE TIME DISPOSAL?

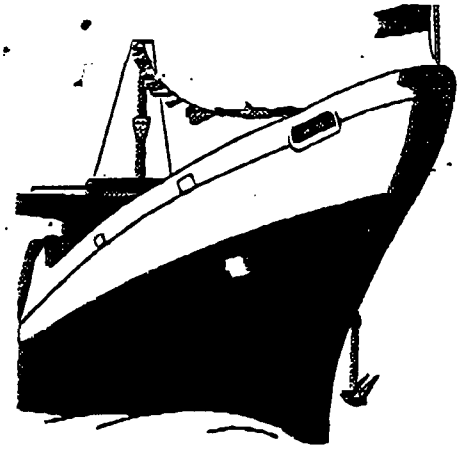
✓IS THIS A HAZARDOUS WASTE AS DEFINED BY FEDERAL OR STATE OR OTHER REGULATIONS? no

✓CERTIFICATION

The certification must be signed by the generator, or the generator's authorized representative, and indicates that a first hand knowledge of the wastes' characteristics is known.

I hereby certify that all information is truly representative of the above described waste. I agree to notify SANIFILL if there is a change in the waste stream information as submitted for permit. I also authorize SANIFILL to periodically resample the waste, at my expense. I also certify that all samples were collected according to EPA Method SW-846 and the samples were analyzed by a qualified certified laboratory and that the appropriate chain of custody was attached. I further certify that the wastes submitted for disposal are not designated as Hazardous by Federal or state regulations.

DATE: February 21, 1996 COMPANY: Hall-Buck Marine, Inc.



ROUTE TO:
TO:
RE:
TBS
SJD
DWD
KPP

HALL-BUCK MARINE, INC.
11404 N. LOMBARD
TERMINAL 4, PIER 4
PORTLAND, OR 97203
PHONE: (503) 285-2990 FAX: (503) 285-4467

from → ~~TO:~~ Marie -

AT:

FAX:

FROM: Brent

RE: HILLSBORO LANDFILL PERMIT

PAGES INCLUDING COVER: 2

MESSAGE: BRAD HAD A DISCUSSION W/SOMEONE AT Hillsboro LAND fill TO DISCUSS PERMIT AND CHANGES TO PERMIT. BRAD INDICATED THAT INSTEAD OF 500T/YEAR, THE RATE SHOULD BE 1KT/Year.

to

done

10001 ?

OK - So increase the 10 cy/wk to 20 for total of 1040 T/yr

OK (assumes 1cuyd = 1 ton) - Mhs

RECEIVED
DEC - 6 1996

to file: PBT-4 - Waste: Disposal Permits

USA WASTE SERVICES, INC....NON HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

Hillsboro Landfill, Inc.

3205 SE MINTER BRIDGE ROAD HILLSBORO, OR 97123

PERMIT # 202

PERMIT TO DISPOSE OF NON-HAZARDOUS MATERIALS

EXPIRES: 3/13/98

GENERATOR: HALL-BUCK MARINE	
DESCRIPTION: *CHEM OFF SPEC*	**TONS:** *1000*
☒ **SPECIAL WASTE** ☐ **PCS**	
LOCATION: *PORTLAND*	**COUNTY:** *Multnomah*
CONTACT: *BRAD CLEINFELDER*	**PHONE:** *285-2990*

BILLING: *Landfill account MET001*	**PO#:** *N/A*	**JOB#:** *N/A*

We accept business checks, cash, VISA / Mastercard or charge(with prior approval)

SPECIAL HANDLING : *NONE:*

APPROVED: CT *CHRIS THOMAS* **DATE:** *03/13/97 8:25:52 AM*

A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER

THERE IS A MINIMUM CHARGE OF $80-$60 FOR EACH LOAD OF SPECIAL WASTE

USA WASTE SERVICES, INC.

HAZARDOUS WASTE IS STRICTLY PROHIBITED

USA WASTE SERVICES, INC. – CASCADE DIVISION

NON-HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

REQUEST FOR DISPOSAL v3T

✓ WHAT IS THE WASTE CALLED? Soda Ash : CAS # 497-19-8
Coal Tar Pitch : CAS # 65996-93-2

✓ HOW WAS THE WASTE CREATED?
Waste material from cargo vessel loading and unloading

✓ WHO CREATED THE WASTE? (generator) Hall-Buck Marine, Inc
Terminal 4, Portland

✓ WHERE WAS THE WASTE CREATED? (site name / address / city / state / county)
Hall-Buck Marine, Inc
11040 N. Lombard, T-4, Pier 4
Portland, Oregon 97203 Multnomah County

✓ HOW MUCH WASTE IS THERE? (tons or yards or drums) 10 cubic yards per week

✓ WHAT COLOR IS THE WASTE? Soda Ash is white, Coal Tar Pitch is black

✓ WHAT DOES IT SMELL LIKE? Odorless

✓ WHO CAN WE CONTACT ABOUT THE WASTE? (name / company / voice / fax):
Brad Clinefelter, Terminal Manager, Hall-Buck Marine, Inc, Terminal 4
(503) 285-2990, Fax: (503) 285-4467

✓ HOW OFTEN WILL THE WASTE BE DISPOSED OF?
OR IS THIS A ONE TIME DISPOSAL? Weekly

✓ IS THIS A HAZARDOUS/DANGEROUS/TOXIC WASTE AS DEFINED BY FEDERAL OR STATE OR OTHER REGULATIONS? No

✓ CERTIFICATION

The certification must be signed by the generator, or the generator's authorized representative, and indicates that a first hand knowledge of the wastes' characteristics is known.

I hereby certify that all information is truly representative of the above described waste. I agree to notify USA if there is a change in the waste stream information as submitted for permit. I also authorize USA to periodically reanalyze the waste, at my expense. I also certify that all samples were collected according to EPA Method SW-846 and the samples were analyzed by a qualified/certified laboratory and that the appropriate chain of custody was attached. I further certify that the wastes submitted for disposal are not designated as Hazardous by Federal or state regulations.

DATE: 3-12-97 COMPANY: Hall-Buck Marine, Inc.

PRINTED NAME: Brad A. Clinefelter SIGNATURE: Brad A. Clinefelter

✓ PLEASE SEE THE NEXT PAGE FOR BILLING AND APPROVAL INFORMATION.

BILLING INFORMATION

✓WHICH DISPOSAL SITE WILL THE WASTE GO TO?

✓ HILLSBORO LANDFILL 3205 SE MINTER BRIDGE ROAD, HILLSBORO, OR 97123 (503) 640-9427

___ N. WASCO COUNTY LANDFILL 2550 STEEL ROAD, THE DALLES, OR 97058 (503) 296 4082

___ RIVERBEND LANDFILL 13469 SW HIGHWAY 18, McMINNVILLE, OR 97128 (503) 472-9788

___ GRAHAM ROAD LANDFILL S. 1820 GRAHAM ROAD, MEDICAL LAKE, WA 99022 (509) 244-0151

✓WHO WILL TRANSPORT THE WASTE TO THE LANDFILL? *(name / company / phone / fax)*:

✓ roll-off box ___ belly dump ___ end dump ___ drums ___ pickup/trailer ___ other

✓PAYMENT INFORMATION:

✓ LANDFILL ACCOUNT ___ CASH ___ BUSINESS CHECK ___ VISA/MASTERCARD

LANDFILL ACCOUNT # 202 P.O.# (for accounts only) _____

FOR INFORMATION ABOUT YOUR LANDFILL ACCOUNT PLEASE CONTACT THE LANDFILL

APPROVAL INFORMATION

FAX

FAX COMPLETED FORM AND LABORATORY RESULTS TO **CHRIS THOMAS** AT

OREGON (503) 648-2490 WASHINGTON (800) 583-5263

A PERMIT WILL BE FAXED TO YOU

FOR INFORMATION ON CHARACTERIZING YOUR WASTE AND DETERMINING WHETHER OR NOT THE WASTE IS ACCEPTABLE, CONTACT **CHRIS THOMAS** at:
Oregon - (503) 648-0817 (Portland) Washington -(800) 665-8001
e-mail: c-thomas@lx.netcom.com

****this form is also available on microsoft word****

USA WASTE SERVICES INC

file: PBT : Waste : "Industrial Waste Approvals"

GENERATOR'S WASTE PROFILE SHEET

PLEASE PRINT IN INK OR TYPE

Waste Profile Sheet Code

WMNA 090240

ok without

This form is to be used to comply with the requirements of a waste agreement.

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ATTACHED

(Shaded Areas For Contractor Use Only)

Decision Expiration Date: / /

Contractor Sales Rep#: _____ Service Agr. Renewal Date: / /

A. WASTE GENERATOR INFORMATION

1. Generator Name: HALL-BUCK MARINE, INC. 2. SIC Code: 4493
3. Facility Address (site of waste generation): 11040 N. Lombard, Terminal 4, Pier 4
4. Generator City, State/Province: Portland, OR 5. Zip/Postal Code: 97203
6. Generator USEPA/Federal ID #: N/A 7. State/Province ID #: N/A
8. Technical Contact: Mark Downing 9. Phone: (503) 285 - 2990

B. WASTE STREAM INFORMATION (See Instructions)

1. Name of Waste: Settling Pond Sludge
2. Process Generating Waste: Washdown of equipment
3. Annual Amount/Units: 43,000 gallons 4. Type A ☐ Type B ☐
5. Special Handling Instructions/Supplemental Information: Wear gloves and protective clothing
6. Incidental Waste Types and Amounts: None

C. TRANSPORTATION INFORMATION

1. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Sludge XXX ☐ Bulk Solid ☐ Drum/Box ☐ Other _____
2. Supplemental Shipping Information: _____
3. Is this a DOT hazardous material? XXX ☐ No ☐ Yes (If yes, complete 4, 5 & 6) 4. Hazard Class/ID #: _____
5. Reportable Quantity/Units (lb/kg): N/A 6. Shipping Name: Industrial Waste Nos (Non-hazardous)

D. TECHNICAL MANAGER DECISION (Check One) ☐ APPROVED ☐ DISAPPROVED ☐ Check if additional information is attached

If Disapproved, Explain: _____

If Approved, Continue.

1. Management Method(s) _____
2. Precautions, Conditions, or Limitations on Approval: _____
3. For Type A Wastes, Laboratory Analysis of a Representative Sample Was: ☐ Waived ☐ Attached
   If waived, explain why: _____
4. List Non-WMI Facility that is Approved to Manage this Waste: _____ Date: _____

Tech. Mgr. Signature: _____ Name (Print): _____ Date: _____

E. MANAGEMENT FACILITY INFORMATION / DECISION

1. Proposed Management Facility: _____
2. Proposed Intermediate Transfer Facility: _____ 3. Transporter: _____
4. **Management Facility Gen. Mgr. Decision (Check One)** ☐ **APPROVED** ☐ **DISAPPROVED**

If Disapproved, Explain: _____

If Approved, List Precautions, Conditions, or Limitations on Approval: _____

General Mgr. Signature: _____ Name (Print): _____ Date: _____

Turn Page and Complete Side 2 (If Type B Special Waste, only complete Part J of Side 2)

GENERATOR'S WASTE PROFILE SHEET

PLEASE PRINT IN INK OR TYPE

F. PHYSICAL CHARACTERISTICS OF WASTE (See Instructions)

1. Color	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F/21°C:	4. Layers	5. Specific Gravity	6. Free Liquids:
Brown	XXX ☒ No ☐ Yes; if so, describe:	XXX ☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder ☐ Other:	XXX ☒ Multi-layered ☐ Bi-layered ☐ Single Phased	Range -	XXX ☒ Yes ☐ No Volume: 50-70 %

7. pH: ☐ ≤2 ☐ > 2-4 ☐ 4-7 ☐ 7 ☐ 7-10 ☐ 10- <12.5 ☐ ≥12.5 ☐ Range ☐ NA

8. Flash Point: ☐ None ☐ <140°F/60°C ☐ 140 - 199°F/60 - 93°C ☐ ≥200°F/93°C XXX ☒ Closed Cup ☐ Open Cup

G. CHEMICAL COMPOSITION

	RANGE (MIN-MAX)
1. Wood Pellets	50 - 70 %
Coal Tar Pitch	10 - 20 %
Bentonite Clay	10 - 20 %
Soda Ash	02 - 05 %
	- %
	- %
	- %
	- %
	- %
Total:	100 %

2. Does the waste contain any of the following? (provide concentration if known):

	NO	or	LESS THAN	or	ACTUAL
PCBs	XXX ☒		☐ < 50 ppm		____ ppm
Cyanides	XXX ☒		☐ < 30 ppm		____ ppm
Sulfides	XXX ☒		☐ < 500 ppm		____ ppm

Please note: Unless analytical results are attached, the chemical composition identification should include, at a minimum, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Pesticides, Herbicides, and any other TCLP constituents that may be present in the waste. The total composition must be greater than or equal to 100%. (.0001% = 1 ppm or 1 mg/l)

3. Indicate method used to determine composition (if provided): XXX ☒ TCLP ☐ Total ☐ Other: ____

H. SAMPLING SOURCE (e.g., Drum, Lagoon, Pit, Pond, Tank, Vat) Sump

I. REPRESENTATIVE SAMPLE CERTIFICATION

1. Print Sampler's Name: See attached analysis 2. Sample Date: ____
3. Sampler's Title: ____
4. Sampler's Employer (if other than Generator): ____

The sampler's signature certifies that any sample submitted is representative of the waste described above pursuant to 40 CFR 261.20(c) or equivalent rules.

5. Sampler's Signature ____

J. GENERATOR CERTIFICATION

By signing this profile sheet, the Generator certifies:

1. This waste is not a "Hazardous Waste" as defined by USEPA or Canadian Federal regulation and/or the state/province.
2. This waste does not contain regulated radioactive materials or regulated concentrations of PCB's (Polychlorinated Biphenyls).
3. The unshaded portions of this sheet and the attachments contain true and accurate descriptions of the waste material. All relevant information regarding known or suspected hazards in the possession of the Generator has been disclosed.
4. The Generator has read and understands the Contractor's Definition of Special Waste included in Part B.5. of the attached instructions form. All types and amounts of special wastes provided in incidental amounts have been identified in section B.6. of this form.
5. The analytical data presented herein or attached hereto were derived from testing a representative sample taken in accordance with 40 CFR 261.20(c) or equivalent rules.
6. If any changes occur in the character of the waste, the Generator shall notify the Contractor prior to providing the waste to the Contractor.

7. Signature ____ 8. Title Terminal Manager (HBM/PBT)

9. Name (Type or Print) Brad A. Clinefelter 10. Date September 24, 1993

(Can WMNA + sent out. Now signed by WMNA)

Report Date: October 7, 1993
Job#: GE-930903BB-1
PO#: 4410
Project#: None Provided
Project: Sludge Analysis

Attention: Brad Clinefelter
Hall-Buck Marine, Inc.
P.O. Box 83838
Portland, OR 97283

SAMPLE INFORMATION:
Date Samples Were Received By Laboratory: 09/03/93

Lab No.	Field Identification	Sample Matrix	Date	Time
1	Waste Water Ponds - Grab	Sludge	09-03-93	1430

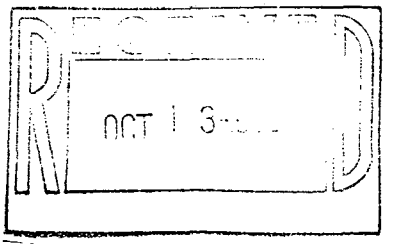
ANALYTICAL RESULTS ARE ON THE FOLLOWING PAGE(S).

Sincerely,

Susan M. Coffey
President

SMC/lws

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.



COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Job#: GE-930903BB-1

Hall-Buck Marine, Inc.

Sample Id: 1 Waste Water Ponds - Grab

Parameter	Method	Detection Limits	Grab Results
pH (S.U.)	EPA 150.1	---	10.6
Heating Value (BTU/lb)	ASTM D129-69	100	8,000

SUBJECT: TCLP Analysis

Analyte	Method	Detection Limit	Grab Results	EPA Limit
Arsenic	*	0.2	ND	5.0
Barium	*	0.01	0.26	100
Cadmium	*	0.04	ND	1.0
Chromium	*	0.1	ND	5.0
Lead	*	0.2	0.3	5.0
Mercury	*, 7470	0.05	ND	0.2
Selenium	*	0.2	ND	1.0
Silver	*	0.1	ND	5.0

Results are reported in milligrams per liter (mg/L)

ND means none detected at or above the detection limit listed.

* Leachate preparation by EPA SW-846 Method 1311. Analysis by EPA SW-846 Method 6010, ICP, unless otherwise noted.

COFFEY LABORATORIES, INC.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Job#: GE-930903BB-1

Hall-Buck Marine, Inc.

Sample Id: 1 Waste Water Ponds - Grab

Analysis Performed: Volatile Organics in TCLP Extract, by EPA Methods 8010/8020, GC/PID/HED.

Analyte	Detection Limit	Laboratory Blank	Grab Results	EPA Limit
Benzene	0.05	ND	ND	0.5
Carbon tetrachloride	0.05	ND	ND	0.5
Chlorobenzene	0.05	ND	ND	100
Chloroform	0.05	ND	ND	6.0
1,4-Dichlorobenzene	0.05	ND	ND	7.5
1,2-Dichloroethane	0.05	ND	ND	0.5
1,1-Dichloroethylene	0.05	ND	ND	0.7
Methyl ethyl ketone	0.50	ND	ND	200
Tetrachloroethylene	0.05	ND	ND	0.7
Trichloroethylene	0.05	ND	ND	0.5
Vinyl chloride	0.20	ND	ND	0.2

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

Analysis Performed: Phenols and Miscellaneous Semi-Volatile Organics in TCLP Extract, by Modified EPA Method 8040, GC/FID.

Analyte	Detection Limit	Laboratory Blank	Grab Results	EPA Limits
m-Cresol	5.0	ND	ND	200
o/p Cresol	5.0	ND	ND	200
2,4-Dinitrotoluene	0.1	ND	ND	0.13
Nitrobenzene	1.0	ND	ND	2.0
Pentachlorophenol	5.0	ND	ND	100
Pyridine	1.0	ND	ND	5.0
2,4,5-Trichlorophenol	5.0	ND	ND	400
2,4,6-Trichlorophenol	1.0	ND	ND	2.0

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

Job#: GE-930903BB-1

Hall-Buck Marine, Inc.

Sample Id: 1 Waste Water Ponds - Grab

Analysis Performed: Chlorinated Semi-Volatile Organics in TCLP Extract, by Modified EPA Methods 8080/8150, GC/ECD.

Analyte	Detection Limit	Laboratory Blank	Grab Results	EPA Limits
2,4-D	0.1	ND	ND	10.0
2,4,5-TP	0.1	ND	ND	1.0

Results expressed as mg/L unless otherwise noted.

ND means none detected at or above the detection limit listed.

COFFEY LABORATORIES, INC.

12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

COFFEY LABORATORIES, INC.
CHAIN OF CUSTODY AGREEMENT

PORTLAND BRANCH
12423 NE Whitaker Way
Portland, OR 97230
(503) 254-1794 FAX: (503) 254-1452

PENDLETON BRANCH
287 SE First
Pendleton, OR 97801
(503) 276-0385

Report Attention: Brad
Company Name: HALL Buck marine
Address:
Phone:( ) FAX:( )
Report Instructions:

Project Name: Sludge Analysis
Project Number:
PO Number:

Sample Turnaround	Reporting Request
[X] Standard	[ ] FAX (T-35)
[ ] Priority (1.5x Std. Fee)	[ ] Verbals (T-1157)
[ ] Rush (2x Std. Fee)	[ ] Extra Report Copy (T-1402) (Fees Associated)
[ ] Emergency (3x Std. Fee)	Initials:

FOR LABORATORY USE ONLY Page 1 of 1
Job Number: GC930903-BB
Custabbr: Hallbuck Ma [ ] NEW
[ ] VISA [ ] M/C Expires:
Card #:
Cash / Check: $ #:
Billing Code: 1 2 3 4
QC LEVEL: 1 2 3 4
FEDX BUS COURIER UPS LAB CLIENT MAIL

Sample ID	Loc.	ID	Collection Date	Collection Time	Media	Analysis Requested	Test/Profile
WASTE WATER POLDS - GRAB	CSS	1p	9-3-93	2 30PM	Sludge	TCLP ANALysis	[illegible]
						Full profile w/o PESTICIDES	455, 4
						BTU Value	63
						pH	721
							1199

Sample Comments:

Sampled by: (Please Print)	Relinquished by: (Please Sign)	Date	Time	Received by: (Sign)	Date	Time
GERALD BARBA	Gerald Barba	9-3-93	3:45PM			
				LAB [signature]	9/3/93	1545

White Copy - Laboratory Copy Yellow Copy - Client Copy

SHADED AREAS FOR LABORATORY USE ONLY

SUBMISSION OF SAMPLES WITH TESTING REQUIREMENTS TO CLI WILL BE UNDERSTOOD TO BE AN AGREEMENT FOR SERVICES IN ACCORDANCE WITH THE CONDITIONS LISTED ON THE BACK OF THE CLIENT COPY.

Focused Environmental Site Assessment

Portland Bulk Terminals, LLC
1550 North Lombard
Terminal 5, Port of Portland
Portland, Oregon 97203

Prepared for

Port of Portland, Oregon
and
Portland Bulk Terminals, LLC

Prepared by

Creekside Environmental Consulting, LLC
21790 SW Chehalis Court
Tualatin, Oregon 97062
(503) 692-8118

July 2001

KMB00006423

TABLE OF CONTENTS

TABLE OF CONTENTS i

LIST OF FIGURES AND APPENDICIES ii

SECTION 1.0 EXECUTIVE SUMMARY 2

SECTION 2.0 QUALIFYING CONDITIONS 3
2.1 PURPOSE 3
2.2 INFORMATION SOURCES 3

SECTION 3.0 SITE RECONNAISSANCE 4
3.1 SITE LOCATION 4
3.2 SITE STRUCTURES AND IMPROVEMENTS 4

SECTION 4.0 SITE BACKGROUND / OPERATING HISTORY 5
4.1 SITE HISTORY 5
4.2 CURRENT OWNERSHIP 5
4.3 AERIAL PHOTOGRAPHS 5
4.4 LOCAL GOVERNMENT INQUIRIES 6
4.5 HISTORICAL REFERENCES 6

SECTION 5.0 ENVIRONMENTAL SETTING 8
5.1 SURFACE WATER AND GROUNDWATER CHARACTERISTICS 8
5.2 SOIL AND GEOLOGICAL CHARACTERISTICS 8
5.3 RADON 8

SECTION 6.0 RESULTS OF ON-SITE INSPECTION 9
6.1 SITE INSPECTION OBSERVATIONS 9
6.2 UNDERGROUND AND/OR ABOVEGROUND STORAGE TANKS 9
6.3 POTENTIALLY HAZARDOUS MATERIALS 10
6.4 ON-SITE INTERVIEWS 10
6.5 VISUAL INSPECTIONS 10
6.6 ADJACENT PROPERTIES AND AREA RECONNAISSANCE 11

SECTION 7.0 REGULATORY/ GOVERNMENTL AGENCY INQUIRIES 12

SECTION 8.0 FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS 13

SECTION 9.0 REFERENCES AND RECORDS OF COMMUNICATION 14

SECTION 10.0 LIMITATIONS 16

KMB00006424

FIGURES

FIGURE 1- SITE LOCATION MAP

FIGURE 2- TOPOGRAPHICAL MAP

FIGURE 3- TAX LOT MAP

FIGURE 4 - SITE PLAN

APPENDICES

APPENDIX A- LEASE AGREEMENT

APPENDIX B- EDR RADIUS MAP

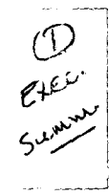
APPENDIX C- AERIAL PHOTOGRAPHS

APPENDIX D- SITE PHOTOGRAPHS

APPENDIX E - ASTM QUESTIONNAIRES

APPENDIX F - WELL LOGS AND GROUNDWATER INFORMATION

KMB00006425


(1)
Exec.
Summ

SECTION 1.0

EXECUTIVE SUMMARY

This report summarizes the findings of a Focused Environmental Site Assessment (ESA) of an approximately 90-acre "potash" (potassium chloride) storage and distribution site located at Terminal 5 (T5), Port of Portland, 15550 North Lombard Street in Section 23, Township 2 North, Range 1 West of the Willamette Meridian, along the west bank of the Willamette River in the Rivergate industrial district of Portland, Oregon.

The ESA was conducted by Creekside Environmental Consulting, LLC (Creekside) for Portland Bulk Terminals, LLC (PBT) to comply with its lease agreement with the Port of Portland. The purpose of the ESA was to review uses and new developments at the property from 1995 to the present date, and to evaluate the presence of recognized or potential environmental conditions that could impact soil, groundwater, or surface water. This ESA consisted of five distinct tasks: (1) reviewed regulatory documents; (2) reviewed surface water data and hydrogeological water quality issues; (3) reviewed historical activities and documented structural improvements; (4) inspected and photographed the site and surrounding properties and interviewed individuals with knowledge of the site and properties adjacent to the site, and (5) prepared this report. Findings and conclusions within this report are based solely on observed evidence and data collected during the performance of our Scope of Work defined in Creekside's proposal dated June 12, 2001.

The site is designated and zoned as Industrial, Heavy (IH) by the City of Portland. Properties adjoining or near the subject site are undeveloped or industrial. The subject site is bordered by the Willamette River to the west, Oregon Steel Mills to the south, North Lombard Street to the east, and Alcatel (fiber optic cable company) to the north. There are no adjoining or adjacent residential properties.

Information obtained in the May 22, 1995 EMCON Phase I "Baseline" ESA report indicates that the subject property was:

- Undeveloped before 1935
- Used for residential and agricultural purposes in the mid-1950s
- Cleared and developed for bulk material handling in the early 1980s

Site reconnaissance, historical photos, and interviews with the site owner indicated that the subject property was developed for bulk material handling of coal in the early 1980's. The facility was abandoned at 85% completion and the site was never used for coal handling. Facility structures include a loading dock, conveyor, railroad spur, bulk product warehouse, bag house dust collectors, storm water collection and drainage system, offices, parking lot, and security gate. The subject site operates with storm water and air quality permits regulated by the Oregon Department of Environmental Quality, and an industrial wastewater discharge permit regulated by the City of Portland.

KMB00006427

Three sites were noted on the state Environmental Cleanup Site Information System (ESCI) within one mile of the site namely Oregon Steel Mills, Union Chemical Division, and Beall Trailers of Oregon. No sites within one mile of PBT-T5 were noted on the state Confirmed Release List (CRL).

A regulatory review of United States Environmental Protection Agency (EPA) and Oregon Department of Environmental Quality (ODEQ) databases found no records for this property (see Appendix A, page 4), meaning that there are no agency-documented investigations or major chemical or waste releases on the site. Site reconnaissance indicated that minor petroleum releases have occurred near the railroad tracks where locomotives are stored. Creekside observed large soil piles (excavated from the northwest corner of the subject site) located near the storm water collection pond. Creekside also reviewed onsite spill records indicating that potash and "soda ash" (sodium carbonate) have been spilled on the railroad tracks, and at the dock, and into the Willamette River on several occasions since 1995. It should be noted that neither of these substances are classified as a hazardous substance as defined by EPA in the Code of Federal Regulations (40 CFR Part 302).

Two aboveground storage tanks (ASTs) were present near the maintenance shop during Creekside's investigation. One AST was used to store gasoline and the other tank was used to store waste oil. Both tanks were provided with secondary containment. No evidence of spills at the tanks was observed during site reconnaissance.

KMB00006428

SECTION 2.0

QUALIFYING CONDITIONS

2.1 PURPOSE

This report summarizes the findings of a Focused Environmental Site Assessment (ESA) of two parcels of land located in Multnomah County, Oregon, tax lots 00500 and 00300 of tax map 2N1W23C and tax lots 01000 and 01100 of tax map 2N1W26. Creekside was retained by Portland Bulk Terminals (PBT) to complete this Focused Environmental Site Assessment (ESA). The ESA was conducted by Creekside Environmental Consulting, LLC (Creekside) for PBT to comply with its lease agreement with the Port of Portland (see Appendix A). Creekside reviewed past and present uses of the property and surrounding areas to evaluate the presence of recognized or potential environmental conditions, which could impact soil, groundwater, or surface water. The ESA Scope of Work, fully described in Creekside's June 5, 2001 proposal to PBT, was conducted consistent with American Society for Testing and Materials (ASTM) standards, and included the following principal tasks:

- Review of regulatory agency lists and files;
- Review surface water data and hydrogeological data;
- Review historical activities and document structural improvements;
- Site reconnaissance and interviews
- Preparation of this ESA report.

2.2 INFORMATION SOURCES

- The lease agreement between Port of Portland and Portland Bulk Terminals was provided by Portland Bulk Terminals (see Appendix A),

- Regulatory review records were provided by Environmental Data Resources (EDR) in Appendix B

- Aerial photographs were provided by the Port of Portland (see Appendix C),

- Site photographs were taken by Creekside (see Appendix D).

- ASTM Questionnaire results are provided in Appendix G.

- Historical reference materials and regulatory research documents were provided by various organizations and agencies such as Environmental Data Resources (EDR), Multnomah County Library, Multnomah County Environmental Health Department, City of Portland, Multnomah County Planning Department, Metro, Environmental Protection Agency, Office of the State Fire Marshall, and the Oregon Department of Environmental Quality (ODEQ).

KMB00006429

SECTION 3.0

SITE OVERVIEW

3.1 SITE LOCATION

The subject property is a 90-acre potash storage and distribution site located at Terminal 5, Port of Portland, 15550 N. Lombard Street in Section 23, Township 2 North, Range 1 West of the Willamette Meridian, along the west bank of the Willamette River in the Rivergate industrial district of Portland, Oregon. The site is designated and zoned as IH (Heavy Industrial) by Multnomah County. The site consists of a railcar unloading, bulk storage, and ship loading terminal for potash (potassium chloride) and other fertilizer products.

The subject property (or site) consists of tax lots 00500 and 00300 of tax map 2N1W23C and tax lots 01000 and 01100 of tax map 2N1W26. The site is currently owned by the Port of Portland and leased by Portland Bulk Terminals. The site is located immediately south of the convergence of the Columbia Slough and Willamette River. A site location map is presented as Figure 1, a topographical map is presented as Figure 2, and a tax lot map is included as Figure 3. Photographs of the subject property along with brief descriptions are included as Appendix D.

3.2 SITE STRUCTURES AND IMPROVEMENTS

Major equipment and structure that have been installed at the site between 1995 and June 2001 include the following items:

- 236,000 square-foot building for potash storage (100,000 metric ton capacity).
- Bottom-dump rail car unloader
- Dual rotary dump rail car unloader
- Two portal scraper reclaimers (inside storage building)
- Bucket wheel stacker reclaimer for open storage
- Ten belt conveyors (C-9 through C-18) including 10,900 feet of conveyor belts for ship loading/railcar unloading.
- Dust collection system with XX baghouses.
- Traveling shiploader with a cascade spout.
- A two-loop rail system comprised of 15,000 linear feet of tracks.

Major equipment and structures present at the site prior to 1995 included:

- 829 foot long dock
- A Dravo bulk coal reclaimer/ conveyor system (never used).
- A triple railcar bottom dump railcar unloading building (never used).

KMB00006430

SECTION 4.0

SITE BACKGROUND/OPERATING HISTORY

4.1 SITE HISTORY

A review of historical land uses at the site indicated that the Terminal 5 site was undeveloped prior to 1935. It was used for residential and agricultural purposes until the mid 1950s.

In 1980, Pacific Coal Corporation contracted Dravo Corporation of Pittsburgh, Pennsylvania, to design and engineer a bulk material handling facility at Terminal 5 for exporting coal and other bulk materials. Riedel International of Portland, Oregon began constructing the facility in 1981, and, in 1983, construction was terminated at about 85 percent completion. By 1996, Canpotex, Inc., in a lease and operations arrangement with the Port and Hall-Buck Marine, Inc., developed the site and began using it for storage and distribution of bulk solid potassium chloride ("potash"), sodium carbonate ("soda ash"), and other fertilizer products. ~~Hall-Buck, purchased by PBT a few years ago, still operates the T5 facility.~~ Changed

4.2 CURRENT OWNERSHIP

The property is currently owned by the Port of Portland and leased to Portland Bulk Terminals.

4.3 AERIAL PHOTOGRAPHS

Selected aerial photographs, supplied by the Port of Portland, were reviewed to evaluate the subject site and adjacent properties. A summary of our observations is provided below:

Photo No. 1 (May 29, 1995) - This photograph shows the property prior to development by Portland Bulk Terminals and Canpotex. Visible structures on the site include the Dravo coal reclaimer and conveyors, dock, and railcar bottom-dump building. The "blue lagoon" is visible on the southeast corner of the property. add

Photo No. 2 (July 2, 1997) – Site additions and structures in this photo include two partially constructed railroad loop tracks, a maintenance shop, office building, and a partially constructed wooden storage building. The lagoon area has been filled in.

Photo No. 3 (July 8, 1999) - The railroad loops appear complete in this photo, as does the wooden storage building. The facility appears to be in operation with a ship docked and a train on the railcar storage/unloading loop.

KMB00006431

4.4 LOCAL GOVERNMENT INQUIRIES

Creekside reviewed the following local government supplied information for this project:

- Multnomah County Planning and Zoning Department – The site was found to be zoned as IH (Heavy Industrial).

- Metro Regional Services – Provided the Tax Lot Map/ Aerial Photograph provided in Figure 3.

4.5 HISTORICAL REFERENCES

This section includes historical references reviewed by Creekside as part of this ESA.

4.5.1 State Fire Marshall

- Creekside reviewed historical listings of Hazmat incidents reported to the Office of the State Fire Marshall. Between 1986 and 2000, no incidents were reported at the site.
- Between 1986 and 2000, two Hazmat incidents were reported at the neighboring Oregon Steel Mills Property (14400 N Rivergate Boulevard).
- Between 1986 and 2000, one Hazmat incident was reported at the neighboring Alcatel Property (15540 N. Lombard Street).

4.5.2 Portland Bulk Terminals

- Creekside reviewed historical incident logs to determine if spills of regulated materials occurred at the site between 1995 and 2001. Environmentally pertinent entries involved several incidents of dusting of the dock with product and minor spills of product to the river. These incidents are not believed to have residual environmental effects due to the highly water soluble nature of the products spilled (potash, soda ash). Furthermore, neither of these products are classified by EPA as a hazardous substance as defined in 40 CFR Part 302.

4.5.3 Port of Portland

Creekside reviewed the following environmental reports on the Terminal 5 property. The reports were provided by the Port of Portland and Portland Bulk Terminals.

- Site Characterization for the "Blue Lagoon" at Marine Terminal 5
  Prepared for Port of Portland by PTI Environmental Services – April 1995

KMB00006432

- Phase 1 Environmental Site Assessment
  Port of Portland Terminal 5 Facility, Portland, Oregon
  Prepared for Hall-Buck Marine, Inc. by EMCON - May 22, 1995

- Phase 2 Environmental Site Assessment
  Port of Portland Terminal 5 Facility
  Portland, Oregon
  Prepared for Hall-Buck Marine, Inc. by EMCON - August 30, 1995

- Groundwater Monitoring Report, October 1999 Sampling Event
  "Blue Lagoon" Site, Terminal 5
  Portland, Oregon
  Prepared by Hahn and Associates – December 22, 1999

- Preliminary Assessment
  Port of Portland Terminal 5
  N. Lombard Street
  Portland, Oregon 97202
  Prepared by Port of Portland - August25, 2000.

4.5.4 Oregon Water Resources Department

Creekside reviewed onsite well logs associated with the subject site. A summary of the water well construction activities between January 1, 1995 and June 15, 2001 is provided in the table below. ~~Well logs for the site are provided in Appendix F.~~

Table 1: Onsite Groundwater Well Activities from 1995 to 2001

Well Number and Log ID	Well Type	Depth to Water (feet)	Date Completed	Construction Type
MULT 4804	Monitoring	12	5/30/1995	New/ Abandoned
MULT 4805	Monitoring	9	5/30/1995	New/ Abandoned
MULT 4806	Monitoring	7	5/30/1995	New/ Abandoned
MULT 51366	Industrial	298	5/30/1996	New – Still active
MULT 58926	Temporary Dewatering	15	9/10/1999	New – Still active
MULT 58927	Temporary Dewatering	15	9/10/1999	New – Still active
MULT 59133	Abandoned	-	9/29/1999	Abandoned
MULT 59134	Abandoned	-	9/29/1999	Abandoned

KMB00006433

SECTION 5.0

ENVIRONMENTAL SETTING

5.1 SURFACE WATER AND GROUNDWATER CHARACTERISTICS

Surface waters at the site consist of a stormwater pond on the western portion of the site and a narrow ditch that connects the pond with the Willamette River.

The general groundwater flow direction at the site is to the southwest toward the Willamette River. Monitoring records for the three-onsite wells show that groundwater flows in a south-southwesterly direction. It should be noted that groundwater flow direction at the south property has been influenced by filling of the "blue lagoon". The "blue lagoon" was a storm water collection pond used by Oregon Steel Mills. It was filled ~~and "clean closed"~~ in 1995 to allow full railroad access to the subject site. The pond ~~closure~~ was conducted in accordance with DEQ regulations. Groundwater monitoring at the site has been performed by PTI Environmental Services (in ~~April~~ 1995), GeoEngineers (in ~~March~~ 1997), and Hahn and Associates (in October 1999). The laboratory test results from these investigations indicated that elevated levels of iron and manganese were present in the wells. Filtered iron measured by Hahn and Associates in October 1999 in well Nos. 2, 3, and 4 ranged from 1.11 to 72.1 parts per million (ppm), which exceeded EPA's Secondary Maximum Contaminant Level (MCL) of 0.3 ppm. Filtered manganese measured by Hahn in the same month from the same wells ranged from 0.197 to 7.29 ppm, which exceeded EPA's MCL of 0.05 ppm. Laboratory-measured pH in samples collected by Hahn in October 1999 from Well Nos. 2,3, and 4 ranged from 6.4 to 9.0. It should be noted that all groundwater monitoring has been completed under direction of the Port and is unrelated to PBT activities on the subject site.

5.2 SOIL AND GEOLOGICAL CHARACTERISTICS

A geologic map of Oregon published by the US Geological Survey (USGS) characterizes the rock type in the subject site area as Qal, alluvial deposits, which consist of sand, gravel and silt-forming floodplains. STATSGO data from the Soil Conservation Service classifies soils in the subject site area as silty loam of hydrologic group B. Group B soils have moderate infiltration rates.

5.3 RADON

Creekside reviewed radon gas monitoring summaries provided by EPA and Multnomah County, Oregon, and found that the subject site area is considered zone 2. Areas with zone 2 classifications have an indoor air average of between 2 picocurries per liter (pCi/L) and 4.0 pCi/L. An action level of 4.0 pCi/L of radon gas has been established by EPA. Accordingly, it is unlikely that elevated levels of naturally occurring radon gas are present in the subsurface soils at the subject site.

KMB00006434

SECTION 6.0

RESULTS OF ON-SITE INSPECTION

6.1 SITE INSPECTION OBSERVATIONS

On June 11, 2001, Creekside spent about two hours inspecting the subject site and properties around the subject site. Site conditions during the inspection were ~~hot~~ cloudy and wet. The property consisted of a bulk product storage and distribution terminal with a large dock and shiploading system.

- Creekside noted minor spills of potash (less than 10 pounds) at several locations at the site but did not observe soil staining or discoloration.
- Soil piles (excavated from the northwest corner of the subject site) were observed near the stormwater retention pond.
- Dripping oil and/or diesel from locomotives at the site was observed. Oil absorbent pads are used to contain drips, however, the pads were partially soaked and need to be changed frequently.
- Creekside did not observe signs of dry wells or injection wells on the subject property.
- Two monitoring wells were noted on the southern portion of the site.
- Creekside found no evidence of fill or vent pipes indicating the presence of underground storage tanks (USTs).
- Creekside noted a stormwater collection pond and a narrow ditch that drains to the Willamette River.
- Creekside did not observe endangered species, historical or archeological landmarks, paint booths, spray rigs, potable water tanks, landfills, dumping, oil production units, groundwater or surface water contamination, farm waste, or pesticide/herbicide overuse or dumping at the site.

6.2 UNDERGROUND AND/OR ABOVEGROUND STORAGE TANKS

Creekside's investigation did not reveal signs or evidence of underground storage tanks (USTs) at the site or adjacent to the subject property. Two aboveground storage tanks (ASTs) were present near the maintenance shop during our investigation. One AST was used to store gasoline and the other tank was used to store used oil. Both tanks were provided with secondary containment. No evidence of spills at the tanks was observed during site reconnaissance. An AST enclosed in a lined pit was reportedly present at the site during construction of the terminal, and petroleum releases may have occurred from this tank (refer to the ASTM Questionnaire, Appendix G).

KMB00006435

6.3 POTENTIALLY HAZARDOUS MATERIALS

Regulated hazardous materials (e.g., combustible and flammable liquids, solvents, and fuel products) are used and stored in the maintenance shop on the northwest side of the site. During the time of the site visit, the shop was well organized and in clean condition. Creekside did not observe spills or releases of hazardous materials or petroleum products in the Maintenance Shop. Flammable and hazardous materials used in the maintenance shop are stored in a cargo-shipping container. The container is provided with secondary containment in the form of a concrete pad and curb around the perimeter.

6.4 ON-SITE INTERVIEWS

Creekside conducted phone interviews with Brent McMullin, Assessments Coordinator for Portland Bulk Terminals, Inc. and Pad Quinn, Marine Environmental Safety Manager for the Port of Portland. As required in the ASTM guidelines, Creekside asked the required questions listed in the ASTM questionnaire (refer to Section 9 of ASTM Designation E 1527–00). The interview included questions related to current and past hazardous material or petroleum product storage and use practices at the site or on adjoining properties, use of pesticides, fill dirt, pits, ponds, lagoons, foul odors, private or public wells, prior assessments, onsite or offsite dumping, spills of regulated materials, and the presence of asbestos or polychlorinated biphenyl (PCB) transformers. Creekside has included copies of the questionnaire results (see Appendix E).

6.5 VISUAL INSPECTIONS

6.5.1 INSPECTION FOR ASBESTOS AND ASBESTOS CONTAINING MATERIALS

Creekside did not collect or analyze site samples for asbestos. No obvious signs of asbestos containing materials (ACM) were visible. Buildings constructed prior to 1980 are assumed to have asbestos present. It is unlikely that asbestos is present on site due to the recent construction of the onsite structures.

6.5.2 PCB CONTAINING MATERIALS

PCB-containing materials are not believed to be present on site due to the age of the site structures.

6.5.3 VISUAL INSPECTION FOR LEAD BASED PAINT

Creekside did not perform a lead-based paint survey as part of this ESA document.

KMB00006436

6.6 ADJACENT PROPERTIES AND AREA RECONNAISSANCE

Properties adjoining or near the subject site are primarily industrial. The subject site is bordered by the Willamette River to the west, Oregon Steel Mills to the south, North Lombard Street to the east, and Alcatel (fiber optic cable company) to the north. There are no adjoining or adjacent residential properties.

Creekside did not conduct reconnaissance at properties adjoining or adjacent to PBT-T5, as it was not part of our Scope of Work.

KMB00006437

SECTION 7.0

REGULATORY/GOVERNMENT AGENCY INQUIRIES

FEDERAL AND STATE REGULATORY AGENCY INQUIRIES

Creekside contracted with Environmental Data Resources (EDR) to conduct a regulatory records review for the subject property and the surrounding area. The American Society for Testing and Material (ASTM) E-1527-00 standards were used for the minimum search distance surrounding the subject site. The EDR search included the following regulatory databases:

Database	Search Radius (Miles)
USEPA Records	
Federal NPL[a] Site List	1.0
Federal CERCLIS[b] List	0.5
Federal RCRA TSD[c] Facilities List	1.0
Federal RCRA Generator List	0.25
Federal ERNS[d] List & RCRA Violators	Site and Adjacent Property
Oregon Department of Environmental Quality (ODEQ)	
Confirmed Release Summary (State Spills List)	0.25
Environmental Cleanup Site Inventory (State Superfund)	1.0
Solid Waste Active Disposal Permits	0.5
Registered Underground Storage Tank (UST) List	0.25
Leaking Underground Storage Tank (LUST) List	0.25

[a]National Priorities List.

[b]Comprehensive Environmental Response, Compensation and Liability Information System.

[c]Resource Conservation and Recovery Act Treatment, Storage, and Disposal.

[d]Emergency Response Notification System.

Summary of EDR Report Results

The EDR Radius Map report is provided in Appendix B. Three sites were noted on the state Environmental Cleanup Site Information System (ESCI) within one mile of the site namely Oregon Steel Mills, Union Chemical Division, and Beall Trailers of Oregon. Oregon Steel Mills was also identified on the RCRA Corrective Action Activity List (CORRACTS). No sites were noted on the state Confirmed Release List (CRL).

KMB00006438

(2)
Findings

SECTION 8.0

FINDINGS AND CONCLUSIONS

Creekside Consulting LLC performed a Focused Environmental Site Assessment on the subject property following some of the critical ASTM E-1527-00 guidelines, and Creekside's scope of work outlined in our proposal to PBT dated June 12, 2001.

FINDINGS AND CONCLUSIONS

- The site is zoned as IH (Industrial, Heavy) by the City of Portland.
- There have been no documented releases of hazardous materials or wastes on the site between January 1, 1995 and June 15, 2001.
- Creekside did not observe visual evidence of hazardous material releases on the site or on adjacent sites.
- Creekside consulted local, state, and federal offices and agencies about the site and found no evidence of environmental liens on the property.
- Multnomah County is classified as radon zone level 2. Level 2 areas have moderate levels of radon that are below the EPA action level of 4 pCi/L.
- The property was not evaluated for the presence of asbestos or asbestos containing materials. Due to the age of the onsite structures, Creekside believes that it is unlikely that asbestos is present at the site.
- A survey of lead-based paint was not performed at the site.
- No electrical transformers containing PCBs are believed to be present at the site.
- Creekside observed onsite soil piles immediately east of the stormwater retention pond.
- Oil and grease drip stains were evident in the locomotive storage area. Oil absorbent pads used to contain these drips need to be changed frequently to prevent soil contamination.

KMB00006440

SECTION 9.0

REFERENCES AND RECORDS OF COMMUNICATION

The following individuals were contacted and interviewed about site history, practices, regulatory conditions and potential environmental problems at the subject site and on properties adjacent to the subject site:

- Randy Kidd
  EDR Inc.
  3530 Post Road
  Southport, Connecticut 06490
  Telephone: (800) 352-0050
  Fax: (800) 231-6802
  Customer support for EDR

- Pad Quinn, ~~Environmental Manager, Marine Terminals~~ Marine Environmental Mgr.
  Port of Portland, Oregon
  Telephone: (503) 240-2014

- Ray Madison
  Environmental, Health, and Safety Manager
  Portland Bulk Terminals, LLC
  15550 N. Lombard – Terminal 5
  Portland, Oregon 97203
  Telephone: (503) 285-4200 Ext. 15
  Fax: (503) 285-7733

- Gene Ellis
  Maintenance Manager
  Portland Bulk Terminals, LLC
  15550 N. Lombard – Terminal 5
  Portland, Oregon 97203
  Telephone: (503) 285-4200 Ext. 11
  Fax: (503) 285-7733
  Provided information about onsite structures

- Marie E. Krien-Schmidt
  Director Environmental Affairs
  Portland Bulk Terminals, Inc
  7116 Highway 22
  Sorrento, Louisiana 70778
  Telephone: (225) 675-5387
  Fax: (225) 675-8259

KMB00006441

- Brent McMullin
  Assessments Coordinator
  Portland Bulk Terminals, Inc
  5880 N.W. St. Helens Road
  Portland, Oregon 97210
  Telephone: (503) 220-1243
  Fax: (503) 220-1249

KMB00006442

SECTION 10.0

LIMITATIONS

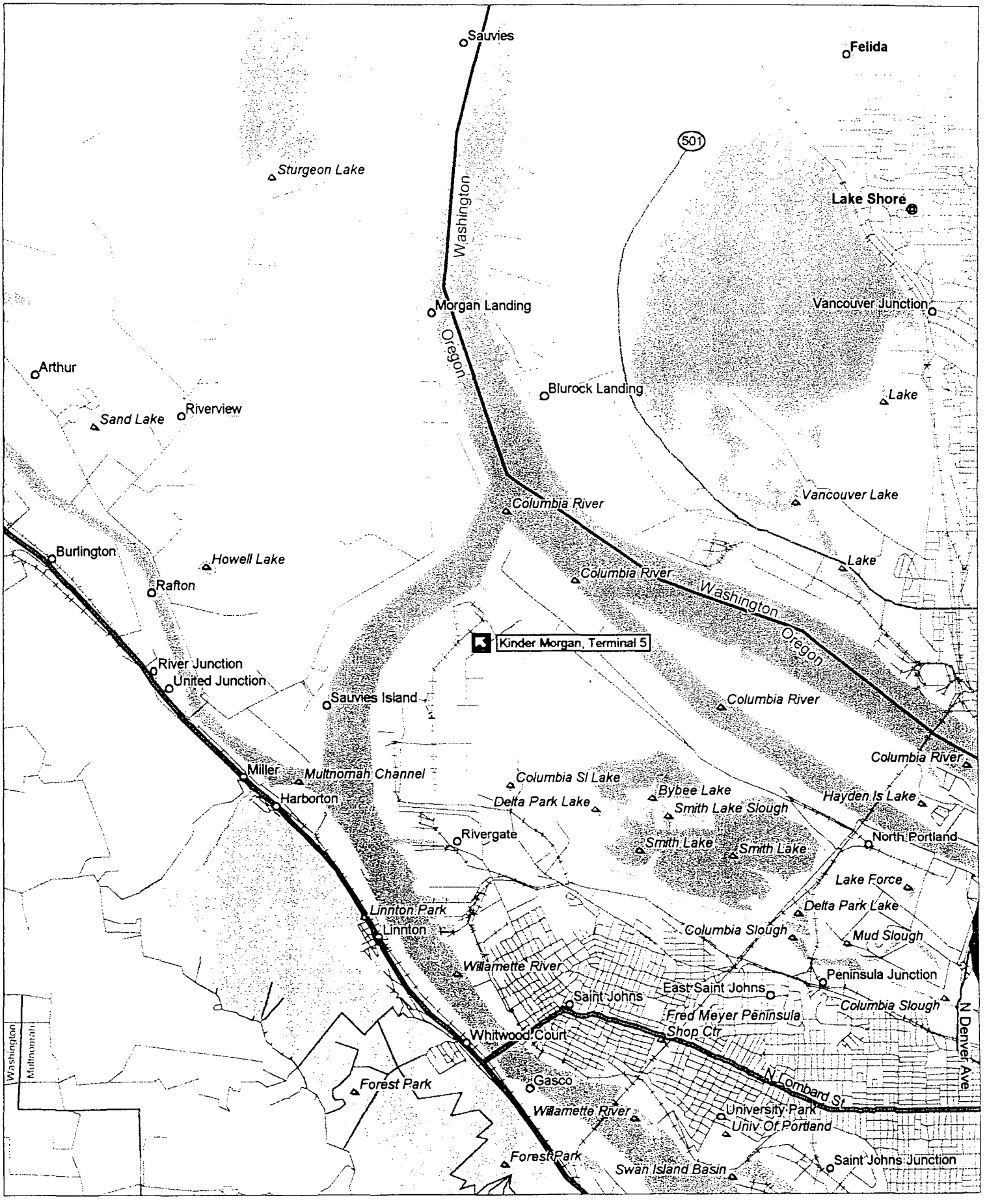
This report was prepared solely for Portland Bulk Terminals, LLC in accordance with the standards of the environmental consulting industry at the time the services were performed, and in accordance with the letter agreement between Portland Bulk Terminals, LLC and Creekside Environmental Consulting, LLC (Creekside) dated June 12, 2001. This report is governed by the specific scope of work authorized by PBT and is not intended to be relied upon by any other party. We have relied on information provided by parties listed in Section 8 of this report, and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information. This report makes no representation that no additional environmental contamination exists at this site beyond that described in this report.

The conclusions presented herein are based on Creekside's interpretation of selected available data. Creekside is not responsible for the accuracy of data obtained from officials of regulatory agencies, or for discrepancies between our conclusions and future activities at the site, which may result in conditions not present during this investigation. These interpretations are based upon the review of selected public records and observations of specific field conditions. It should also be recognized that Creekside's work was done in accordance with a reasonable understanding of the regulatory standards, which existed at the time the work was performed. The presence, nature, or extent of potential contamination on the subject property can only be conclusively determined through appropriate sampling and analysis. No warranties are expressed or implied concerning potential contaminants or environmental media not addressed through sampling and analysis.

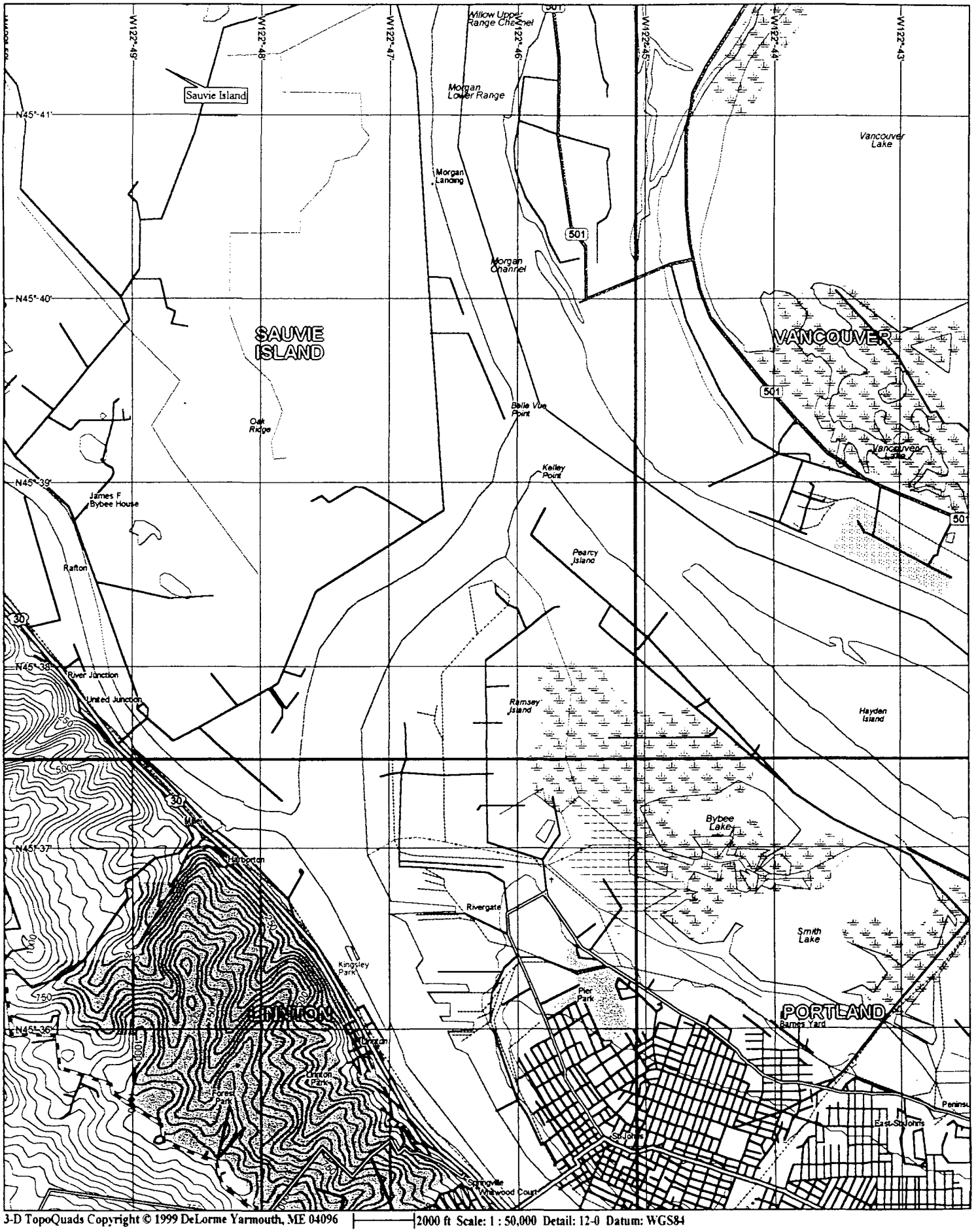
KMB00006443

Figures

Site Location Map - Figure 1



Topographical Map - Figure 2



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 2000 ft Scale: 1 : 50,000 Detail: 12-0 Datum: WGS84

Appendix A

96-039

GROUND LEASE
BULK CARGO FACILITY/TERMINAL 5

THE PORT OF PORTLAND

And

PORTLAND BULK TERMINALS, L.L.C.

Effective Date: March 14, 1996

KMB00006448

6.2.2 "Hazardous Substances" shall be interpreted in the broadest sense to include any substance, material or product defined or designated as hazardous, toxic, radioactive, dangerous or regulated wastes or materials or any other similar term in or under any Environmental Laws.

6.2.3 "Environmental Costs" shall be interpreted in the broadest sense to include, but shall not necessarily be limited to: (i) costs or expenses relating to any actual or claimed violation of or noncompliance with any Environmental Law; (ii) all claims of third parties, including governmental agencies, for damages, response costs or other relief under any Environmental Laws; (iii) the cost, expense or loss as a result of any injunctive relief, including preliminary or temporary injunctive relief under any Environmental Laws; (iv) all expenses of evaluation, testing, analysis, clean-up, remediation, removal and disposal relating to Hazardous Substances, including fees of attorneys, engineers, consultants, paralegals and experts; (v) all expenses of reporting the existence of Hazardous Substance contamination or the violation of Environmental Laws to any agency of the State of Oregon or the United States as required by applicable Environmental Laws; (vi) any and all expenses or obligations, including attorneys' and paralegal fees, incurred at, before and after any trial or appeal therefrom or any administrative proceeding or appeal therefrom, or any bankruptcy proceeding, whether or not taxable as costs, including, without limitation, attorneys' and paralegal fees, witness fees (expert and otherwise), deposition costs, copying, telephone and telefax charges and other expenses incurred relating to violations of Environmental Laws or use of Hazardous Substances; and (vii) any damages, costs, fines, liabilities and expenses which are claimed to be owed by any federal, state or local regulating or administrative agency based on any violation of Environmental Laws or the use of Hazardous Substances.

6.3 Initial Environmental Audit and Periodic Scheduled Audits. Prior to the Effective Date of this Lease, Lessee conducted an Initial Audit of the Property and Licensed Area, as described in Section 5.2. The Port has agreed to reimburse Lessee for half of the cost of this Initial Audit. The Port and Lessee have both received signed and certified duplicate original copies of the Initial Audit report and have carefully reviewed it. This Initial Audit has been accepted by both Lessee and the Port and shall be used as a baseline for determination of all potential future environmental liability. Therefore, if Hazardous Substance contamination is later found that was not noted in this Initial Audit, a rebuttable presumption will exist that Lessee is responsible for such Hazardous Substance contamination. After the Effective Date of this Lease, Lessee and the Port shall perform regularly scheduled thorough environmental audits of the Property, the Bond Financed Improvements and Licensed Area ("Periodic

KMB00006449

Audits"). Periodic Audits shall take place on or before the third anniversary of the Effective Date of this Lease and every three (3) years thereafter. These Periodic Audits shall be of the same scope as the Initial Audit, unless both parties agree to a different approach. Furthermore, during the last three (3) years of the Lease Term, Periodic Audits will be conducted each year. Lessee or the Port may require that any one or more of these final three (3) Periodic Audits be as broad in scope as may reasonably be required to assist Lessee and the Port in discovering Hazardous Substance contamination that must be removed by Lessee prior to the termination of this Lease. Additionally, the scope of the Periodic Audit shall be expanded, to the extent the Port, acting reasonably, deems necessary, if evidence of contamination from Hazardous Substances is discovered. The cost of the Periodic Audits shall be shared equally by Lessee and the Port. However, if the Periodic Audit finds evidence of contamination from Hazardous Substances that was not found by the Initial Audit that causes the auditor to recommend that additional testing be done, the cost of the additional testing shall be the sole responsibility of Lessee. In the event such Hazardous Substance contamination or a violation of any Environmental Law is discovered that was not found by the Initial Audit, Lessee shall take all steps required by law and under this Lease to clean up the Hazardous Substance contamination and to pay all related costs, including fines associated with such Hazardous Substance contamination or Environmental Law violation unless Lessee proves that such Hazardous Substance contamination or Environmental Law violation was caused by the Port or by any of the Port's tenants, agents, licensees or invitees while they were exercising their Port given access rights to the Property, the Bond Financed Improvements, or the Licensed Area by the Port, or by an identified third party (including Port tenants) unrelated to Lessee and that such Hazardous Substance contamination or Environmental Law violation was not in any way related to Lessee's operations or Lessee's negligence. Likewise, Lessee shall not be responsible to pay for Environmental Costs if such Hazardous Substance contamination or Environmental Law violation was caused by the Port or by one of the Port's other tenants, agents, invitees or licensees while they were exercising their Port given access rights to the Property, the Bond Financed Improvements or the Licensed Area by the Port, or if Lessee can prove that an identified third party (including Port tenants), unrelated to Lessee, caused such Hazardous Substance contamination and that such Hazardous Substance contamination or Environmental Law violation was not in any way related to Lessee's operations or Lessee's negligence (including failure to maintain the security requirements set forth in this Lease).

6.4 Limited Business Use of Hazardous Substances. Lessee may, in the normal course of Lessee's business and to the extent necessary for Lessee's permitted use of the Property, the Bond

Appendix B

The EDR Radius Map
with GeoCheck®

Kinder Morgan Bulk Terminals Inc.
Terminal 5-1550 N Lombard
Portland, OR 97203

Inquiry Number: 641863.1s

June 07, 2001

Environmental Data Resources, Inc.

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-KID

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	5
Orphan Summary	59
EPA Waste Codes	EPA-1
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-6
Physical Setting Source Map Findings	A-7
Physical Setting Source Records Searched	A-9

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer
Copyright and Trademark Notice

This report contains information obtained from a variety of public and other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL EDR BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES.

Entire contents copyright 2001 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and the edr logos are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

TERMINAL 5-1550 N LOMBARD
PORTLAND, OR 97203

COORDINATES

Latitude (North):	45.636300 - 45° 38' 10.7"
Longitude (West):	122.776600 - 122° 46' 35.8"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	517411.9
UTM Y (Meters):	5053446.0

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	2445122-F7 SAUVIE ISLAND, OR WA
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned
RCRIS-TSD ..... Resource Conservation and Recovery Information System
RCRIS-LQG ..... Resource Conservation and Recovery Information System
RCRIS-SQG ..... Resource Conservation and Recovery Information System
ERNS ..... Emergency Response Notification System

STATE ASTM STANDARD

SWF/LF ..... Solid Waste Facilities List
LUST ..... Leaking Underground Storage Tank Database
UST ..... Underground Storage Tank Database

FEDERAL ASTM SUPPLEMENTAL

CONSENT ..... Superfund (CERCLA) Consent Decrees

EXECUTIVE SUMMARY

ROD..... Records Of Decision
Delisted NPL..... National Priority List Deletions
FINDS..... Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS..... Hazardous Materials Information Reporting System
MLTS..... Material Licensing Tracking System
MINES..... Mines Master Index File
NPL Liens..... Federal Superfund Liens
PADS..... PCB Activity Database System
RAATS..... RCRA Administrative Action Tracking System
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

OR SPILLS..... Spill Data
OR CRL..... Confirmed Release List and Inventory
OR VCS..... Voluntary Cleanup Program Sites
OR HAZMAT..... Hazmat/Incidents
HSIS..... Hazardous Substance Information Survey

EDR PROPRIETARY DATABASES

Coal Gas..... Former Manufactured Gas (Coal Gas) Sites

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS 1 degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. EDR's definition of a site with an elevation equal to the target property includes a tolerance of +/- 10 feet. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property (by more than 10 feet). Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL ASTM STANDARD

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 04/20/2000 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
OREGON STEEL MILLS INC	*14400 N RIVERGATE BLVD*	*1/2 - 1 SSW*	*A1*	*5*

EXECUTIVE SUMMARY

STATE ASTM STANDARD

ECSI: The Environmental Cleanup Site Information System records information about sites in Oregon that may be of environmental interest. The data come from the Department of Environmental Quality.

A review of the SHWS - ECSI list, as provided by EDR, has revealed that there are 3 SHWS - ECSI sites within approximately 1 mile of the target property.

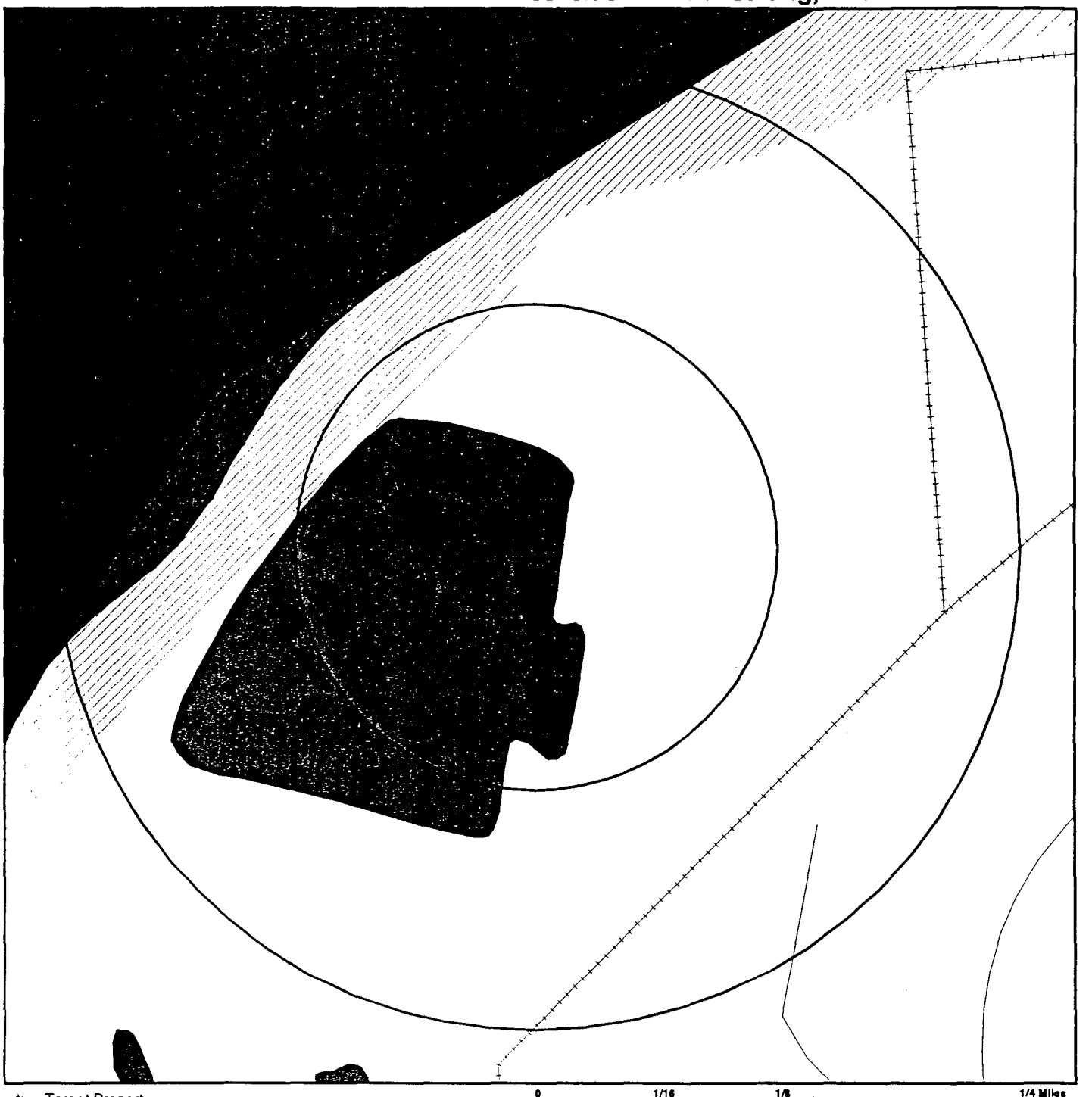
Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
OREGON STEEL MILLS - RIVERGATE	***14400 N RIVERGATE BLVD***	***1/2 - 1 SSW***	***A2***	***36***
UNION CHEMICAL DIV.	14025 N RIVERGATE BLVD	1/2 - 1 SSW	3	42
BEALL TRAILERS OF OREGON INC	***9200 N RAMSEY BLVD***	***1/2 - 1 SSE***	***4***	***44***

OVERVIEW MAP - 641863.1s - Creekside Env. Consulting, LLC

- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ♟ Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Wetlands
- Areas of Concern

TARGET PROPERTY:	Kinder Morgan Bulk Terminals Inc.	CUSTOMER:	Creekside Env. Consulting, LLC
ADDRESS:	Terminal 5-1550 N Lombard	CONTACT:	Sean Callin
CITY/STATE/ZIP:	Portland OR 97203	INQUIRY #:	641863.1s
LAT/LONG:	45.6363 / 122.7766	DATE:	June 07, 2001 12:48 pm

DETAIL MAP - 641863.1s - Creekside Env. Consulting, LLC



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

Coal Gasification Sites (if requested)

Sensitive Receptors

National Priority List Sites

Landfill Sites

Power transmission lines

Oil & Gas pipelines

100-year flood zone

500-year flood zone

Wetlands

Areas of Concern

TARGET PROPERTY:	Kinder Morgan Bulk Terminals Inc.	CUSTOMER:	Creekside Env. Consulting, LLC
ADDRESS:	Terminal 5-1550 N Lombard	CONTACT:	Sean Callin
CITY/STATE/ZIP:	Portland OR 97203	INQUIRY #:	641863.1s
LAT/LONG:	45.6363 / 122.7766	DATE:	June 07, 2001 12:48 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	1	NR	1
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
State Haz. Waste - ECSI		1.000	0	0	0	3	NR	3
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
OR SPILLS		TP	NR	NR	NR	NR	NR	0
OR CRL		1.000	0	0	0	0	NR	0
OR VCS		0.500	0	0	0	NR	NR	0
OR HAZMAT		TP	NR	NR	NR	NR	NR	0
HSIS		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A1
SSW
1/2-1
4019
Higher

OREGON STEEL MILLS INC
14400 N RIVERGATE BLVD
PORTLAND, OR 97203

Site 1 of 2 in cluster A

PADS 1000236249
FINDS ORD009106055
RCRIS-LQG
TRIS
RCRIS-TSD
CORRACTS
CERC-NFRAP
UST
OR SPILLS
HSIS
LUST

CERCLIS-NFRAP Classification Data:
Site Incident Category: Not reported
Ownership Status: Unknown
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL

CERCLIS-NFRAP Assessment History:
Assessment: DISCOVERY — Completed: 19910917
Assessment: PRELIMINARY ASSESSMENT — Completed: 19920903

CERCLIS-NFRAP Alias Name(s):
GILMORE STEEL CORP

CORRACTS Data:
Prioritization: Medium
Status: RCRA Facility Assessment Completed

RCRIS:
Owner: MARK ROWSELL
(503) 286-9651

Contact: JERRY RICHARTZ
(503) 286-9651

Record Date: 12/31/1998

Classification: Large Quantity Generator, TSDF

BIENNIAL REPORTS:
Last Biennial Reporting Year: 1997

Waste	Quantity (Lbs)	Waste	Quantity (Lbs)
D001	24613.60	D002	6657.20
D035	22125.40	D039	20911.00
F001	24046.00	F003	22125.40
F005	22125.40	K061	14308410.60

Used Oil Recyc: No

TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	06/28/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	08/19/1984
Actual Date Achieved Compliance:	10/20/1986
Enforcement Action:	Written Informal
Enforcement Action Date:	07/19/1984
Proposed Monetary Penalty:	Not reported

OREGON STEEL MILLS INC (Continued) **1000236249**

Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	04/15/1985
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	05/15/1985
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	07/16/1987
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	10/22/1987
Enforcement Action:	Written Informal
Enforcement Action Date:	07/22/1987
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	04/07/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-Land Ban Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995

OREGON STEEL MILLS INC (Continued) **1000236249**

Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	12/15/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/28/1995
Actual Date Achieved Compliance:	04/10/1995
Enforcement Action:	Written Informal
Enforcement Action Date:	01/12/1995
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/12/1998
Actual Date Achieved Compliance:	03/05/1998
Enforcement Action:	Written Informal

OREGON STEEL MILLS INC (Continued) **1000236249**

Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/12/1998
Actual Date Achieved Compliance:	03/05/1998
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/12/1998
Actual Date Achieved Compliance:	03/05/1998
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/12/1998
Actual Date Achieved Compliance:	03/05/1998
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	04/30/1998
Actual Date Achieved Compliance:	03/05/1998
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	04/30/1998
Actual Date Achieved Compliance:	03/05/1998
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported

OREGON STEEL MILLS INC (Continued) **1000236249**

Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	03/08/1999
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	01/28/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	03/08/1999
Enforcement Action:	Written Informal
Enforcement Action Date:	02/12/1998
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	02/13/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	08/27/1985
Actual Date Achieved Compliance:	10/20/1986
Enforcement Action:	Initial Formal 3008(a) Compliance Order
Enforcement Action Date:	03/26/1984
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	01/08/1985
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/08/1985
Actual Date Achieved Compliance:	03/08/1985
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	12/13/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	03/08/1985
Actual Date Achieved Compliance:	03/08/1985
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Regulation Violated:	Not reported

OREGON STEEL MILLS INC (Continued) **1000236249**

Area of Violation:	Generator-All Requirements
Date Violation Determined:	09/04/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	08/27/1985
Actual Date Achieved Compliance:	10/20/1986
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	08/17/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	08/27/1985
Actual Date Achieved Compliance:	10/20/1986
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	05/24/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	08/27/1985
Actual Date Achieved Compliance:	10/20/1986
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	05/25/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	08/27/1985
Actual Date Achieved Compliance:	10/20/1986
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	09/04/1984
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	06/17/1985
Actual Date Achieved Compliance:	06/17/1985
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	02/08/1985
Proposed Monetary Penalty:	$ 5,000.00
Final Monetary Penalty:	$ 5,000.00
Enforcement Action:	Final Formal 3008(a) Compliance Order
Enforcement Action Date:	05/17/1985
Proposed Monetary Penalty:	$ 5,000.00

OREGON STEEL MILLS INC (Continued) **1000236249**

Final Monetary Penalty: $ 5,000.00

There are 27 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Compliance Evaluation Inspection (CEI)	TSD-Other Requirements	03/05/1998
	Generator-All Requirements	03/05/1998
	TSD-Other Requirements	03/05/1998
	TSD-Other Requirements	03/05/1998
	Generator-All Requirements	03/05/1998
	Generator-All Requirements	03/05/1998
	Generator-All Requirements	03/08/1999
	Generator-All Requirements	03/08/1999
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	04/10/1995
	Generator-All Requirements	04/10/1995
	Generator-Land Ban Requirements	04/10/1995
	Generator-All Requirements	04/10/1995
	TSD-Other Requirements	04/10/1995
	TSD-Other Requirements	04/10/1995
	TSD-Other Requirements	04/10/1995
	Generator-All Requirements	04/10/1995
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	10/22/1987
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	05/15/1985
Non-Financial Record Review	Generator-All Requirements	03/08/1985
Non-Financial Record Review	Generator-All Requirements	03/08/1985
Non-Financial Record Review	Generator-All Requirements	10/20/1986
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	06/17/1985
Non-Financial Record Review	Generator-All Requirements	10/20/1986
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	10/20/1986
Non-Financial Record Review	Generator-All Requirements	10/20/1986
Non-Financial Record Review	Generator-All Requirements	10/20/1986
Non-Financial Record Review	Generator-All Requirements	10/20/1986

FINDS:
Other Pertinent Environmental Activity Identified at Site:
AIRS Facility System (AIRS/AFS)
Enforcement Docket System (DOCKET)
National Compliance Database (NCDB)
PCB Handler Activity Data System (PADS)
Permit Compliance System (PCS)

LUST:

Facility ID:	26-95-0248	Region:	North Western Region
Clean Lead:	Not reported	Cleanup Start Date:	21SEP1995
Closed Date:	Not reported	Cleanup Completion:	Not reported

OR SPILLS:

Facility ID:	Not reported	Spill Date:	08JUN1997
Material:	Not reported	Quantity:	Not reported
Release Date:	06/08/199	Year:	97
How Occurred:	Not reported		
Location:	Not reported		
Description:	Mobil crane hit fill spout and caused leak to area mostly covered w/asphalt- some soil.		

KMB00006466

OREGON STEEL MILLS INC (Continued) **1000236249**

Facility ID:	Not reported	Spill Date:	10SEP1997
Material:	Not reported	Quantity:	Not reported
Release Date:	09/10/199	Year:	97
How Occurred:	Not reported		
Location:	Not reported		
Description:	450 gallons		

Facility ID:	Not reported	Spill Date:	24DEC1997
Material:	Not reported	Quantity:	Not reported
Release Date:	12/24/199	Year:	97
How Occurred:	Not reported		
Location:	Conveyor system equipment area.		
Description:	Hydraulic system failure- synthetic hydraulic fluid spilled from equipment room for mold conveyor system. Initially thought to be contaminated. Some of the 40-70 gallons spilled and entered a catch basin and the River.		

Facility ID:	Not reported	Spill Date:	29DEC1997
Material:	Not reported	Quantity:	Not reported
Release Date:	12/29/199	Year:	97
How Occurred:	Not reported		
Location:	In closed portion of plant.		
Description:	10'X 15' area impacted with diesel. Was observed on the 29th of December, red in the outfall of storm sewer by Ash Grove personnel. Contaminated soil will be excavated. Booms have been placed at the outfall. Maybe vandalism . Investigat		

Facility ID:	Not reported	Spill Date:	24NOV1998
Material:	Not reported	Quantity:	Not reported
Release Date:	/ /	Year:	Not reported
How Occurred:	Not reported		
Location:	Not reported		
Description:	4-inch hydraulic line broke- 150 gal skilled to soil.		

Facility ID:	Not reported	Spill Date:	Not reported
Material:	Not reported	Quantity:	Not reported
Release Date:	/ /	Year:	Not reported
How Occurred:	Not reported		
Location:	Not reported		
Description:	1-200 gallons of hydraulic oil at break in line. Placed pads then had FOSS come finish spill.		

Facility ID:	Not reported	Spill Date:	Not reported
Material:	Not reported	Quantity:	Not reported
Release Date:	14MAR2000	Year:	2000
How Occurred:	Not reported		
Location:	Not reported		
Description:	5 gal from inoperable pump - impacted soil and shallow groundwater		

Facility ID:	Not reported	Spill Date:	Not reported
Material:	Not reported	Quantity:	Not reported
Release Date:	10MAY2000	Year:	2000
How Occurred:	Not reported		
Location:	Not reported		
Description:	During weighing railcar derailed & fell over, lid popped off. Railcar w/electric arc furnace waste denailed (KO61) release is in gravel area. Covered spill w/tarps & plan to conduct CU in morning.		

HSIS:

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN

OREGON STEEL MILLS INC (Continued) **1000236249**

Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	ACETYLENE
Most Hazardous:	ACETYLENE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760
	PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	20
Description Of The Max Qnty Code:	1,000-4,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	21
Description Of The Avg Qnty Code:	5,000-9,999
United Nations/north America 4 Digit Classification Number:	1001
Chemical Abstract Service Identifier Number:	74-86-2
First Hazardous Classification Code For Chemical:	2.1
Hazard Classification 1 Of The Chemical:	Flammable Gases
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Y
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000011.TXT
Amount In:	20
Amount In Description:	1,000-4,999
Amount Out:	00
Amount Out Description:	0-4

OREGON STEEL MILLS INC (Continued) **1000236249**

Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	ALUMINA REFRACTORIES
Most Hazardous:	ALUMINUM SILICATE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
Maximum Amount Possessed During The Year Code:	30
Description Of The Max Qnty Code:	10,000-49,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code:	R
Description of Code:	OTHER
Pressure of Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code	Not reported
Description of Code:	Not reported
Pressure of Code:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	68511-77-3
First Hazardous Classification Code For Chemical:	6.4

OREGON STEEL MILLS INC (Continued) **1000236249**

Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	40
Amount In Description:	100,000-249,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code: 3312 - BLAST FURNACES AND STEEL MILLS-MFG	

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	ALUMINUM
Most Hazardous:	ALUMINUM
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
Maximum Amount Possessed During The Year Code:	30
Description Of The Max Qnty Code:	10,000-49,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	J
Description:	BAG
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365

OREGON STEEL MILLS INC (Continued) **1000236249**

Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	50
Description Of The Avg Qnty Code:	1,000,000-2,499,999
United Nations/north America 4 Digit Classification Number:	1383
Chemical Abstract Service Identifier Number:	7429-90-5
First Hazardous Classification Code For Chemical:	9.0
Hazard Classification 1 Of The Chemical:	Misc.Haz. Materials
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	001043.TXT
Amount In:	50
Amount In Description:	1,000,000-2,499,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	ANTIFREEZE
Most Hazardous:	ETHYLENE GLYCOL
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	04
Description Of The Max Qnty Code:	50-199
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS

OREGON STEEL MILLS INC (Continued) **1000236249**

Storage Container:	
Type Code:	D
Description:	STEEL DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	11
Description Of The Avg Qnty Code:	500-999
United Nations/north America 4 Digit Classification Number:	3082
Chemical Abstract Service Identifier Number:	107-21-1
First Hazardous Classification Code For Chemical:	6.3
Hazard Classification 1 Of The Chemical:	Acute Health Hazard
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000039.TXT
Amount In:	10
Amount In Description:	200-499
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3312 - BLAST FURNACES AND STEEL MILLS-MFG	

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	ARGON
Most Hazardous:	ARGON
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	3.00000
Physical State Of The Substance:	GAS

OREGON STEEL MILLS INC (Continued) **1000236249**

Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	20
Description Of The Max Qnty Code:	1,000-4,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	20
.Description Of The Avg Qnty Code:	1,000-4,999
United Nations/north America 4 Digit Classification Number:	1006
Chemical Abstract Service Identifier Number:	7440-37-1
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000041.TXT
Amount In:	21
Amount In Description:	5,000-9,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3312 - BLAST FURNACES AND STEEL MILLS-MFG	

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	ARGON
Most Hazardous:	ARGON
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204

OREGON STEEL MILLS INC (Continued) **1000236249**

Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	21
Description Of The Max Qnty Code:	5,000-9,999
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	7
Type of Code:	S
Description of Code:	DEWAR
Pressure of Code:	2
Temperature of The Hazardous Substance Code:	7
Type of Code	Not reported
Description of Code:	Not reported
Pressure of Code:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	40
Description Of The Avg Qnty Code:	100,000-249,999
United Nations/north America 4 Digit Classification Number:	1006
Chemical Abstract Service Identifier Number:	7440-37-1
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000041.TXT
Amount In:	21
Amount In Description:	5,000-9,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CALCINED KYANITE COATING
Most Hazardous:	CRYSTALLINE SILICA
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760

OREGON STEEL MILLS INC (Continued) **1000236249**

	PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	41
Description Of The Avg Qnty Code:	250,000-499,999
Maximum Amount Possessed During The Year Code:	42
Description Of The Max Qnty Code:	500,000-749,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	H
Description:	SILO
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code:	O
Description of Code:	TOTEBIN
Pressure of Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code	Not reported
Description of Code:	Not reported
Pressure of Code:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	60
Description Of The Avg Qnty Code:	10,000,000-24,999,999
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
First Hazardous Classification Code For Chemical:	6.4
Hazard Classification 1 Of The Chemical:	Chronic Health Hazard
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	53

OREGON STEEL MILLS INC (Continued) **1000236249**

Amount In Description:	7,500,000-9,999,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CALCIUM CARBIDE
Most Hazardous:	CALCIUM CARBIDE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760
	PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	21
Description Of The Avg Qnty Code:	5,000-9,999
Maximum Amount Possessed During The Year Code:	21
Description Of The Max Qnty Code:	5,000-9,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	D
Description:	STEEL DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	40
Description Of The Avg Qnty Code:	100,000-249,999
United Nations/north America 4 Digit Classification Number:	1402
Chemical Abstract Service Identifier Number:	75-20-7
First Hazardous Classification Code For Chemical:	4.3
Hazard Classification 1 Of The Chemical:	Dangerous When Wet
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Flammable Solids
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2

OREGON STEEL MILLS INC (Continued) **1000236249**

Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000082.TXT
Amount In:	30
Amount In Description:	10,000-49,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CALCIUM SILICON
Most Hazardous:	CALCIUM SILICON
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	31
Description Of The Avg Qnty Code:	50,000-99,999
Maximum Amount Possessed During The Year Code:	31
Description Of The Max Qnty Code:	50,000-99,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	D
Description:	STEEL DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	50
Description Of The Avg Qnty Code:	1,000,000-2,499,999
United Nations/north America 4 Digit Classification Number:	0000
Chemical Abstract Service Identifier Number:	Not reported

OREGON STEEL MILLS INC (Continued) **1000236249**

First Hazardous Classification Code For Chemical:	4.5
Hazard Classification 1 Of The Chemical:	Combustible Materials
Second Hazardous Classification Code For Chemical:	4.3
Hazard Classification 2 Of The Chemical:	Dangerous When Wet
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	50
Amount In Description:	1,000,000-2,499,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CARBON DIOXIDE
Most Hazardous:	CARBON DIOXIDE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	21
Description Of The Max Qnty Code:	5,000-9,999
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	7

OREGON STEEL MILLS INC (Continued) **1000236249**

Type of Code:	S
Description of Code:	DEWAR
Pressure of Code:	2
Temperature of The Hazardous Substance Code:	7
Type of Code	Not reported
Description of Code:	Not reported
Pressure of Code:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
United Nations/north America 4 Digit Classification Number:	1013
Chemical Abstract Service Identifier Number:	124-38-9
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000090.TXT
Amount In:	30
Amount In Description:	10,000-49,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CARBON DIOXIDE
Most Hazardous:	CARBON DIOXIDE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM

OREGON STEEL MILLS INC (Continued) **1000236249**

Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	21
Description Of The Max Qnty Code:	5,000-9,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
United Nations/north America 4 Digit Classification Number:	1013
Chemical Abstract Service Identifier Number:	124-38-9
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000090.TXT
Amount In:	30
Amount In Description:	10,000-49,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported

Sic Code: 3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CARBON PRODUCTS
Most Hazardous:	CARBON
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651

OREGON STEEL MILLS INC (Continued) **1000236249**

Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	40
Description Of The Avg Qnty Code:	100,000-249,999
Maximum Amount Possessed During The Year Code:	40
Description Of The Max Qnty Code:	100,000-249,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	R
Description:	OTHER
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	43
Description Of The Avg Qnty Code:	750,000-999,999
United Nations/north America 4 Digit Classification Number:	1361
Chemical Abstract Service Identifier Number:	7440-44-0
First Hazardous Classification Code For Chemical:	4.5
Hazard Classification 1 Of The Chemical:	Combustible Materials
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	60
Amount In Description:	10,000,000-24,999,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CERAM-GUARD
Most Hazardous:	AMORPHOUS SILICA
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700

OREGON STEEL MILLS INC (Continued) **1000236249**

Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	04
Description Of The Max Qnty Code:	50-199
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	D
Description:	STEEL DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
First Hazardous Classification Code For Chemical:	6.3
Hazard Classification 1 Of The Chemical:	Acute Health Hazard
Second Hazardous Classification Code For Chemical:	6.4
Hazard Classification 2 Of The Chemical:	Chronic Health Hazard
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	00
Amount In Description:	0-4
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	CHOPPED COPPER
Most Hazardous:	COPPER
Manager Name:	ANDREW GILPIN

OREGON STEEL MILLS INC (Continued) **1000236249**

Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
Maximum Amount Possessed During The Year Code:	30
Description Of The Max Qnty Code:	10,000-49,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	K
Description:	BOX
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	7440-50-8
First Hazardous Classification Code For Chemical:	9.0
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	40
Amount In Description:	100,000-249,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG
Emergency Hazardous Substance:	No

OREGON STEEL MILLS INC (Continued) **1000236249**

Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	COATINGS-HIGH ZINC
Most Hazardous:	ZINC
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760
	PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	11
Description Of The Avg Qnty Code:	500-999
Maximum Amount Possessed During The Year Code:	20
Description Of The Max Qnty Code:	1,000-4,999
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	D
Description:	STEEL DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code:	F
Description of Code:	CAN
Pressure of Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code	Not reported
Description of Code:	Not reported
Pressure of Code:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	1993
Chemical Abstract Service Identifier Number:	Not reported
First Hazardous Classification Code For Chemical:	3.3
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture

OREGON STEEL MILLS INC (Continued) **1000236249**

Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	21
Amount In Description:	5,000-9,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	COATINGS-WATER BASED
Most Hazardous:	SODIUM POTASSIUM ALUMINUM SILICATE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	10
Description Of The Max Qnty Code:	200-499
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code:	D
Description of Code:	STEEL DRUM
Pressure of Code:	1
Temperature of The Hazardous Substance Code:	4
Type of Code	Not reported

OREGON STEEL MILLS INC (Continued) **1000236249**

Description of Code:	Not reported
Pressure of Code:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	37244-96-5
First Hazardous Classification Code For Chemical:	9.0
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	21
Amount In Description:	5,000-9,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	COOGAR GAS
Most Hazardous:	ARGON
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999

OREGON STEEL MILLS INC (Continued) **1000236249**

Maximum Amount Possessed During The Year Code:	21
Description Of The Max Qnty Code:	5,000-9,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
United Nations/north America 4 Digit Classification Number:	1956
Chemical Abstract Service Identifier Number:	124-38-9
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	21
Amount In Description:	5,000-9,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	DEFOAMER-WATER TREATMENT
Most Hazardous:	SILICONE ANTI-FOAM
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported

OREGON STEEL MILLS INC (Continued) **1000236249**

E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	04
Description Of The Max Qnty Code:	50-199
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
First Hazardous Classification Code For Chemical:	9.0
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	11
Amount In Description:	500-999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	DIESEL FUEL
Most Hazardous:	PETROLEUM MID-DISTILLATES
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689
No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000

OREGON STEEL MILLS INC (Continued) **1000236249**

Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
Maximum Amount Possessed During The Year Code:	30
Description Of The Max Qnty Code:	10,000-49,999
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	41
Description Of The Avg Qnty Code:	250,000-499,999
United Nations/north America 4 Digit Classification Number:	1993
Chemical Abstract Service Identifier Number:	68334-30-5
First Hazardous Classification Code For Chemical:	3.3
Hazard Classification 1 Of The Chemical:	Flamm.Liq. (73F<FP<141F)
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	003439.TXT
Amount In:	41
Amount In Description:	250,000-499,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code:	3312 - BLAST FURNACES AND STEEL MILLS-MFG
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	ANDREW GILPIN
Emergency Procedure:	SECURITY GATE STORES
Chemical Trade Name:	DOLOMITE REFRACTORIES
Most Hazardous:	BURNED DOLOMITE
Manager Name:	ANDREW GILPIN
Mailing Address:	PO BOX 2760 PORTLAND, OR 97208
Mailing County:	MULTNOMAH
Day Phone:	503-978-6189
Employee File #:	017689

OREGON STEEL MILLS INC (Continued) **1000236249**

No. of Employees:	700
Placard:	Yes
Placard Other:	Yes
Business Type:	CARBON STEEL SLAB PLATE & COIL PRODUCTION
Sprinkler System:	Yes
Date Form Completed:	11/28/2000
Business Phone:	503-286-9651
Department Or Division Of Company:	PORTLAND STEEL WORKS
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001204
Chemical Count:	83
Date Added:	Not reported
E-mail Address:	DEETZD@OSM.COM
Send To Attention Of:	DEBBIE DEETZ SILVA
Physical State Code:	1.00000
Physical State Of The Substance:	SOLID
Average Amount Possessed During The Year Code:	30
Description Of The Avg Qnty Code:	10,000-49,999
Maximum Amount Possessed During The Year Code:	30
Description Of The Max Qnty Code:	10,000-49,999
Applicable Unit Of Measure Code:	1.00000
Description Of The Unit Of Measure:	POUNDS
Storage Container:	
Type Code:	O
Description:	TOTEBIN
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	41
Description Of The Avg Qnty Code:	250,000-499,999
United Nations/north America 4 Digit Classification Number:	Not reported
Chemical Abstract Service Identifier Number:	37247-91-9
First Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 1 Of The Chemical:	Acute Health Hazard
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	41
Amount In Description:	250,000-499,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1

Sic Code: 3312 - BLAST FURNACES AND STEEL MILLS-MFG

EDR reports the first 20 ORHSIS records for this site.
The OR HSIS database contains 77 additional records for this site.
Please contact your EDR Account Executive for more information.

OREGON STEEL MILLS INC (Continued) **1000236249**

UST:
Facility ID: 3594
Facility Telephone: (503) 286-9651
Permittee Name: Oregon Steel Mills
Active Tanks: 0
Decommissioned Tanks: 1

A2 SSW 1/2-1 4019 Higher **OREGON STEEL MILLS - RIVERGATE** **SHWS - ECSI S103841463**
14400 N RIVERGATE BLVD **OR VCS N/A**
PORTLAND, OR 97203

Site 2 of 2 in cluster A

ECSI:
State ID Number: 141
Study Area: No
Cerclis ID: 009106055
Size: 158 acres
Orphan: No
Lat/Long: 45.6280 / 122.7810
Township Coord.: 2.00
Range Coord.: 1.00
Section Coord.: 26
Coordinator Supplier: Mapblast/Internet
Tax Lots: 1 of Lot 1 (R64977 4290)
NPL: No
ECFS Code: Not reported
Tax Lots: 1 of Lot 1 (R64977 4290)
Township Zone: N
Range Zone: W
Qtr Section: B+C

Substance: CADMIUM
Quant. Released: Unknown
Date: Unknown

Substance: CHROMIUM
Quant. Released: Unknown
Date: Unknown

Substance: PCB 1221
Quant. Released: Unknown
Date: Unknown

Substance: LEAD
Quant. Released: Unknown
Date: Unknown

Substance: PCBs
Quant. Released: Not reported
Date: Not reported

Substance: ZINC
Quant. Released: Not reported
Date: Not reported

Alias Name: Gilmore Steel Corp. - Rivergate
Portland Harbor Site Discovery

Texto: NWR Source files
Release Desc: Not reported
Release Desc.: Data Sources
Texto: NWR Source files
Release Desc: Not reported
Release Desc.: Data Sources
Texto: NWR Source files
Release Desc: Not reported
Release Desc.: Data Sources
Texto: NWR Source files
Release Desc: Not reported

OREGON STEEL MILLS - RIVERGATE (Continued) **S103841463**

Release Desc.: Data Sources

Sampling Start: Not reported
Sampling End: Not reported
Sample Depth: Not reported
Sampling Result: Not reported
Obsrvtn Indicator: Not reported
Owner/Operator: Not reported
Lab Data Indicator: Not reported
Medium Description: Not reported
Minimum Concentration Valve: Not reported
Maximum Concentration Valve: Not reported
Investigation Status: Suspect Site - Needs Investigation

Contamination:

Company: (1) solvent mixed with paint leaked from drums onto the surface of the ground; (2) landfilled large volumes of waste paint on site; (3) deposited emission control dust (determined to be characteristic hazardous waste) into a surface impoundment not intended for that purpose; and (4) experienced at least 2 PCB spills from leaking capacitors and transformers.

Data Sources:

NRW HW; AQ; WQ files; "Contractual Documentation for Part A Application" (12/19/91); inspection reports; correspondence from owner and/or operator; Notice of Violation letter; hazardous waste manifests; lab results.

Hazardous Substance/Waste Types:

lead; cadmium; chromium; PCBs

Manner of Release:

Operating practices.
Time of release: Unknown

Remedial Action:

Company: (1) cleaned up a portion of the landfilled paint wastes; (2) cleaned up the PCB-contaminated soil; (3) removed the contaminated emission control dust from the surface impoundment. (8/5/99 TG/SAP) Strategy Recommendation for high priority Remedial Investigation to evaluate sediment contamination. (9/26/00 RGS/VCP) Voluntary Agreement for Remedial Investigation and Source Control Measures forwarded to Oregon Steel Mills; Inc. on February 29; 2000. Signed agreement June 14; 2000.

Party Identifier: 10434
Description: Unknown
Effective Date: Not reported — End Date: 31DEC3999
Party Comments: Not reported
Date Comments: Not reported
Operation ECSK: Not reported — Operation Sequence: Not reported
Party Name: Not reported
Party Addr: Not reported
Phone: Not reported — Fax: Not reported
Legal Name: Not reported
Comments: Not reported

Party Identifier: 17380
Description: Contact
Effective Date: Not reported — End Date: 31DEC3999
Party Comments: Not reported
Date Comments: Not reported
Operation ECSK: Not reported — Operation Sequence: Not reported
Party Name: Not reported
Party Addr: Not reported
Phone: Not reported — Fax: Not reported

OREGON STEEL MILLS - RIVERGATE (Continued) **S103841463**

Legal Name: Not reported
Comments: Not reported

Party Identifier: 36936
Description: Owner
Effective Date: Not reported End Date: 31DEC3999
Party Comments: Not reported
Date Comments: Not reported
Operation ECSK: Not reported Operation Sequence: Not reported
Party Name: Not reported
Party Addr: Not reported
Phone: Not reported Fax: Not reported
Legal Name: Not reported
Comments: Not reported

Party Identifier: 17380
Description: Legal Owner
Effective Date: Not reported End Date: 31DEC3999
Party Comments: Not reported
Date Comments: Not reported
Operation ECSK: Not reported Operation Sequence: Not reported
Party Name: Not reported
Party Addr: Not reported
Phone: Not reported Fax: Not reported
Legal Name: Not reported
Comments: Not reported

Site Status: Not reported
Assoc Date: Not reported

Permit Number: 100170 Permit Type: NPDES
Permit Agency: DEQ/WQ
Prmt Comments: Not reported
Permit Number: 26-1865 Permit Type: ACDP
Permit Agency: DEQ/AQ
Prmt Comments: Not reported
Permit Number: 1207 Permit Type: WQ GEN12H
Permit Agency: DEQ
Prmt Comments: Not reported

Common Name: Not reported Years/Operation: Not reported
Operation Status: Not reported Most Recent FLag: Not reported
Oper. Comment: Not reported

Administrative Action: BASIC PRELIMINARY ASSESSEMENT
Administrative category: Remedial Action
Comments: Federal.

Start Date: 28FEB1990 Completion: 28FEB1990
Staff Number: 112 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Not reported

Administrative Action: Responsible party notified re 11/88 Inventory listing
Administrative category: Listing Action
Comments: Not reported
Start Date: 30NOV1988 Completion: 31DEC3999
Staff Number: Not reported FRT Action Priority: Not reported
Rank Value: 0

OREGON STEEL MILLS - RIVERGATE (Continued) **S103841463**

Agency: Dept of Env. Quality
Region: Not reported

Administrative Action: Site added to database
Administrative category: Administrative Action
Comments: Not reported
Start Date: 16AUG1988 Completion: 31DEC3999
Staff Number: 112 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Not reported

Administrative Action: SITE EVALUATION
Administrative category: Remedial Action
Comments: Not reported
Start Date: 27FEB1990 Completion: 27FEB1990
Staff Number: 112 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: State Basic Preliminary Assessment recommended (PA)
Administrative category: Remedial Action
Comments: Not reported
Start Date: 27FEB1990 Completion: 27FEB1990
Staff Number: 112 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: EPA Basic Preliminary Assessment
Administrative category: EPA Led Action
Comments: Site deferred to EPA Region 10's RCRA unit.

Start Date: 03SEP1992 Completion: 03SEP1992
Staff Number: Not reported FRT Action Priority: Not reported
Rank Value: 0
Agency: EPA
Region: Not reported

Administrative Action: Site added to CERCLIS
Administrative category: EPA Led Action
Comments: Not reported
Start Date: 17SEP1991 Completion: 31DEC3999
Staff Number: Not reported FRT Action Priority: Not reported
Rank Value: 0
Agency: EPA
Region: Not reported

Administrative Action: SITE EVALUATION
Administrative category: Remedial Action
Comments: Not reported
Start Date: 05AUG1999 Completion: 05AUG1999
Staff Number: 853 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Remedial Investigation recommended (RI)
Administrative category: Remedial Action

OREGON STEEL MILLS - RIVERGATE (Continued) **S103841463**

Comments: Strategy Recommendation - High priority for an RI.

Start Date: 05AUG1999 Completion: 05AUG1999
Staff Number: 853 FRT Action Priority: HIGH
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Proposal for Inventory recommended
Administrative category: Listing Action
Comments: Gasoline spill and associated gw contamination.

Start Date: 01OCT1999 Completion: 01OCT1999
Staff Number: 853 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Proposal for Confirmed Release List recommended
Administrative category: Listing Action
Comments: Gasoline spill and associated gw contamination.

Start Date: 01OCT1999 Completion: 01OCT1999
Staff Number: 853 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Facility proposed for Confirmed Release List
Administrative category: Listing Action
Comments: Not reported
Start Date: 12NOV1999 Completion: 12NOV1999
Staff Number: 304 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Facility proposed for Inventory
Administrative category: Listing Action
Comments: Not reported
Start Date: 12NOV1999 Completion: 12NOV1999
Staff Number: 304 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Extension requested by owner/operator
Administrative category: Listing Action
Comments: Not reported
Start Date: 15DEC1999 Completion: 15DEC1999
Staff Number: 304 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Petition or request granted
Administrative category: Listing Action
Comments: Extension granted to February 18 2000.
Start Date: 27DEC1999 Completion: 27DEC1999

KMB00006495

OREGON STEEL MILLS - RIVERGATE (Continued) **S103841463**

Staff Number: 304 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Owner/operator comments received on listing notification
Administrative category: Listing Action
Comments: Comments from HartCrowser.Proposed listing pulled pending site re-evaluation.
Start Date: 17FEB2000 Completion: 17FEB2000
Staff Number: 304 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Letter Agreement
Administrative category: Remedial Action
Comments: Voluntary Agreement for RI and Scope of Work.

Start Date: 29FEB2000 Completion: 31DEC3999
Staff Number: 186 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: NEGOTIATIONS
Administrative category: Remedial Action
Comments: Not reported
Start Date: 29FEB2000 Completion: 14JUN2000
Staff Number: 186 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: REMEDIAL INVESTIGATION
Administrative category: Remedial Action
Comments: Not reported
Start Date: 17JUN2000 Completion: 31DEC3999
Staff Number: 186 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: Place on hold
Administrative category: Listing Action
Comments: Decision to defer CRL/INV listing decision pending outcome of pre-RI assmt.

Start Date: 13OCT2000 Completion: 13OCT2000
Staff Number: 186 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

ECSF Desc.: Not reported

OR VCS:
ECS Site ID: 141
Action: LTAG
Start Date: 02/29/20
End Date: / /
Program: VCS

OREGON STEEL MILLS - RIVERGATE (Continued) **S103841463**

CRL:	SUS
Facility Size:	158 acres
Project Manager Last Name:	Struck
Project Manager First Name:	Rod
ECS Site ID:	141
Action:	RI
Start Date:	06/17/20
End Date:	/ /
Program:	VCS
CRL:	SUS
Facility Size:	158 acres
Project Manager Last Name:	Struck
Project Manager First Name:	Rod

3 SSW 1/2-1 4298 Higher **UNION CHEMICAL DIV.** **SHWS - ECSI** **S103841627**
14025 N RIVERGATE BLVD **N/A**
PORTLAND, OR 97203

ECSI:

State ID Number:	329		
Study Area:	No	Coordinator Supplier:	Not reported
Cerclis ID:	Not reported	Tax Lots:	26
Size:	5.3 acres	NPL:	No
Orphan:	No	ECFS Code:	Not reported
Lat/Long:	45.6210 / 122.7800	Tax Lots:	26
Township Coord.:	2.00	Township Zone:	N
Range Coord.:	1.00	Range Zone:	W
Section Coord.:	26	Qtr Section:	Not reported

Substance:	AMMONIA
Quant. Released:	Unknown
Date:	2-5-82
Alias Name:	Union Oil Co. of California
Texto:	Not reported
Release Desc.:	Not reported
Sampling Start:	Not reported
Sampling End:	Not reported
Sample Depth:	Not reported
Sampling Result:	Not reported
Obsrvtn Indicator:	Not reported
Owner/Operator:	Not reported
Lab Data Indicator:	Not reported
Medium Description:	Not reported
Minimum Concentration Valve:	Not reported
Maximum Concentration Valve:	Not reported
Investigation Status:	No Further Action

Contamination:
A spill occurred while transfering anhydrous ammonia from a ship to two storage tanks.
Hazardous Substance/Waste Types:
ammonia
Site Location:
Rivergate Industrial Area
Manner of Release:
Spill while unloading 15;000 tons of product on February 5; 1982.

UNION CHEMICAL DIV. (Continued) **S103841627**

Remedial Action:
(8/2/88 MJZ/SAS) Site was cleaned up by contractor who vacuumed product and water from site. Region considered cleanup complete; and no further action is required.

Party Identifier: 10741
Description: Owner
Effective Date: Not reported — End Date: 31DEC3999
Party Comments: Not reported
Date Comments: Not reported
Operation ECSK: Not reported — Operation Sequence: Not reported
Party Name: Not reported
Party Addr: Not reported
Phone: Not reported — Fax: Not reported
Legal Name: Not reported
Comments: Not reported

Party Identifier: 10742
Description: Legal Owner
Effective Date: Not reported — End Date: 31DEC3999
Party Comments: Not reported
Date Comments: Not reported
Operation ECSK: Not reported — Operation Sequence: Not reported
Party Name: Not reported
Party Addr: Not reported
Phone: Not reported — Fax: Not reported
Legal Name: Not reported
Comments: Not reported

Site Status: Not reported
Assoc Date: Not reported

Permit Number: Not reported — Permit Type: Not reported
Permit Agency: Not reported
Prmt Comments: Not reported

Common Name: Not reported — Years/Operation: Not reported
Operation Status: Not reported — Most Recent FLag: Not reported
Oper. Comment: Not reported

Administrative Action: Site added to database
Administrative category: Administrative Action
Comments: Not reported
Start Date: 16AUG1988 — Completion: 31DEC3999
Staff Number: 123 — FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Not reported

Administrative Action: NO FURTHER STATE ACTION REQUIRED
Administrative category: Remedial Action
Comments: Not reported
Start Date: 16AUG1988 — Completion: 16AUG1988
Staff Number: 123 — FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Not reported

ECSF Desc.: Not reported

4 SSE 1/2-1 4680 Higher **BEALL TRAILERS OF OREGON INC**
9200 N RAMSEY BLVD
PORTLAND, OR 97203

RCRIS-SQG FINDS OR SPILLS SHWS - ECSI HSIS **1000874098 OR0000031740**

RCRIS:

Owner: BEALL TRAILERS OF OREGON INC
(503) 286-8823

Contact: MARK BEALL
(503) 286-8823

Record Date: 12/31/1998

Classification: Small Quantity Generator

Used Oil Recyc: No

Violation Status: Violations exist

Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	12/18/1995
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	02/12/1996
Enforcement Action:	Written Informal
Enforcement Action Date:	01/17/1996
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	12/18/1995
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	02/12/1996
Enforcement Action:	Written Informal
Enforcement Action Date:	01/17/1996
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	TSD-Other Requirements
Date Violation Determined:	12/18/1995
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	02/12/1996
Enforcement Action:	Written Informal
Enforcement Action Date:	01/17/1996
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported
Regulation Violated:	Not reported
Area of Violation:	Generator-Land Ban Requirements
Date Violation Determined:	12/18/1995
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	02/12/1996
Enforcement Action:	Written Informal
Enforcement Action Date:	01/17/1996

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: Generator-All Requirements
Date Violation Determined: 12/18/1995
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 02/12/1996

Enforcement Action: Written Informal
Enforcement Action Date: 01/17/1996
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

There are 5 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Compliance Evaluation Inspection (CEI)	TSD-Other Requirements	02/12/1996
	TSD-Other Requirements	02/12/1996
	TSD-Other Requirements	02/12/1996
	Generator-Land Ban Requirements	02/12/1996
	Generator-All Requirements	02/12/1996

ECSI:

State ID Number:	10		
Study Area:	No	Coordinator Supplier:	Not reported
Cerclis ID:	Not reported	Tax Lots:	#11
Size:	4 acres	NPL:	No
Orphan:	No	ECFS Code:	Not reported
Lat/Long:	45.6230 / 122.7550	Tax Lots:	#11
Township Coord.:	2.00	Township Zone:	N
Range Coord.:	1.00	Range Zone:	W
Section Coord.:	26	Qtr Section:	Not reported

Substance: OIL OR FUEL RELATED COMPOUNDS
Quant. Released: Unknown
Date: Prior to June 1987

Alias Name: Not reported

Texto: DEQ inspector observation 6-11-87 and company acknowledgement.
Release Desc: Not reported
Release Desc.: Data Sources

Sampling Start: Not reported
Sampling End: Not reported
Sample Depth: Not reported
Sampling Result: Not reported
Obsrvtn Indicator: Not reported
Owner/Operator: Not reported
Lab Data Indicator: Not reported
Medium Description: Not reported
Minimum Concentration Valve: Not reported
Maximum Concentration Valve: Not reported
Investigation Status: Suspect Site - Needs Investigation

Contamination:

On June 11; 1987; NWR inspectors followed up on complaint alleging Beall was dumping oil on the ground and discharging effluents to a nearby stream. Beall

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

cleans gasoline tanker trucks prior to repair; rinsate discharged to Portland's sewer system. Beall's foreman says tanker trucks contain very little (approx 1 qt) gasoline. DEQ inspectors observed small patch of discolored soil near cleaning station. No 'wet' areas observed. 3 drums on site - 2 filled with used oil; 1 with chlorothene (used to clean exterior of trucks). No waste chlorothene generated. Small paint storage area; several cans of waste mineral spirits. Beall discharges water used to test new tank trucks for leaks; water not contaminated and flows across ground to adjacent field. Some soil discoloration observed. No discharge to stream. Inspectors reported that Beall will be removing the oily soil near the cleaning station.

Data Sources:
Inspection reports; photos; complaint from labor union.

Hazardous Substance/Waste Types:
compressor oil engine rinsewater; gasoline.

Site Location:
Rivergate Industrial Area near Columbia Slough

Manner of Release:
Operating practice of rinsing tank cars out; rinsate discharges directly to the ground prior to 6/87.

Project Activity Status:
Expanded PA recommended. Discolored and stained areas at the site need to be sampled.

Pathways & Other Hazards:
Drainage ditch located about a block east of Beall; ditch appears to be extension of Columbia slough but is man-made. No discharge to the ditch observed. No gasoline or petroleum odor present. Patches of algae evident in water; water itself had brownish-green tinge.

Remedial Action:
Unknown amount of oil-contaminated soil removed from site. Further action recommended. (10/27/97 LSK) Site reevaluated as part of review of all sites within the Columbia Slough Study Area. Located on south shore of Oregon Slough

Party Identifier:	10203		
Description:	Legal Owner		
Effective Date:	Not reported	End Date:	31DEC3999
Party Comments:	Not reported		
Date Comments:	Not reported		
Operation ECSK:	Not reported	Operation Sequence:	Not reported
Party Name:	Not reported		
Party Addr:	Not reported		
Phone:	Not reported	Fax:	Not reported
Legal Name:	Not reported		
Comments:	Not reported		
Site Status:	Not reported		
Assoc Date:	Not reported		
Permit Number:	Not reported	Permit Type:	Not reported
Permit Agency:	Not reported		
Prmt Comments:	Not reported		
Common Name:	Not reported	Years/Operation:	Not reported
Operation Status:	Not reported	Most Recent FLag:	Not reported
Oper. Comment:	Not reported		
Administrative Action:	Listing Review completed		
Administrative category:	Listing Action		
Comments:	Not reported		
Start Date:	12DEC1990	Completion:	12DEC1990
Staff Number:	177	FRT Action Priority:	Not reported

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: Insufficient information to list
Administrative category: Listing Action
Comments: Not reported
Start Date: 13DEC1990 Completion: 31DEC3999
Staff Number: 177 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: State Expanded Preliminary Assessment recommended (XPA)
Administrative category: Remedial Action
Comments: Not reported
Start Date: 01APR1991 Completion: 01APR1991
Staff Number: 112 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: Responsible party notified re 11/88 Inventory listing
Administrative category: Listing Action
Comments: Not reported
Start Date: 30NOV1988 Completion: 31DEC3999
Staff Number: Not reported FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: BASIC PRELIMINARY ASSESSEMENT
Administrative category: Remedial Action
Comments: Not reported
Start Date: 29JAN1991 Completion: 01APR1991
Staff Number: 112 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: Site added to database
Administrative category: Administrative Action
Comments: Not reported
Start Date: 11JUL1988 Completion: 31DEC3999
Staff Number: 124 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: SITE EVALUATION
Administrative category: Remedial Action
Comments: Not reported
Start Date: 12DEC1990 Completion: 12DEC1990
Staff Number: 177 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: State Basic Preliminary Assessment recommended (PA)
Administrative category: Remedial Action

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Comments: Not reported
Start Date: 13DEC1990 Completion: 13DEC1990
Staff Number: 177 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Head Quarters

Administrative Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Administrative category: Remedial Action
Comments: Not reported
Start Date: 20FEB1997 Completion: 27OCT1997
Staff Number: 119 FRT Action Priority: Not reported
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

Administrative Action: State Expanded Preliminary Assessment recommended (XPA)
Administrative category: Remedial Action
Comments: Not reported
Start Date: 27OCT1997 Completion: 27OCT1997
Staff Number: 119 FRT Action Priority: LOW
Rank Value: 0
Agency: Dept of Env. Quality
Region: Northwest

ECSF Desc.: Not reported

OR SPILLS:
Facility ID: Not reported Spill Date: 27MAR1997
Material: Not reported Quantity: Not reported
Release Date: 03/27/199 Year: 97
How Occurred: Not reported
Location: Not reported
Description: Worker opened the wrong valve while cleaning the trailer with jet fuel in it.

HSIS:

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	ACETYLENE
Most Hazardous:	ACETYLENE
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	20
Description Of The Max Qnty Code:	1,000-4,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	1001
Chemical Abstract Service Identifier Number:	74-86-2
First Hazardous Classification Code For Chemical:	2.1
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000011.TXT
Amount In:	30
Amount In Description:	10,000-49,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	ARGON LIQUID
Most Hazardous:	ARGON
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	11
Description Of The Avg Qnty Code:	500-999
Maximum Amount Possessed During The Year Code:	11
Description Of The Max Qnty Code:	500-999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	11
Description Of The Avg Qnty Code:	500-999
United Nations/north America 4 Digit Classification Number:	1951
Chemical Abstract Service Identifier Number:	7440-37-1
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	000042.TXT
Amount In:	30
Amount In Description:	10,000-49,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	COMPRESSED AIR
Most Hazardous:	NITROGEN
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	20
Description Of The Max Qnty Code:	1,000-4,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	21
Description Of The Avg Qnty Code:	5,000-9,999
United Nations/north America 4 Digit Classification Number:	1002
Chemical Abstract Service Identifier Number:	25635-88-5
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	001562.TXT
Amount In:	31
Amount In Description:	50,000-99,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	DIESEL
Most Hazardous:	PETROLEUM DISTILLATES

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD
	PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	10
Description Of The Avg Qnty Code:	200-499
Maximum Amount Possessed During The Year Code:	10
Description Of The Max Qnty Code:	200-499
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	1993
Chemical Abstract Service Identifier Number:	68476-34-6
First Hazardous Classification Code For Chemical:	3.3
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	20
Amount In Description:	1,000-4,999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	OXYGEN
Most Hazardous:	OXYGEN
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	20
Description Of The Avg Qnty Code:	1,000-4,999
Maximum Amount Possessed During The Year Code:	20
Description Of The Max Qnty Code:	1,000-4,999
Applicable Unit Of Measure Code:	3.00000
Description Of The Unit Of Measure:	CUBIC FEET
Storage Container:	
Type Code:	L
Description:	CYLINDER
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	21
Description Of The Avg Qnty Code:	5,000-9,999
United Nations/north America 4 Digit Classification Number:	1072
Chemical Abstract Service Identifier Number:	7782-44-7
First Hazardous Classification Code For Chemical:	2.2
Hazard Classification 1 Of The Chemical:	NonFlammable Gases
Second Hazardous Classification Code For Chemical:	5.1
Hazard Classification 2 Of The Chemical:	Oxidizers
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	002494.TXT

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Amount In:	30
Amount In Description:	10,000-49,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	PAINT
Most Hazardous:	PETROLEUM DISTILLATES
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	04
Description Of The Max Qnty Code:	50-199
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	F
Description:	CAN
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	Not reported
Description Of The Avg Qnty Code:	Not reported
United Nations/north America 4 Digit Classification Number:	1263
Chemical Abstract Service Identifier Number:	64742-47-8
First Hazardous Classification Code For Chemical:	3.3
Hazard Classification 1 Of The Chemical:	Not reported
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	11
Amount In Description:	500-999
Amount Out:	00
Amount Out Description:	0-4
Change:	1
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	PROPANE
Most Hazardous:	PROPANE
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	3.00000
Physical State Of The Substance:	GAS
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	04
Description Of The Max Qnty Code:	50-199
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	2
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	11
Description Of The Avg Qnty Code:	500-999
United Nations/north America 4 Digit Classification Number:	1075

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Chemical Abstract Service Identifier Number:	74-98-6
First Hazardous Classification Code For Chemical:	2.1
Hazard Classification 1 Of The Chemical:	Flammable Gases
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	002713.TXT
Amount In:	20
Amount In Description:	1,000-4,999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	
Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	STOVE OIL
Most Hazardous:	PETROLEUM HYDROCARBON
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	03
Description Of The Avg Qnty Code:	20-49
Maximum Amount Possessed During The Year Code:	10
Description Of The Max Qnty Code:	200-499
Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	D
Description:	STEEL DRUM
Pressure of Hazardous Substance Code:	1

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	10
Description Of The Avg Qnty Code:	200-499
United Nations/north America 4 Digit Classification Number:	1993
Chemical Abstract Service Identifier Number:	68476-34-6
First Hazardous Classification Code For Chemical:	3.3
Hazard Classification 1 Of The Chemical:	Flamm.Liq. (73F<FP<141F)
Second Hazardous Classification Code For Chemical:	6.3
Hazard Classification 2 Of The Chemical:	Acute Health Hazard
Is Substance Pure Or Mixture:	Pure
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	11
Amount In Description:	500-999
Amount Out:	00
Amount Out Description:	0-4
Change:	Not reported
Sic Code: 3715 - TRUCK TRAILERS-MFG OF	

Emergency Hazardous Substance:	No
Reportable Quantity:	Not reported
Emergency Contact:	MARK BEALL
Emergency Procedure:	SAFETY OFFICE
Chemical Trade Name:	WASTE OIL & GASOLINE TRANSFER TANK
Most Hazardous:	PETROLEUM DISTILLATE
Manager Name:	JIM OLSON
Mailing Address:	9200 N RAMSEY BLVD PORTLAND, OR 97203
Mailing County:	MULTNOMAH
Day Phone:	503-286-8823
Employee File #:	003502
No. of Employees:	115
Placard:	Yes
Placard Other:	Yes
Business Type:	TRAILER MANUFACTURE AND REPAIR
Sprinkler System:	Yes
Date Form Completed:	11/29/2000
Business Phone:	503-286-8823
Department Or Division Of Company:	Not reported
Facility Has Written Emergency Plan:	Yes
Date Information On Facility Updated:	20001130
Chemical Count:	9
Date Added:	Not reported
E-mail Address:	Not reported
Send To Attention Of:	Not reported
Physical State Code:	2.00000
Physical State Of The Substance:	LIQUID
Average Amount Possessed During The Year Code:	04
Description Of The Avg Qnty Code:	50-199
Maximum Amount Possessed During The Year Code:	10
Description Of The Max Qnty Code:	200-499

BEALL TRAILERS OF OREGON INC (Continued) **1000874098**

Applicable Unit Of Measure Code:	2.00000
Description Of The Unit Of Measure:	GALLONS
Storage Container:	
Type Code:	A
Description:	ABOVEGROUND TANK
Pressure of Hazardous Substance Code:	1
Temperature of The Hazardous Substance Code:	4
Days The Hazardous Substance Is On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Amount Of Substance Transported/Shipped Code:	11
Description Of The Avg Qnty Code:	500-999
United Nations/north America 4 Digit Classification Number:	0000
Chemical Abstract Service Identifier Number:	Not reported
First Hazardous Classification Code For Chemical:	3.2
Hazard Classification 1 Of The Chemical:	Flammable Liq.(0F<FP<73F)
Second Hazardous Classification Code For Chemical:	Not reported
Hazard Classification 2 Of The Chemical:	Not reported
Is Substance Pure Or Mixture:	Mixture
Hazard Rank:	2
Chemical Is An Extremely Hazardous Substance (ehs):	Not reported
Does The Chemical Contain A 112r Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	No
Epa Pesticide Registration Number:	Not reported
Material Safety Data Sheet:	Not reported
Amount In:	20
Amount In Description:	1,000-4,999
Amount Out:	20
Amount Out Description:	1,000-4,999
Change:	Not reported

Sic Code: 3715 - TRUCK TRAILERS-MFG OF

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
BURLINGTON	S103841619	ST. HELENS RD - GASOLINE SPILL	HWY 30; EAST OF CORNELIUS PASS RD	97231	SHWS - ECSI	
MULTNOMAH COUNTY	S104889139	LOWER WILLAMETTE RIVER BASIN STUDY AREA	LOWER WILLAMETTE RIVER BASIN		SHWS - ECSI	
MULTNOMAH COUNTY	S103816481	VANCE PIT	S05T01SR03E		SWF/LF	
MULTNOMAH COUNTY	S103816466	CLOUDBURST, INC.	S10T01NR01E		SWF/LF	
MULTNOMAH COUNTY	S103816471	KNAPP'S	S10T01NR01E		SWF/LF	
MULTNOMAH COUNTY	S103816472	LAND RECLAMATION	S11T01NR01E		SWF/LF	
MULTNOMAH COUNTY	S103816467	ESCO, WILLBRIDGE	S13T01NR01W		SWF/LF	
MULTNOMAH COUNTY	S103816476	PORTER W. YETT	S17T01NR02E		SWF/LF	
MULTNOMAH COUNTY	S103816474	OBRIST	S36T01NR03E		SWF/LF	
PORTLAND	S103842083	ST. JOHNS - KEELER #2 RIGHT-OF-WAY	2N/1W/S35	97203	SHWS - ECSI	
PORTLAND	1001599857	PORTLAND HARBOR	BETWEEN RM 3.5 & 9.2 IN PORTLAND HARBOF	97231	CERCLIS, Proposed NPL	
PORTLAND	S102079254	CHEVRON BULK PLANT	BULK PLANT		OR SPILLS	92-0491
PORTLAND	S104889226	SCHNITZER STEEL INDUSTRIES - NORTH BURGA	12005 N BURGARD RD	97203	SHWS - ECSI	
PORTLAND	S103842291	DIESEL RELEASE - N EDGEWATER ST	N EDGEWATER ST.	97203	SHWS - ECSI	
PORTLAND	S104226649	WILLAMETTE COVE	N EDGEWATER ST	97203	OR CRL, SHWS - ECSI, OR VCS	2066
PORTLAND	S103997159	RK STORAGE AND WAREHOUSING	10225 NW FRONT AVE	97231	SHWS - ECSI	
PORTLAND	96515270	INTERNATIONAL TERMINALS SLIP BURTH	INTERNATIONAL TERMINALS SLIP BURTH		ERNS	
PORTLAND	S104889230	TRI-MET LIGHT RAIL - INTERSTATE LIGHT RA	N INTERSTATE AVE.		SHWS - ECSI	
PORTLAND	S103842625	BLUE LAGOON - MARINE TERMINAL 5	N LOMBARD ST	97203	SHWS - ECSI	
PORTLAND	S103997139	PORT OF PORTLAND - TERMINAL 4 SLIP 1	N LOMBARD ST	97203	SHWS - ECSI	
PORTLAND	S103842192	LINNTON OIL FIRE TRAINING GROUNDS	NW MARINA WAY	97231	SHWS - ECSI, OR VCS	
PORTLAND	S104889225	PORTLAND GENERAL ELECTRIC - HARBORTON SU	12500 NW MARINA WAY	97231	SHWS - ECSI	
PORTLAND	1000252039	PACIFIC MOLASSES CO	MUNICIPAL TERMINAL 4	97203	FINDS, RCRIS-LQG, UST	400
PORTLAND	S102522274	DOAN LAKE BULK PLANT	1207 NW NAITO PKWY # 204		OR SPILLS, HSIS	
PORTLAND	S104226752	MULTNOMAH COUNTY - ST. JOHNS SITE	7321 N NEW YORK AVE (PARCEL 2)/9014	97203	SHWS - ECSI	
PORTLAND	S104550264	V.A.- COLUMBIA SOUTH SHORE WELLFIELD	NORTH OF COLUMBIA / SANDY BLVD BETW		SHWS - ECSI	
PORTLAND	S104226426	ACF INDUSTRIES	12160 NW ST. HELENS RD	97231	OR CRL, SHWS - ECSI, OR VCS	794
PORTLAND	U000432205	CARGILL INC	TERMINAL 4 - FOOT OF N LOMBARD	97203	UST, OR SPILLS	389
PORTLAND	S104304122	ROMAR TRANSPORTATION SYSTEMS; INC.	9333 N TIME OIL RD	97203	SHWS - ECSI	
PORTLAND	1000265612	ST JOHNS JUNCTION P L DELIVERY FAC	UPRR TERMINAL RD TERM 4	97203	FINDS, RCRIS-LQG	
PORTLAND	S103841592	TRIANGLE PARK - NORTH PORTLAND YARD	5828 N VAN HOUTEN PL	97203	OR CRL, SHWS - ECSI, OR VCS	277

EPA Waste Codes Addendum

Code	Description
D001	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
D002	A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
D035	METHYL ETHYL KETONE
D039	TETRACHLOROETHYLENE
F001	THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F003	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F005	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
K061	EMISSION CONTROL DUST/SLUDGE FROM THE PRIMARY PRODUCTION OF STEEL IN ELECTRIC FURNACES.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 01/23/01
Date Made Active at EDR: 02/16/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 02/05/01
Elapsed ASTM days: 11
Date of Last EDR Contact: 05/07/01

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 01/23/01
Date Made Active at EDR: 02/16/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 02/05/01
Elapsed ASTM days: 11
Date of Last EDR Contact: 05/07/01

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/16/01
Date Made Active at EDR: 04/30/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/26/01
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/26/01

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 03/16/01
Date Made Active at EDR: 04/30/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/26/01
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/26/01

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

KMB00006516

Date of Government Version: 04/20/00
Date Made Active at EDR: 08/01/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/12/00
Elapsed ASTM days: 50
Date of Last EDR Contact: 03/14/01

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 06/21/00
Date Made Active at EDR: 07/31/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 07/10/00
Elapsed ASTM days: 21
Date of Last EDR Contact: 05/29/01

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 08/08/00
Date Made Active at EDR: 09/06/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 08/11/00
Elapsed ASTM days: 26
Date of Last EDR Contact: 04/19/01

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/97
Database Release Frequency: Biennially
Date of Last EDR Contact: 03/19/01
Date of Next Scheduled EDR Contact: 06/18/01

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies
Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/30/99
Database Release Frequency: Annually
Date of Last EDR Contact: 04/10/01
Date of Next Scheduled EDR Contact: 07/09/01

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/23/01
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 05/07/01
Date of Next Scheduled EDR Contact: 08/06/01

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/07/00
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/09/01
Date of Next Scheduled EDR Contact: 07/09/01

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 05/31/00
Database Release Frequency: Annually

Date of Last EDR Contact: 04/24/01
Date of Next Scheduled EDR Contact: 07/23/01

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/30/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/09/01
Date of Next Scheduled EDR Contact: 07/09/01

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/01/98
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 04/02/01
Date of Next Scheduled EDR Contact: 07/02/01

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 05/23/01
Date of Next Scheduled EDR Contact: 08/20/01

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/11/00
Database Release Frequency: Annually

Date of Last EDR Contact: 05/18/01
Date of Next Scheduled EDR Contact: 08/13/01

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/13/01
Date of Next Scheduled EDR Contact: 06/11/01

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/97
Database Release Frequency: Annually
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 03/30/01
Date of Next Scheduled EDR Contact: 06/12/01

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-564-2501
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-564-2501

Date of Government Version: 08/10/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

STATE OF OREGON ASTM STANDARD RECORDS

SHWS - ECSI: Environmental Cleanup Site Information System
Source: Department of Environmental Quality
Telephone: 503-229-6629
Sites that are or may be contaminated and may require cleanup.

Date of Government Version: 02/23/01
Date Made Active at EDR: 04/17/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/19/01
Elapsed ASTM days: 29
Date of Last EDR Contact: 03/21/01

SWF/LF: Solid Waste Facilities List
Source: Department of Environmental Quality
Telephone: 503-229-6299
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 04/30/01
Date Made Active at EDR: 05/31/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 05/01/01
Elapsed ASTM days: 30
Date of Last EDR Contact: 03/05/01

LUST: Leaking Underground Storage Tank Database
Source: Department of Environmental Quality
Telephone: 503-229-5790
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/17/01
Date Made Active at EDR: 05/16/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 04/19/01
Elapsed ASTM days: 27
Date of Last EDR Contact: 03/21/01

UST: Underground Storage Tank Database
Source: Department of Environmental Quality
Telephone: 503-229-5815
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 01/18/01
Date Made Active at EDR: 04/20/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/21/01
Elapsed ASTM days: 30
Date of Last EDR Contact: 03/20/01

STATE OF OREGON ASTM SUPPLEMENTAL RECORDS

SPILLS: Spill Data
Source: Department of Environmental Quality
Telephone: 503-229-5731

Date of Government Version: 12/06/00
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 03/05/01
Date of Next Scheduled EDR Contact: 06/04/01

CRL: Confirmed Release List and Inventory
Source: Department of Environmental Quality
Telephone: 503-229-6170
All facilities with a confirmed release.

Date of Government Version: 03/19/01
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/19/01
Date of Next Scheduled EDR Contact: 06/18/01

VCS: Voluntary Cleanup Program Sites
Source: DEQ
Telephone: 503-229-5256
Responsible parties have entered into an agreement with DEQ to voluntarily address contamination associated with their property.

Date of Government Version: 04/30/01
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/08/01
Date of Next Scheduled EDR Contact: 08/06/01

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HAZMAT: Hazmat/Incidents
Source: State Fire Marshal's Office
Telephone: 503-373-1540
Hazardous material incidents reported to the State Fire Marshal by emergency responders. The hazardous material may or may not have been released.

Date of Government Version: 12/30/00
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 05/29/01
Date of Next Scheduled EDR Contact: 08/27/01

HSIS: Hazardous Substance Information Survey
Source: State Fire Marhal's Office
Telephone: 503-373-1540
Companies in Oregon submitting the Hazardous Substance Information Survey and either reporting or not reporting hazardous substances.

Date of Government Version: 03/07/01
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 03/05/01
Date of Next Scheduled EDR Contact: 06/04/01

EDR PROPRIETARY DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

KINDER MORGAN BULK TERMINALS INC.
TERMINAL 5-1550 N LOMBARD
PORTLAND, OR 97203

TARGET PROPERTY COORDINATES

Latitude (North):	45.636299 - 45° 38' 10.7"
Longitude (West):	122.776604 - 122° 46' 35.8"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	517411.9
UTM Y (Meters):	5053446.0

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 2445122-F7 SAUVIE ISLAND, OR WA
Source: USGS 7.5 min quad index

GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General WNW

Source: General Topographic Gradient has been determined from the USGS 1 Degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Q3 Flood Data Electronic Coverage
MULTNOMAH, OR	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	4101830005C / CBPP
Additional Panels in search area:	4101790045B / CBPP
	4101790135B / CBPP

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Coverage
SAUVIE ISLAND	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

KMB00006523

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

AQUIFLOW®

Search Radius: 2.000 Miles.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

GEOLOGIC AGE IDENTIFICATION

Geologic Code:	Q
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary

ROCK STRATIGRAPHIC UNIT

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	SAUVIE
Soil Surface Texture:	silt loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Poorly. Soils may have a saturated zone, a layer of low hydraulic conductivity, or seepage. Depth to water table is less than 1 foot.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: MODERATE

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	15 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.60 Min: 0.20	Max: 6.50 Min: 5.60
2	15 inches	39 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.60 Min: 0.20	Max: 6.50 Min: 5.60
3	39 inches	60 inches	stratified	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 6.00 Min: 2.00	Max: 6.50 Min: 6.10

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: loamy fine sand
fine sandy loam
sand
silty clay loam
loam
gravelly - loam

Surficial Soil Types: loamy fine sand
fine sandy loam
sand
silty clay loam
loam
gravelly - loam

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: gravelly - sand
loamy fine sand
fine sandy loam
silty clay

KMB00006525

very gravelly - loamy coarse sand

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	OR00000826	1/2 - 1 Mile SSW

PHYSICAL SETTING SOURCE MAP - 641863.1s

- Major Roads
- Contour Lines
- Water Wells
- Public Water Supply Wells
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Cluster of Multiple Icons
- Earthquake epicenter, Richter 5 or greater

TARGET PROPERTY:	Kinder Morgan Bulk Terminals Inc.	CUSTOMER:	Creekside Env. Consulting, LLC
ADDRESS:	Terminal 5-1550 N Lombard	CONTACT:	Sean Callin
CITY/STATE/ZIP:	Portland OR 97203	INQUIRY #:	641863.1s
LAT/LONG:	45.6363 / 122.7766	DATE:	June 07, 2001 12:48 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **SSW** **1/2 - 1 Mile** **Higher**	**OR WELLS**	**OR00000826**

Well ID:	Not Reported		
Application Number:	G 2515	Certificate Number:	33131
Permit Number:	G 2333	Point of Division Num.:	1
Map Name:	2.00N 1.00W	Section:	26
Source:	Not Reported	Use:	/Manufacturing
List:	0	Station:	0
X Coordinate:	0	Y Coordinate:	0
Latitude:	0	Longitude:	0
Aquifer Type:	Not Reported	Data Source:	Not Reported
Water Use:	Not Reported	Altitude:	0
Well Type:	Not Reported	Depth:	0
Description:	Not Reported	County Code:	Not Reported
Water Level:	0		
Well:	0		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MULTNOMAH County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

MULTNOMAH COUNTY, OR

Number of sites tested: 33

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	1.530 pCi/L	91%	9%	0%
Basement	2.630 pCi/L	57%	43%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the national Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-260-2805

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-260-2805

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

Oregon Digitized Wells
Source: Water Resources Department
Telephone: 503-378-8455

RADON

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

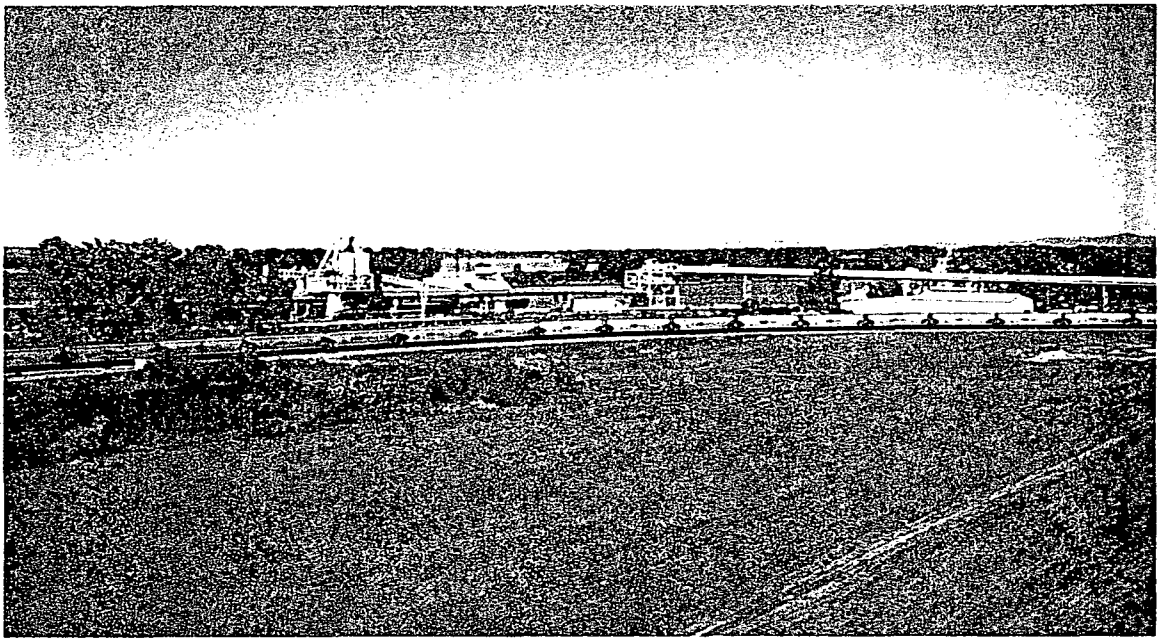
Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Appendix C

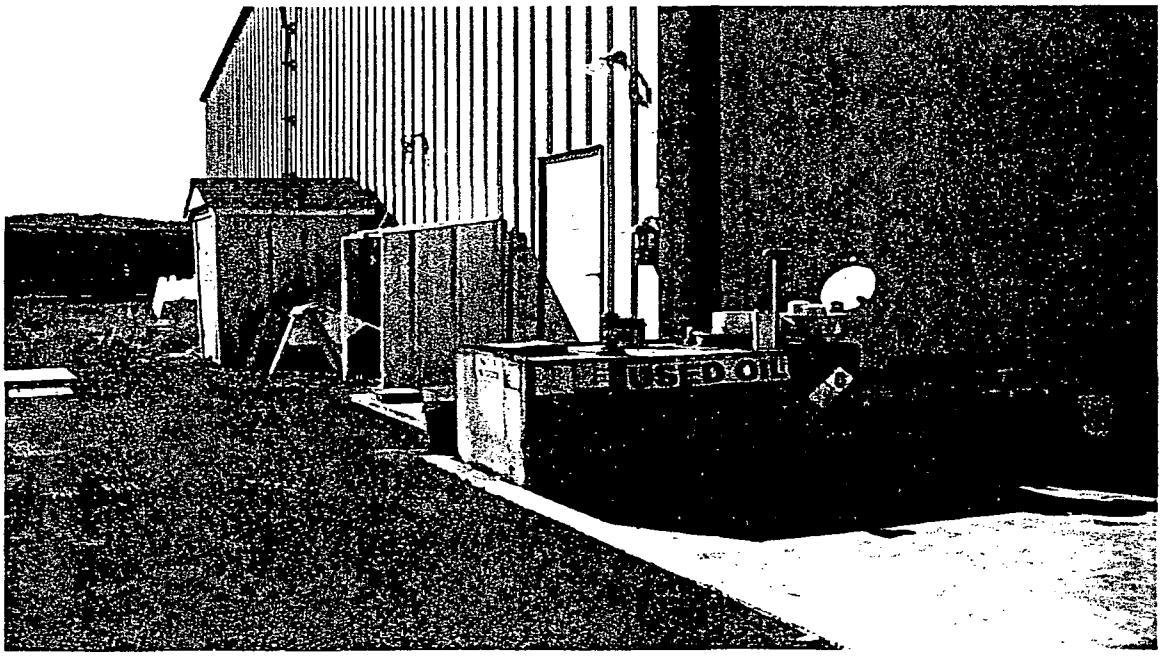
Aerial Photo 1995

Appendix D

Kinder Morgan Bulk Terminals - T5 Facility Photo No. 1
Settling Pond, Railcars, and Conveyor System
October 5, 2000



Kinder Morgan Bulk Terminals - T5 Facility Photo No. 2
Maintenance Shed and Petroleum Storage - October 5, 2000



Appendix E

Phase 1 ESA Transaction Screen Questionnaire (ASTM Standard E-1527-94)

Persons to be Questioned—The following questions should be asked of (*1*) the current *owner* of the *property*, (*2*) any major *occupant* of the *property* or, if the *property* does not have any major *occupants*, at least 10 % of the *occupants* of the *property*, and (*3*) in addition to the current *owner* and the *occupants* identified in (*2*), any *occupant* likely to be using, treating, generating, storing or disposing of *hazardous substances* or *petroleum products* on or from the *property*. A major *occupant* is any *occupant* using at least 40 % of the leasable area of the property or any anchor tenant when the *property* is a shopping center. In a multifamily property containing both residential and commercial uses, the *preparer* does not need to ask questions of the residential *occupants*. The preparer should ask each person to answer all questions to the best of the respondent's *actual knowledge* and in good faith. When completing the *site visit* column, the *preparer* should be sure to observe the *property* and any buildings and other structures on the *property*. The guide provides further details on the appropriate use of this questionnaire.

Description of Site: Address:
15550 N Lombard
Terminal 5

Padraik Quinn
Marine Env. and Safety Manager
Port of Portland

Brent McMullin
Assessments Coordinator
Port of Portland

Sean Callin
Environmental Scientist
Creekside Environmental

Question	Owner[7]			Occupants (if applicable)			Observed During Site Visit		
1. Is the *property* or any *adjoining property* used for an industrial use?	(Yes)	No	Unk	(Yes)	No	Unk	(Yes)	No	Unk
2. To the best of your knowledge, has the *property* or any *adjoining property* been used for an industrial use in the past?	(Yes)	No	Unk	(Yes)	No	Unk	(Yes)	No	Unk
3. Is the *property* or any *adjoining property* used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unk	Yes	(No)	Unk	Yes	(No)	Unk
4. To the best of your knowledge has the *property* or any *adjoining property* been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unk	Yes	(No)	Unk	Yes	No	(Unk)

[7] Unk = "unknown" or "no response."

KMB00006537

Question	Owner?			Occupants (if applicable)			Observed During Site Visit		
5. Are there currently, or to the best of your knowledge have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the *property* or at the facility?	Yes	(No)	Unk	Yes	(No)	Unk	(Yes)	No	Unk
6. Are there currently, or to the best of your knowledge have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property or at the facility?	(Yes)	No	Unk	(Yes)	No	Unk	(Yes)	No	Unk
7. Has *fill dirt* been brought onto the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unk	Yes	No	(Unk)	(Yes)	No	Unk
8. Are there currently, or to the best of your knowledge have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	(Yes)	No	Unk	(Yes) *	No	Unk	(Yes)	No	Unk
9. Is there currently, or to the best of your knowledge has there been previously, any stained soil on the *property*?	(Yes)	No	Unk	(Yes) *	No	Unk	(Yes)	No	Unk
10. Are there currently, or to the best of your knowledge have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	(Yes)	No	Unk	(Yes)	No	Unk	(Yes)	No	Unk
11. Are there currently, or to the best of your knowledge have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*?	Yes	(No)	Unk	Yes	(No)	Unk	Yes	(No)	Unk
12. Are there currently, or to the best of your knowledge have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?	Yes	(No)	Unk	Yes	(No)	Unk	Yes	(No)	Unk
13. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	(No)	Unk	Yes	(No)	Unk	Yes	No	(Unk)
14. Does the *owner* or *occupant* of the *property* have any knowledge of *environmental liens* or governmental notification relating to past or recurrent violations of environmental laws with respect to the *property* or any facility located on the *property*?	Yes	(No)	Unk	Yes	No	(Unk)	Yes	(No)	Unk
15. Has the *owner* or *occupant* of the *property* been informed of the past or current existence of *hazardous substances* or *petroleum products* or environmental violations with respect to the *property* or any facility located on the *property*?	(Yes)	No	Unk	Yes	(No)	Unk	(Yes)	No	Unk
16. Does the *owner* or *occupant* of the *property* have any knowledge of any *environmental site assessment* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?	(Yes)	No	Unk	Yes	(No)	Unk	(Yes)	No	Unk

Notes: Brent McMullin

8. * Construction contractor had bermed lined pit to nest ast fuel tanks. There was some spillage of hydrocarbons and the liner was comprimised. Don't know how well this was cleaned up.

9. * Lagoon filled in between storage building and oregon steel slag.

KMB00006538

Question	Owner?			Occupants (if applicable)			Observed During Site Visit		
17. Does the *owner* or *occupant* of the *property* know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property* by any owner or occupant of the *property*?	Yes	(No)	Unk	Yes	(No)	Unk	Yes	(No)	Unk
18. Does the *property* discharge waste water on or adjacent to the *property* other than storm water into a sanitary sewer system?	(Yes)	No	Unk	Yes	(No)	Unk	(Yes)	No	Unk
19. To the best of your knowledge, have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	(Yes)	No	Unk	Yes	(No)	Unk	(Yes)	No	Unk
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	Yes	(No)	Unk	Yes	No	(Unk)	Yes	No	(Unk)

stormwater NPDES

Government Records/Historical Sources Inquiry

(See guide, Section 10)

21. Do any of the following Federal government record systems list the property or any property within the circumference of the area noted below:

National Priorities List—within 1.0 mile (1.6 Km)?	Yes	No
CERCLIS List—within 0.5 mile (0.8 Km)?	Yes	No
RCRA TSD Facilities—within 1.0 mile (1.6 Km)?	Yes	No

22. Do any of the following state record systems list the property or any property within the circumference of the area noted below:

List maintained by state environmental agency of hazardous waste sites identified for investigation or remediation that is the state agency equivalent to NPL—within approximately 1.0 mile (1.6 Km)?	Yes	No
List maintained by state environmental agency of sites identified for investigation or remediation that is the state equivalent to CERCLIS—within 0.5 mile (0.8 Km)?	Yes	No
Leaking Underground Storage Tank (LUST) List—within 0.5 mile (0.8 Km)?	Yes	No
Solid Waste/Landfill Facilities—within 0.5 mile (0.8 Km)?	Yes	No

23. Based upon a review of *fire insurance maps* or consultation with the local fire department serving the *property*, all as specified in the guide, are any buildings or other improvements on the *property* or on an *adjoining property* identified as having been used for an industrial use or uses likely to lead to contamination of the *property*? Yes No N/A

The *preparer* of the *transaction screen questionnaire* must complete and sign the following statement. (For definition of "preparer" and "user," see 5.3 or 3.3.25.)

This questionnaire was completed by:
Name Sean Collin
Title Environmental Scientist
Firm Creekside Environmental
Address 21790 SW Chehalis Court
Tualatin, OR 97062
Phone number 503-692-8118
Date 6-18-01

If the preparer is different than the user, complete the following:
Name of user
User's address
User's phone number
Preparer's relationship to site
Preparer's relationship to user (for example, principal, employee, agent, consultant)

Copies of the completed questionnaire have been filed at:

Copies of the completed questionnaire have been mailed or delivered to:

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

Signature Date

Signature Date

Signature 6-18-01 Date

KMB00006539

Appendix F

Well Log Report - Page 1 of 3

Township: 2N, Range: 1W, Section: 23, Completed Date >= 01/01/1995, Completed Date <= 06/01/2001, Well Log ID: NONE

Click on the column heading to re-sort the results, Click on Well Log to view image, Click here if you are having problems

Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type							
																New	Abandon	Deepen	Recond.	Repair	Conversion	Domestic	Irrigation
MULT 4804	2N-1W-23 SW-SW		N LOMBARD ST		PORT OF PORTLAND; TERMINAL 5	M		12	9.5		5/30/1995	6/22/1995	MCINNIS , GREG	79288		X	X						
MULT 4805	2N-1W-23 SW-SW		LOMBARD ST		PORT OF PORTLAND; TERMINAL 5	M		9	3.8		5/30/1995	6/22/1995	MCINNIS , GREG	79287		X	X						
MULT 4806	2N-1W-23 SW-SW		N LOMBARD ST		PORT OF PORTLAND; TERMINAL 5	M		7	3		5/30/1995	6/22/1995	MCINNIS , GREG	79286		X	X						
MULT 50460	2N-1W-23 NE-SE		15660 N LOMBARD ST, PORTLAND	GHOSH PE , MR KAHYAN K	FROEDTERT MALT CORP;CMC ENGINEERING AND MGMT(C/O)	M	7	20	6.5		11/16/1995	12/18/1995	TAYLOR , SCOTT BRAUN INTERTEC NORTHWEST	36116		X							
MULT 50461	2N-1W-23 NE-SE		15660 N LOMBARD ST, PORTLAND	GHOSH , K	CMC ENGINEERING LTD (C/O)	M		20	7.5		11/16/1995	12/18/1995	TAYLOR , SCOTT BRAUN INTERTEC NORTHWEST	36117		X							
MULT 50462	2N-1W-23 NE-SE		15660 N LOMBARD ST, PORTLAND	GHOSH , K	CMC ENGINEERING LTD (C/O)	M	7	20	7		11/16/1995	12/18/1995	TAYLOR , SCOTT BRAUN INTERTEC NORTHWEST	36123		X							
MULT 51366	2N-1W-23 SW-SE	5			PORT OF PORTLAND	W	100	298	23		5/30/1996	6/27/1996	SCHNEIDER , STEPHEN J. SCHNEIDER EQUIP COMP	87135	1695	X							
MULT 55813	2N-1W-23 NE-SW		15660 NORTH LOMBARD STREET		COLUMBIA GRAIN, INC.	G		130			5/4/1998	6/11/1998				X							
MULT 55814	2N-1W-23 NE-SW		15660 NORTH LOMBARD STREET		COLUMBIA GRAIN, INC.	G		150			5/4/1998	6/11/1998				X							
MULT	2N-1W-		15660 NORTH		COLUMBIA																		

KMB00006541

Well Log Report - Page 2 of 3

Township: 2N, Range: 1W, Section: 23, Completed Date >= 01/01/1995, Completed Date <= 06/15/2001, Well Log ID: NONE

Click on the column heading to re-sort the results, Click on Well Log to view image, Click here if you are having problems

Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type						Domestic	
																New	Abandon	Deepen	Recond.	Repair	Conversion		
MULT 55816	2N-1W-23 NE-SW		15660 NORTH LOMBARD STREET		COLUMBIA GRAIN, INC.	G		150			5/6/1998	6/11/1998				X							
MULT 55817	2N-1W-23 NE-SW		15660 NORTH LOMBARD STREET		COLUMBIA GRAIN, INC.	G		150			5/6/1998	6/11/1998				X							
MULT 55818	2N-1W-23 NE-SW		15660 NORTH LOMBARD STREET		COLUMBIA GRAIN, INC.	G		150			5/6/1998	6/11/1998				X							
MULT 56224	2N-1W-23 NE-SW		15660 N LOMBARD ST		COLUMBIA GRAIN, INC	G		130			7/9/1998	8/14/1998				X	X						
MULT 56225	2N-1W-23 NE-SW		15660 N LOMBARD ST		COLUMBIA GRAIN, INC	G		50			7/10/1998	8/14/1998				X	X						
MULT 56226	2N-1W-23 NE-SW		15660 N LOMBARD ST		COLUMBIA GRAIN, INC	G		50			7/10/1998	8/14/1998				X	X						
MULT 58926	2N-1W-23 SW-SE	70882440	15550 N LOMBARD, PORTLAND		KERR CONTRACTORS INC.	W			5		9/2/1999	9/10/1999	ASPAAS, RONALD HANSEN DRILLING CO. INC.	120999		X								
MULT 58927	2N-1W-23 SW-SE	70882440	15550 N LOMBARD, PORTLAND		KERR CONTRACTORS INC.	W			5		9/3/1999	9/10/1999	ASPAAS, RONALD HANSEN DRILLING CO. INC.	121000		X								
MULT 59133	2N-1W-23 SW-SE	70882440	15550 N LOMBERD, PORTLAND		KERR CONTRACTORS INC.	W		0			9/17/1999	9/29/1999	ASPAAS, RONALD HANSEN DRILLING CO. INC.	121002			X							
MULT	2N-1W-	70882440	15550 N		KERR								ASPAAS, RONALD										

KMB00006542

52134	23 SW-SE		LOMBERD, PORTLAND		CONTRACTORS INC.	W		0			9/17/1999	9/29/1999	HANSEN DRILLING CO. INC.	121001			X					

Go to page: <<Previous 1 **2** 3 Next >>

▶Download tabular data in an ascii tab delmited format

▶Report Errors with Well Log Information

▶Return to GRID Query Screen

Well Log Report - Page 3 of 3

Township: 2N, Range: 1W, Section: 23, County: MULT, Completed Date >= 01/01/1995, Completed Date <= 06/05/2001, Well Log ID: NONE

Click on the column heading to re-sort the results, Click on Well Log to view image, Click here if you are having problems

Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type						Domestic	Irrigation
																New	Abandon	Deepen	Recond.	Repair	Conversion		
MULT 63441	2N-1W-23 SW-NE	1700	15840 N SIMMONS RD		LAND O LAKES	M	10	20	10		2/22/2001	3/21/2001	NIERMEYER, MICHAEL BRUCE CASCADE DRILLING INC.	138617	45854	X							
MULT 63442	2N-1W-23 SW-NE	1700	15840 N SIMMONS RD		LAND O LAKES	M	10	20	10		2/22/2001	3/21/2001	NIERMEYER, MICHAEL BRUCE CASCADE DRILLING INC.	138618	45855	X							
MULT 63443	2N-1W-23 SW-NE	1700	15840 N SIMMONS RD		LAND O LAKES	M	10	20	10		3/5/2001	3/21/2001	NIERMEYER, MICHAEL BRUCE CASCADE DRILLING INC.	138631	45803	X							
MULT 63444	2N-1W-23 SW-NE	1700	15840 N SIMMONS RD		LAND O LAKES	M	10	20	10		3/5/2001	3/21/2001	NIERMEYER, MICHAEL BRUCE CASCADE DRILLING INC.	138632	45804	X							
MULT 63452	2N-1W-23 SW-NE	1700	15840 N SIMMONS		LAND O LAKES	M		0	13		3/6/2001	3/21/2001	NIERMEYER, MICHAEL BRUCE CASCADE DRILLING INC.	139401			X						
MULT 63462	2N-1W-23 SW-NE	1700	15840 N SIMMONS		LAND O LAKES	M		0	13		3/6/2001	3/21/2001	NIERMEYER, MICHAEL BRUCE CASCADE DRILLING INC.	139402			X						

Go to page: <<Previous 1 2 **3**

▶Download tabular data in an ascii tab delmited format

▶Report Errors with Well Log Information

KMB00006544

STATE OF OREGON

MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-095)

Instructions for completing this report are on the last page of this form.

(Mult 4804) JUN 2 2 1995 WATER RESOURCES DEPARTMENT SALEM, OREGON

2N/1W/23 CC

Start Card # 79288

(1) OWNER/PROJECT:

WELL NO. 55-2

Name PORT OF PORTLAND TERMINAL 5

Address 700 NE MULTNOMAH

City PORTLAND State OR Zip 97232

(2) TYPE OF WORK:

☑ New construction ☐ Alteration (Repair/Recondition)

☐ Conversion ☐ Deepening ☒ Abandonment

(3) DRILLING METHOD

☐ Rotary Air ☐ Rotary Mud ☐ Cable

☐ Hollow Stem Auger ☒ Other GEO-PROBE

(4) BORE HOLE CONSTRUCTION

Special Standards Yes ☐ No ☒ Depth of completed well 12 ft.

Land surface

Vault ____ ft. TO ____ ft.

Seal 0 ft. TO 12 ft.

Filter pack ____ ft. TO ____ ft.

Water-tight cover

Surface flush vault

Locking cap

Casing diameter N/A in.

material ____

Welded ☐ Threaded ☐ Glued ☐

Liner diameter N/A in.

material ____

Welded ☐ Threaded ☐ Glued ☐

Well seal: Material BENTONITE Amount 4 LBS

Grout weight ____

Borehole diameter 1 in.

Bentonite plug at least 3 ft. thick

Screen material ____

interval(s): From ____ To ____ From ____ To ____

Slot size ____ in.

Filter pack: Material ____ Size ____ in.

(5) WELL TEST:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Permeability ____ Yield ____ GPM

Conductivity ____ PH ____

Temperature of water 50 °F/C Depth artesian flow found ____ ft.

Was water analysis done? ☐ Yes ☐ No

By whom? ____

Depth of strata to be analyzed. From ____ ft. to ____ ft.

Remarks: ____

(6) LOCATION OF WELL By legal description

Well Location: County MULTNOMAH

Township 2 N (N or S) Range 1W (E or W) Section 23

1. SW 1/4 of SW 1/4 of above section.

2. Either Street address of well location TERMINAL 5 N. LOMBARD ST PORTLAND

or Tax lot number of well location ____

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

9.5' Ft. below land surface. Date 5-30-95

Artesian Pressure ____ lb/sq. in. Date ____

(8) WATER BEARING ZONES:

Depth at which water was first found ____

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation ____

Material	From	To	SWL
POSSIBLE SANDS			9.5'
ONE TIME SAMPLING			
USED 4LBS BENTONITE FOR ABANDONMENT			

Date started 5-30-95 Completed 5-30-95

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief. MWC Number 1034

Signed [signature] Date 6-1-95

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number ____

KMB00006545

STATE OF OREGON
MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)
Instructions for completing this report are on the last page of this form.

1 Mult 4805

RECEIVED JUN 2 2 1995

2N/1W/23 cc

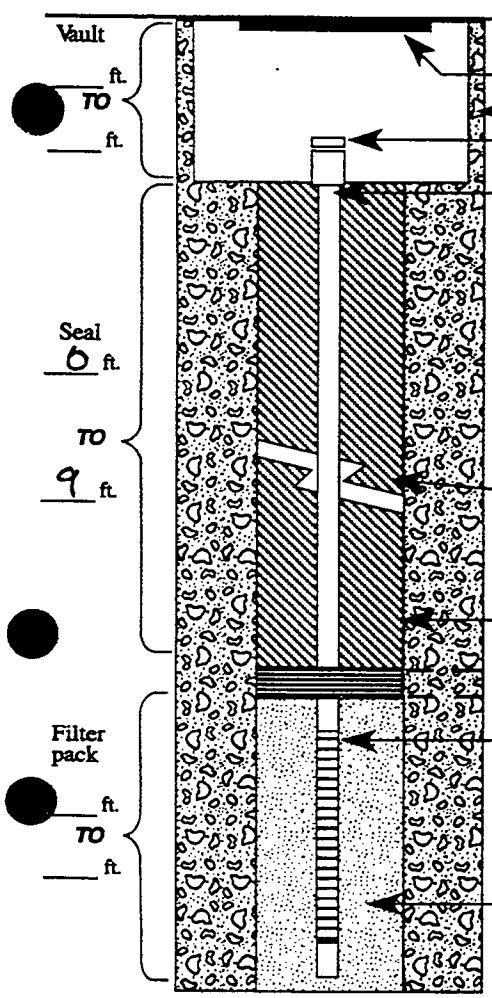
Start Card # [redacted] 79287

(1) OWNER/PROJECT:
WELL NO. SS-5 WA...
Name PORT of PORTLAND TERMINAL-5 SALEM,
Address 700 NE MULTNOMAH
City PORTLAND State OR Zip 97232

(2) TYPE OF WORK:
- [X] New construction
- [ ] Alteration (Repair/Recondition)
- [ ] Conversion
- [ ] Deepening
- [X] Abandonment

(3) DRILLING METHOD
- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [ ] Hollow Stem Auger
- [X] Other GEO-PROBE

(4) BORE HOLE CONSTRUCTION
Special Standards Yes [ ] No [X] Depth of completed well 9 ft.



Casing diameter N/A in.
material
Welded [ ] Threaded [ ] Glued [ ]
Liner diameter N/A in.
material
Welded [ ] Threaded [ ] Glued [ ]
Well seal:
Material BENTONITE
Amount 3 LBS
Grout weight
Borehole diameter 1 in.
Bentonite plug at least 3 ft. thick
Screen material
interval(s):
From To
From To
Slot size in.
Filter pack:
Material
Size in.

(5) WELL TEST:
- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability Yield GPM
Conductivity PH
Temperature of water 52 °F/C Depth artesian flow found ft.
Was water analysis done? [ ] Yes [ ] No
By whom?
Depth of strata to be analyzed. From ft. to ft.
Remarks:

(6) LOCATION OF WELL By legal description
Well Location: County MULTNOMAH
Township 2N (N or S) Range 1W (E or W) Section 23
1. SW 1/4 of SW 1/4 of above section.
2. Either Street address of well location TERMINAL-5 LOMB ST. PORTLAND
or Tax lot number of well location
3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:
3.8' Ft. below land surface. Date 5-30-95
Artesian Pressure lb/sq. in. Date

(8) WATER BEARING ZONES:
Depth at which water was first found

From	To	Est. Flow Rate	SWL

(9) WELL LOG:
Ground elevation

Material	From	To	SWL
POSSIBLE SILTS			3.8'
ONE TIME SAMPLING			
USED 3LBS BENTONITE FOR ABANDONMENT			

Date started 5-30-95 Completed 5-30-95

(unbonded) Monitor Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.
MWC Number 1034
Signed [signature] Date 6-1-95

(bonded) Monitor Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well constructic standards. This report is true to the best of my knowledge and belief.
MWC Number [illegible]

KMB00006546

STATE OF OREGON

MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-095)

(MULT 4806)

JUN 2 2 1995

2N/1W/23 CC

Start Card # 79286

Instructions for completing this report are on the last page of this form:

(1) OWNER/PROJECT:

WELL NO. 551

Name PORT OF PORTLAND TERMINAL 5

Address 700 NE MULTNOMAH

City PORTLAND State OR Zip 97232

(2) TYPE OF WORK:

- [X] New construction
- [ ] Alteration (Repair/Recondition)
- [ ] Conversion
- [ ] Deepening
- [X] Abandonment

(3) DRILLING METHOD

- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [ ] Hollow Stem Auger
- [X] Other GEO-PROBE

(4) BORE HOLE CONSTRUCTION

Special Standards: Yes [ ] No [X]

Depth of completed well 7' ft.

Land surface

Vault ft. TO ft.

Seal 0 ft. TO 7 ft.

Filter pack ft. TO ft.

- Water-tight cover
- Surface flush vault
- Locking cap
- Casing diameter N/A in. material ____ Welded [ ] Threaded [ ] Glued [ ]
- Liner diameter N/A in. material ____ Welded [ ] Threaded [ ] Glued [ ]
- Well seal: Material BENTONITE Amount 1.5 LBS Grout weight ____
- Borehole diameter 1 in.
- Bentonite plug at least 3 ft. thick
- Screen material ____ interval(s): From ____ To ____ From ____ To ____ Slot size ____ in.
- Filter pack: Material ____ Size ____ in.

(5) WELL TEST:

- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability ____ Yield ____ GPM

Conductivity ____ PH ____

Temperature of water 57 °F °C Depth artesian flow found ____ ft.

Was water analysis done? [ ] Yes [ ] No

By whom? ____

Depth of strata to be analyzed. From ____ ft. to ____ ft.

Remarks: ____

(6) LOCATION OF WELL By legal description

Well Location: County MULTNOMAH

Township 2N (N or S) Range 1W (E or W) Section 23

1. SW 1/4 of SW 1/4 of above section.

2. Either Street address of well location TERMINAL-5 N LOMBARD ST. PORTLAND

or Tax lot number of well location ____

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

3' Ft. below land surface. Date 5-30-95

Artesian Pressure ____ lb/sq. in. Date ____

(8) WATER BEARING ZONES:

Depth at which water was first found ____

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation ____

Material	From	To	SWL
POSSIBLE SANDS			3'
ONE TIME SAMPLING			
USED 1.5 LBS BENTONITE FOR ABANDONMENT			

Date started 5-30-95 Completed 5-30-95

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number 1034

Signed [signature] Date 6-1-95

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. A work performed during this time is in compliance with Oregon well construc standards. This report is true to the best of my knowledge and belief.

MWC Number [illegible]

KMB00006547

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Mult 51366

JUN 27 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Label #: L01695
(START CARD) # 87135

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number _____
Name Port of Portland
Address PO Box 3529
City Portland State OR Zip 97208

(2) TYPE OF WORK
[X] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD:
[ ] Rotary Air [ ] Rotary Mud [X] Cable [ ] Auger
[ ] Other _____

(4) PROPOSED USE:
[ ] Domestic [ ] Community [X] Industrial [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Livestock [ ] Other _____

(5) BORE HOLE CONSTRUCTION:
Special Construction approval [ ] Yes [X] No Depth of Completed Well 298 ft.
Explosives used [ ] Yes [X] No Type _____ Amount _____

HOLE Diameter	From	To	Material	SEAL From	To	Sacks or pounds
20	0	38	Cement	0	38	41 sks
16	38	301				

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E
[ ] Other _____
Backfill placed from _____ ft. to _____ ft. Material pack
Gravel placed from 155 ft. to 301 ft. Size of pack CSSI 8x12

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	16	+3	180	.375	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:	12	155	298	.250	[X]	[ ]	[X]	[ ]

except at screen - plate bottom w/bail

Final location of shoe(s) & casing remnant: 295-301

(7) PERFORATIONS/SCREENS:
[ ] Perforations Method _____
[X] Screens Type V shape wire wrap Material 304 SS

From	To	Slot size	Number	Diameter	Blank pipe size	Casing	Liner
175	266	.050	cont.	12	PS	[ ]	[ ]
276	288	.050	cont.	12	PS	[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]

(8) WELL TESTS: Minimum testing time is 1 hour

[X] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
see attached plots			1 hr.

Temperature of water 52°F Depth Artesian Flow Found _____
Was a water analysis done? [X] Yes By whom CH2M Hill
Did any strata contain water not suitable for intended use? [ ] Too little
[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other _____
Depth of strata: _____

SEI 9612

(9) LOCATION OF WELL by legal description:
County Multnomah Latitude _____ Longitude _____
Township 2N N or S Range 1W E or W. W.M.
Section 23 SW 1/4 of SE 1/4
Tax Lot 5 Lot _____ Block 10 Subdivision _____
Street Address of Well (or nearest address) NYA - Terminal 5
Rivergate Industrial Park, N. Lombard St., Portland, OR

(10) STATIC WATER LEVEL:
23 ft. below land surface. Date 5/21/96
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 1st significant @ ~100'

From	To	Estimated Flow Rate	SWL
100+/-	288	see (8)	see (10)

(12) WELL LOG:
Ground Elevation 30 +/-

Material	From	To	SWL
see attached log			

Date started 4/3/96 Completed 5/30/96

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1085
Signed Donald H Davis Date 5/31/96

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 649
Signed Stephen Schmeltz Date 5/31/96

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

KMB00006548

MULT 58926

RECEIVED

SEP 10 1999

WATER RESOURCES DEPT.
SALEM, OREGON

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

WELL I.D. # L _____
START CARD # W 120999

(1) OWNER: Well Number 1
Name Kerr Contractors Inc.
Address 19350 SW 89th Ave.
City Tualatin State Or Zip 97062

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger
☐ Other _____

(4) PROPOSED USE:
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation Temporary
☐ Thermal ☐ Injection ☐ Livestock ☒ Other Dewatering

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☒ Yes ☐ No Depth of Completed Well ____ ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
16	0	15	in pit			
			hole plug bottom			

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other _____
Backfill placed from ____ ft. to ____ ft. Material Colorado
Gravel placed from 4 ft. to 15 ft. Size of gravel 6x9

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	10"	0	6	40	☐	☒	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) _____

(7) PERFORATIONS/SCREENS:
☐ Perforations Method _____
☒ Screens Type PVC Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
6	15	40	1	10"	ps	☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.

Temperature of water _____ Depth Artesian Flow Found _____
Was a water analysis done? ☐ Yes By whom _____
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____
Depth of strata: _____

(9) LOCATION OF WELL by legal description:
County Multnomah Latitude _____ Longitude _____
Township 2 N N or S Range 1 W E or W. WM.
Section 23 SW 1/4 SE 1/4
Tax Lot R708824 40 Block _____ Subdivision _____
Street Address of Well (or nearest address) _____
15550 N Lombard Portland

(10) STATIC WATER LEVEL:
5 ft. below land surface. Date 9-2-99
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found _____

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:
Ground Elevation _____

Material	From	To	SWL
Grey sand	0	5	
Grey sand & water	5	15	5

Date started 9-2-99 Completed 9-2-99

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1321
Signed Jerry Johnson Date 9-8-99

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1445
Signed _____ Date 9-8-99

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

KMB00006549

RECEIVED

SEP 10 1999

WATER RESOURCES DEPT.
SALEM, OREGON

MULT 58427

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

WELL I.D. # L _____

START CARD # W 121000

(1) OWNER: Well Number #2

Name Kerr Contractors Inc

Address 19350 SW 89th Ave.

City Tualatin State Or Zip 97067

(2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger

☐ Other _____

(4) PROPOSED USE:

☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation Temporary

☐ Thermal ☐ Injection ☐ Livestock ☒ Other Dewatering

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☒ Yes ☐ No Depth of Completed Well ____ ft.

Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
16	0	15	Hole plug	0	4	5 sks.

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☐ Other _____

Backfill placed from ____ ft. to ____ ft. Material Colorado

Gravel placed from 4 ft. to 15 ft. Size of gravel 6 x 9

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	10	0	6	40	☐	☒	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) _____

(7) PERFORATIONS/SCREENS:

☐ Perforations Method _____

☒ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
6	15	40	1	10"	ps	☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.

Temperature of water _____ Depth Artesian Flow Found _____

Was a water analysis done? ☐ Yes By whom _____

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____

Depth of strata: _____

(9) LOCATION OF WELL by legal description:

County Multnomah Latitude _____ Longitude _____

Township 2 N N or S Range 1 W E or W. WM.

Section 23 SW 1/4 SE 1/4

Tax Lot R 70882440 Block _____ Subdivision _____

Street Address of Well (or nearest address) 15550 N Lombard Portland

(10) STATIC WATER LEVEL:

5 ft. below land surface. Date 9-3-99

Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found _____

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:

Ground Elevation _____

Material	From	To	SWL
Grey sand	0	5	
Grey sand & water	5	15	5'

Date started 9-3-99 Completed 9-3-99

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number 1321

Signed _____ Date 9-8-99

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1445

Signed _____ Date 9-8-9

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

KMB00006550

RECEIVED

SEP 2 9 1999

WATER RESOURCES DEPT.

MULT 59133

STATE OF OREGON
WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

Instructions for completing this report are on the reverse side.

WELL I.D. # L W

START CARD # W 121002

(1) OWNER: Well Number 2

Name Kerr Constractors Inc.

Address 19350 SW 89th Ave.

City Tualatin State Or Zip 97062

(2) TYPE OF WORK

☐ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) DRILL METHOD:

☐ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger

☐ Other

(4) PROPOSED USE:

☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 15 ft.

Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	5	15	quick grout	5	15	3 sks.

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☐ Other

Backfill placed from ft. to ft. Material

Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.

Temperature of water Depth Artesian Flow Found

Was a water analysis done? ☐ Yes By whom

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other

Depth of strata:

(9) LOCATION OF WELL by legal description:

County Multnomah Latitude Longitude

Township 2 N N or S Range 1 W E or W. WM.

Section 23 SW 1/4 SE 1/4

Tax Lot R70882440 Block Subdivision

Street Address of Well (or nearest address)

15550 N Lomberd Portland

(10) STATIC WATER LEVEL:

ft. below land surface. Date

Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:

Ground Elevation

Material	From	To	SWL
Pulled 10" screen & riser when pressure grouting with quick grout 15' to 5'. inside foundation to be poured with concrete. 3 sks. grout			

Date started 9-17-99 Completed 9-17-99

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number 1321

Signed Date 9-24-99

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1445

Signed Date 9-24-99

KMB00006551

RECEIVED

SEP 2 9 1999

WATER RESOURCES DEPT.
SALEM, OREGON

MULT 59134

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

WELL I.D. # L
START CARD # W 121001

(1) OWNER: Well Number 1
Name Kerr Constractors Inc
Address 19350 SW 89th Ave.
City Tualatin State Or Zip 97062

(2) TYPE OF WORK
☐ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 15 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	15	quick grout	0	15	3 sks.

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☐ Perforations Method
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.

Temperature of water Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Multnomah Latitude Longitude
Township 2 N N or S Range 1 W E or W. WM.
Section 23 SW 1/4 SE 1/4
Tax Lot R70882440 Lot Block Subdivision
Street Address of Well (or nearest address)
15550 N Lomberd Portland

(10) STATIC WATER LEVEL:
ft. below land surface. Date
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found

From	To	Estimated Flow Rate	SW

(12) WELL LOG:
Ground Elevation

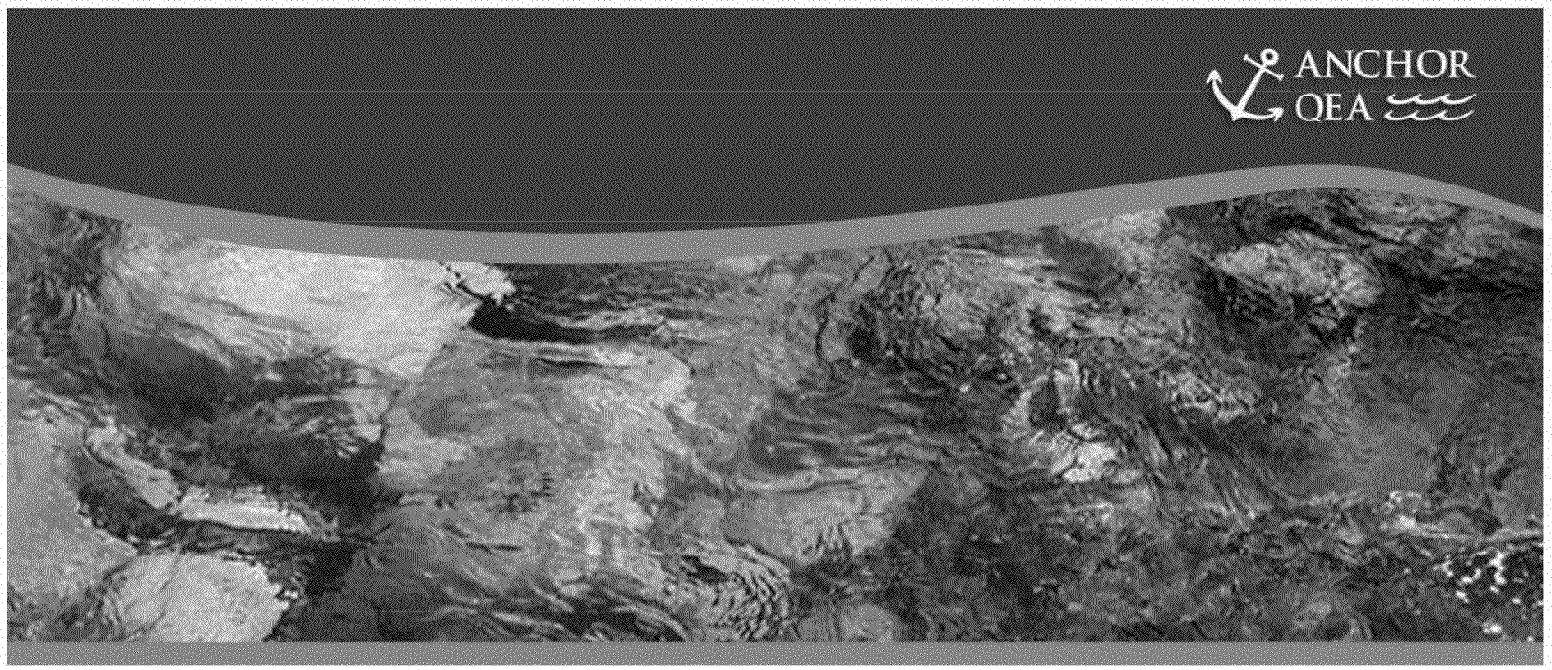
Material	From	To	SWL
Pulled 10" screen & riser			
while pressure grouting			
with quick grout.			
15 to 0'			

Date started 9-17-99 Completed 9-17-99

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonm of this well is in compliance with Oregon water supply well construction standar Materials used and information reported above are true to the best of my knowle and belief.
WWC Number 1321
Signed Terry [signature] Date 9-24-9

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belie
WWC Number 1445
Signed [signature] Date 9-24

KMB00006552



FINAL REMOVAL ACTION COMPLETION REPORT
TERMINAL 4 PHASE I REMOVAL ACTION
PORT OF PORTLAND, PORTLAND, OREGON

Prepared for

Port of Portland

Portland, Oregon

Prepared by

Anchor QEA, LLC

6650 SW Redwood Lane, Suite 333

Portland, Oregon 97224

In Association with

Ash Creek Associates, Inc.

Hickey Marine Enterprises, Inc.

June 2009

FINAL
REMOVAL ACTION COMPLETION REPORT

TERMINAL 4 PHASE I REMOVAL ACTION
PORT OF PORTLAND, PORTLAND OREGON

Prepared for

Port of Portland

Portland, Oregon

Prepared by

Anchor QEA, LLC

6650 SW Redwood Lane, Suite 333

Portland, Oregon 97224

In Association with

Ash Creek Associates, Inc.

Hickey Marine Enterprises, Inc.

June 2009

CERTIFICATION STATEMENTS X

1 INTRODUCTION 1
1.1 Regulatory Background 1
1.1.1 Removal Action Objectives 2
1.1.2 Roles and Responsibilities 3
1.2 Organization of this Document 3

2 SITE BACKGROUND 6
2.1 Terminal 4 Removal Action Area 6
2.2 Summary of Site Investigations 6
2.2.1 Physical Characterization 6
2.2.2 Elutriate Testing 7
2.2.3 Disposal Suitability 8
2.2.4 Slip 3 General Chemical Characterization 8
2.2.5 Wheeler Bay General Chemical Characterization 9

3 SUMMARY OF THE PHASE I REMOVAL ACTION DESIGN AND CONSTRUCTION PLANNING 11
3.1 Dredging 11
3.1.1 Design Details 12
3.1.2 Construction Planning 13
3.2 Transportation, Transloading, and Disposal 16
3.2.1 Design Details 16
3.2.2 Construction Planning 17
3.3 Head of Slip 3 Capping 20
3.3.1 Design Details 21
3.3.2 Construction Planning 22
3.4 Wheeler Bay Shoreline Stabilization 23
3.4.1 Design Details 24
3.4.2 Construction Planning 25

4 DREDGING AND CAPPING CONSTRUCTION ACTIVITIES 29
4.1 Project Schedule 29
4.2 Mobilization 30
4.2.1 Terminal 4 30
4.2.2 Transloading Facility 31
4.2.3 Pre-construction Surveying 31
4.3 Dredging 32
4.3.1 Summary of Dredging Activities 32
4.4 Transportation, Transloading, and Disposal 33
4.5 Capping 33
4.6 Demobilization 34

KMB00006555

4.6.1 Terminal 4 34
4.6.2 Transloading Facility 35
4.6.3 Haul and Lash Barge Decontamination 35
4.7 Construction Deviations from the Design for Dredging, Transportation, Transloading, Disposal, and Capping 35

5 WHEELER BAY SHORELINE STABILIZATION CONSTRUCTION ACTIVITIES 37
5.1 Project Schedule 37
5.2 Mobilization 38
5.2.1 Equipment 38
5.2.2 Temporary Facilities 38
5.2.3 Pre-construction Surveying 39
5.2.4 Erosion/Sedimentation Control 39
5.2.5 Temporary Access 39
5.3 Summary of Wheeler Bay Shoreline Stabilization Activities 39
5.3.1 Clearing, Grubbing, and Grading 40
5.3.2 Armor 41
5.3.3 Habitat Cover 42
5.3.4 Top Soil 43
5.3.5 Planting 43
5.3.6 Habitat Logs and Large Woody Debris 44
5.4 Transportation, Recycling, and Disposal 45
5.5 Demobilization 46
5.6 Construction Deviations from the Design for Wheeler Bay Shoreline Stabilization 46

6 SUMMARY OF MONITORING AND CONSTRUCTION QUALITY ASSURANCE ACTIVITIES 51
6.1 Visual Monitoring Results 51
6.2 Bathymetry Surveys 52
6.2.1 Dredging 52
6.2.2 Capping 52
6.3 Borrow Source Material Characterization Documentation 53
6.3.1 Terminal 4 Sand Layer and Capping Material 53
6.3.2 Wheeler Bay Shoreline Stabilization Material 53
6.4 Transloading Facility Soil Monitoring Results 54
6.5 Transportation and Disposal Documentation 55
6.6 Batch Discharge Sample Monitoring Results 56
6.7 Construction Equipment Decontamination Observation Results 57
6.7.1 Terminal 4 Dredging and Capping 57
6.7.2 Wheeler Bay Shoreline Stabilization 58
6.8 Cultural Resources Monitoring 58
6.9 Health and Safety Monitoring Results 59
6.9.1 Wheeler Bay Health and Safety 59
6.9.2 Terminal 4 Dredging and Capping Health and Safety 60

KMB00006556

6.9.3 Terminal 4 Post-Dredging Dive Operation Health and Safety 61

7 SUMMARY OF ACTIVITIES CONDUCTED IN ACCORDANCE WITH THE WQMCCP AND THE BIOLOGICAL OPINION 62
7.1 WQMCCP Compliance 62
7.1.1 Terminal 4 Water Quality Monitoring Activities 63
7.1.2 Transloading Facility Water Quality Monitoring Activities 70
7.1.3 Best Management Practices Employed During Phase I 72
7.1.4 River Velocity Monitoring Results 79
7.2 Compliance with the Biological Opinion 80
7.2.1 Implementation of Terms and Conditions 80
7.2.2 Approved Deviations from the Biological Opinion 84

8 DOCUMENTATION OF PERFORMANCE STANDARDS ATTAINMENT 86
8.1 Dredging 86
8.1.1 Performance Standards 86
8.1.2 Quality Assurance Documentation 87
8.2 Head of Slip 3 Capping 91
8.2.1 Performance Standards 91
8.2.2 Quality Assurance Documentation 92
8.3 Transportation, Transloading, and Disposal 95
8.3.1 Performance Standards 95
8.3.2 Quality Assurance Documentation 96
8.4 Wheeler Bay Shoreline Stabilization 97
8.4.1 Performance Standards 97
8.4.2 Quality Assurance Documentation 98

9 FIELD MONITORING QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION 102
9.1 Bathymetry Surveys 102
9.2 Water Quality Monitoring 103
9.3 Transloading Facility Soil Monitoring 103
9.4 Monitoring Laboratory Data Quality Assurance/Quality Control 104
9.4.1 Laboratory Quality Control Criteria 104
9.5 Data Validation 104

10 CERTIFICATIONS AND INSTITUTIONAL CONTROLS 106
10.1 Final USEPA Approval 106
10.2 Institutional Controls 106

11 CONSTRUCTION COSTS 109

12 LESSONS LEARNED 111

13 PHASE I REMOVAL ACTION CONTACT INFORMATION 117

KMB00006557

14 REFERENCES 120

List of Tables

Table 1	Summary of Major Events and Milestones – Phase I Removal Action
Table 2	Dredging Design Sample Station Geographic Coordinates
Table 3	Water Quality Triggers for Additional Environmental Controls
Table 4	Dredging and Capping CCs and RFIs – Phase I Removal Action
Table 5	Capping Material Placement Log Summary
Table 6	Dredging Log Summary Table
Table 7	Summary of Truckloads of Material Transported from Transloading Facility to Landfill
Table 8	Summary of Truckloads of Water Taken from Transloading Facility to Landfill
Table 9	Wheeler Bay Shoreline Stabilization CCs and RFIs – Phase I Removal Action
Table 10	Summary of Wheeler Bay Import Material Quantities
Table 11	Summary of Truckloads of Material Transported from Wheeler Bay to Recycler
Table 12	Summary of Truckloads of Material Transported from Wheeler Bay to Landfill
Table 13	Background Water Quality Results – T4 Site
Table 14	Background Water Quality 90th Percentile Values – T4 Site
Table 15	Water Quality Sampling Station Location Descriptions
Table 16	Transloading Facility Soil Sample Results
Table 17	Batch Discharge Water Sample Results Compared to Discharge Criteria
Table 18	Summary Statistics of Water Quality Monitoring Data at Background and Compliance Stations
Table 19	Compliance Monitoring Data for PAHs Compared to Model Predicted Concentrations
Table 20	Batch Water Discharge Sampling Results Compared to Acute Water Quality Standards

List of Figures

Figure 1	Site Plan and Vicinity Map
Figure 2	Summary of Sampling Locations Used in Phase I Dredge Area Design
Figure 3	Post Dredge (Pre-Sand Layer) Bathymetry
Figure 4	As-Built Post Dredge and Sand Layer Bathymetry and Cross Section Locations
Figure 4a	Post Dredge and Sand Layer Cross Sections
Figure 4b	Post Dredge and Sand Layer Cross Sections
Figure 4c	Post Dredge and Sand Layer Cross Sections
Figure 4d	Post Dredge and Sand Layer Cross Sections
Figure 5	Extent of Type 3 Cap Placement and Extent of Upland Excavation – Head of 3 Slip
Figure 6	As-Built Head of Slip 3 Capping and Upland Plan View and Cross Section Locations

KMB00006558

Figure 6a	As-Built Head of Slip 3 Capping Cross Sections
Figure 7	As-Built Wheeler Bay Shoreline Stabilization Surface Plan View and Cross Section Locations
Figure 7a	As-Built Wheeler Bay Shoreline Stabilization Cross Sections
Figure 8	Water Quality Monitoring – T4 Site
Figure 9	Water Quality Monitoring Locations – Transloading Station
Figure 10	Soil Sampling Locations – Transloading Stations
Figure 11	Turbidity versus TSS Results
Figure 12a	Turbidity versus Analytical Results
Figure 12b	TSS versus Analytical Results
Figure 12c	Total PAHs versus Total Suspended Solids (TSS)

List of Appendices (on DVD)

Appendix A	Dredging, Capping, and Wheeler Bay Shoreline Stabilization – Construction Weekly Progress Reports
Appendix B1	Capping – Import Material Characterization Results
Appendix B2	Wheeler Bay – Import Material Characterization Results
Appendix C1	T4 Site – Water Quality Monitoring Data Sheets
Appendix C2	Transloading Facility – Water Quality Monitoring Data Sheets
Appendix C3	Transloading Facility Soil Sampling Data Sheets
Appendix D1	T4 Site – Water Quality Results
Appendix D2	Transloading Facility – Water Quality Results
Appendix E	Fish Monitoring Documentation
Appendix F	Sand Layer Dive Survey Report
Appendix G1	Dredging and Capping – Construction Equipment Decontamination Observation Reports and Letter of Final Truck Decontamination
Appendix G2	Wheeler Bay Shoreline Stabilization – Construction Equipment Decontamination Observation Report
Appendix H1	Dredging and Capping – Health and Safety Monitoring Documentation
Appendix H2	Wheeler Bay – Health and Safety Monitoring Documentation
Appendix I	Dredging and Capping – Chemical Analytical Data Reports
Appendix J	Dredging and Capping – Chemical Analytical Data Validation Reports
Appendix K	Construction Photos
Appendix L1	Dredging and Capping – Documentation of Disposal Material Volumes, Weather Checks, and Special Waste Permit
Appendix L2	Wheeler Bay – Documentation of Import and Disposal Material Volumes
Appendix M	Phase I Background Water Quality Data Report
Appendix N	Dredging Elutriate Discharge Documentation
Appendix O	Head of Slip 3 Cap Post Cap Assessment Technical Memorandum
Appendix P	Submittal Logs
Appendix Q	As-Built Drawings
Appendix R	Water Quality Monitoring and Compliance Conditions Plan Documentation

KMB00006559

Appendix S Biological Opinion Documentation
Appendix T Regulated Navigation Area Request Memorandum

KMB00006560

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
ACA	Ash Creek Associates, Inc.
Anchor	Anchor QEA, LLC
AOC	Administrative Order on Consent for the Removal Action
Apex	Apex Laboratories, LLC
ARARs	Applicable or Relevant and Appropriate Requirements
ARI	Analytical Resources Inc.
BEBRA	Bank Excavation and Backfill Replacement Area
Bernert	Bernert Barge Lines
BES	Portland Bureau of Environmental Services
BMP	best management practice
CAS	Columbia Analytical Services
CC	Construction Change
CDF	Confined Disposal Facility
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHASP	Contractor Health and Safety Plan
City	City of Portland
COC	constituents of concern
CQAP	Construction Quality Assurance Plan
CQC	Construction Quality Control
CQCP	Construction Quality Control Plan
CRD	Columbia River Datum
cy	cubic yards
DAR	Design Analysis Report
DDT	dichloro-diphenyl-trichloroethane
DEA	David Evans and Associates, Inc.
DEQ	Oregon Department of Environmental Quality
DGPS	differential global positioning system
DO	dissolved oxygen
DRET	dredging elutriate test
DSL	State of Oregon Department of State Lands

KMB00006561

EE/CA	Engineering Evaluation/Cost Analysis
Envirocon	Envirocon, Inc.
EPP	Environmental Protection Plan
ESA	Endangered Species Act
ESPC	erosion, sediment, and pollution control
GPS	global positioning system
H:V	horizontal to vertical
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HME	Hickey Marine Enterprises, Inc.
HP	horsepower
HSO	Health and Safety Officer
IMRP	Interim Monitoring and Reporting Plan
ISE	imminent and substantial endangerment
LDC	Laboratory Data Consultants, Inc.
LWD	large woody debris
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
MHz	megahertz
MS/MSD	matrix spike/matrix spike duplicate
NCP	National Contingency Plan
NGVD	National Geodetic Vertical Datum
NH	Northwest Hydro
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NTCRA	Non-Time-Critical Removal Action
NTU	Nephelometric Turbidity Units
NUC	Northwest Underwater Construction, LLC
ODOT	Oregon Department of Transportation
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl

PEC	Probable Effects Concentration
Port	Port of Portland
PPE	personal protective equipment
PRGs	Preliminary Remediation Goals
psf	pounds per square foot
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
RAA	Removal Action Area
RACR	Removal Action Completion Report
RAOs	Removal Action Objectives
RAWP	Removal Action Work Plan
RFI	Request for Information
RI/FS	Remedial Investigation/Feasibility Study
RM	river mile
RNA	regulated navigation area
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SCAE	Source Control Alternatives Evaluation
SLVs	screening level values
SOW	Statement of Work
T4	Terminal 4
TCLP	Toxicity Characteristic Leaching Procedure
TDP	Transportation and Disposal Plan
TPH	total petroleum hydrocarbons
TSS	total suspended solids
ULSD	ultra-low sulfur diesel
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
VCP	Voluntary Cleanup Program
WQMCCP	Water Quality Monitoring and Compliance Conditions Plan
WQMP	Water Quality Monitoring Plan

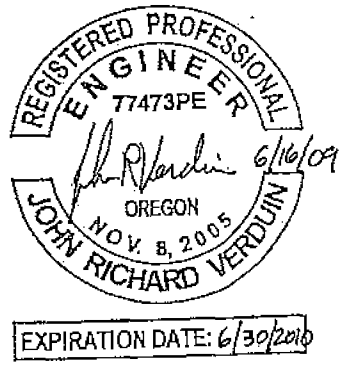
KMB00006563

CERTIFICATION STATEMENTS

The Phase I Removal Action has been constructed in accordance with the final design and specifications in the matter of the Portland Harbor Superfund Site, Terminal 4 Facility, Portland, Oregon. U.S. Environmental Protection Agency, Region X, Comprehensive Environmental Response, Compensation, and Liability Act Docket No. CERCLA 10-2004-0009. Port of Portland Respondent.

John R. Verduin III, P.E.
Anchor QEA, LLC
Date: 6/16/09

Nicole LaFranchise
Port of Portland
Date: 6/16/09



EXPIRATION DATE: 6/30/2010

As required by Section VIII.24 of the Administrative Order on Consent for Removal Action at the Terminal 4 Facility, Portland, Oregon, the following statement certifies the contents of this document:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

John R. Verduin III, P.E., Anchor QEA, LLC
Partner
Date: 6/16/09

KMB00006564

1 INTRODUCTION

1.1 Regulatory Background

The Port of Portland (Port) entered into an Administrative Order on Consent (AOC) with the U.S. Environmental Protection Agency (USEPA) in October 2003 to perform a Non-Time-Critical Removal Action (NTCRA) at the Terminal 4 (T4) site on the Willamette River in Portland, Oregon (Figure 1) (USEPA 2003a). The AOC requires the Port to perform an Early Action to address known contamination found in T4 sediment samples during a remedial investigation directed by the Oregon Department of Environmental Quality (DEQ). USEPA, in consultation with its federal, state, and tribal partners, evaluated and selected a Removal Action for the Port's T4 that included a combination of monitored natural recovery, capping, and dredging with placement of contaminated sediment in a Confined Disposal Facility (CDF) to be built on site. The USEPA-selected Removal Action was detailed in an Action Memorandum prepared by USEPA in 2006 (Action Memo; USEPA 2006).

Implementation of the Action Memo (USEPA 2006) is occurring in phases because many of the design issues required for full implementation are linked to the overall Portland Harbor-wide Remedial Investigation/Feasibility Study (RI/FS) process, which has been delayed. For this reason, in a letter to USEPA dated August 22, 2007, the Port requested that USEPA revise the schedule for implementation of the T4 Removal Action to realign the project with the harbor-wide RI/FS schedule. The Port's project realignment request acknowledged that the Port would work collaboratively with USEPA to identify and evaluate work (abatement measures) that could be initiated in the near term to reduce risk and address the imminent and substantial endangerment (ISE) at T4. To this end, the Port prepared an Abatement Measures Proposal in October 2007 (Anchor 2007a) to detail specific components of the Removal Action that the Port would implement as Phase I to address conditions at T4 that pose an imminent threat to human health and the environment. USEPA approved the Abatement Measures Proposal in November 2007. These abatement measures are described below and are considered the first phase (Phase I) of the Removal Action at T4:

- Dredging and off-site disposal of sediment exhibiting the highest chemical concentration, providing a permanent solution of contaminant mass removal.
- Construction of a nearshore cap to isolate petroleum-contaminated sediment from aquatic receptors and control a potential ongoing source to nearby areas.

KMB00006565

- Stabilization of the Wheeler Bay shoreline to minimize contaminant migration to the river.
- Dredging and off-site disposal of contaminated sediment in Slip 3 at Berth 410 to support water-dependent maritime use in a manner consistent with the Action Memo (USEPA 2006) and in support of overall risk reduction in the Removal Action Area (RAA).

Final design and implementation of Phase II (the final phase of the Removal Action) is dependent upon information from the harbor-wide investigation and will be conducted once that information is available.

The Port initiated Phase I construction of the Removal Action in August 2008 and completed this first phase in October 2008. This Removal Action Completion Report (RACR) summarizes the Phase I Removal Action design and construction activities conducted to implement the design. This RACR was developed by Anchor QEA, LLC (Anchor) and is submitted to USEPA pursuant to Section VIII.24 of the AOC (USEPA 2003a). This RACR conforms to the requirements set forth in Section 300.165 of the National Contingency Plan (NCP) entitled "OSC Reports" and provides a majority of the information as required by the Statement of Work (SOW), which is an attachment to the AOC. The only item not included in this document that is detailed in the SOW is an appendix containing all the relevant documentation (e.g., manifests, invoices, bills, contracts, etc.) generated during the Removal Action. Although this information will not be included in this document, it will be available to USEPA if ever requested. In addition, the RACR also provides the reporting documentation required by the Water Quality Monitoring and Compliance Conditions Plan (WQMCCP; USEPA 2008 and Appendix R) and the Biological Opinion (NMFS 2008 and Appendix S). See Table 1 for a summary of major events and milestones, beginning with the signing of the AOC and through the completion of the Phase I Removal Action.

1.1.1 Removal Action Objectives

Removal Action Objectives (RAOs) for Phase I were jointly developed by the Port and USEPA as described in the Abatement Measures Proposal (Anchor 2007a). The objectives are listed below:

KMB00006566

- Activities should be effective in abating ISE posed to aquatic life that may have direct contact with sediment within the RAA.
- Activities should be consistent with USEPA's selected Removal Action detailed in the Action Memo (USEPA 2006).
- Activities should not unduly impede or disrupt the designated use of T4 for water-dependent maritime use.

1.1.2 Roles and Responsibilities

USEPA designated Sean Sheldrake as the project coordinator to oversee implementation of the final design and work plan. Anchor and the Port jointly prepared the design documents with review and input from Ash Creek Associates, Inc. (ACA) and Hickey Marine Enterprises, Inc. (HME) throughout the design finalization. The Port was responsible for completing the Phase I Removal Action in conformance with the AOC, Applicable or Relevant and Appropriate Requirements (ARARs), approved Design Analysis Report (DAR; Anchor 2008a) (including plans and specifications), approved Removal Action Work Plan (RAWP; Anchor 2008b), Biological Opinion (NMFS 2008 and Appendix S), WQMCCP (USEPA 2008 and Appendix R), and other applicable documents. As described in detail in Section 4, the Port contracted with HME to implement in-water construction activities at T4 and to transport the material by barge to the transloading facility, offload the material into trucks, and transport the material by truck from the transloading facility to the landfill for disposal. HME was also contracted by the Port to implement the nearshore capping construction activities at the site. ACA was hired by the Port to complete the Wheeler Bay shoreline stabilization work. ACA subcontracted to Envirocon, Inc. (Envirocon) to implement the shoreline stabilization construction activities. In addition, the Port hired Anchor to perform environmental monitoring and to support the Port's construction management and oversight activities throughout Phase I of the project.

1.2 Organization of this Document

The remainder of this document provides detailed information on the Phase I Removal Action design and construction activities conducted to implement the design as follows:

KMB00006567

- **Section 2 – Site Background** provides a description of the RAA and describes previous site investigations that were completed to characterize the sediment at T4 and used to inform the Phase I Removal Action design.
- **Section 3 – Summary of the Phase I Removal Action Design and Construction Planning** provides site background information used to inform the Phase I design, summarizes the Phase I objectives and performance standards, and details the Phase I design activities and environmental protection measures by subarea.
- **Section 4 – Dredging and Capping Construction Activities** describes the project timeline, details the mobilization and demobilization process, and summarizes dredging and capping activities and construction deviations from design.
- **Section 5 – Wheeler Bay Shoreline Stabilization Construction Activities** describes the project timeline, details the mobilization and demobilization process, and summarizes Wheeler Bay shoreline stabilization activities and construction deviations from design.
- **Section 6 – Summary of Monitoring and Construction Quality Assurance Activities** describes monitoring and construction quality assurance activities that were performed during implementation of the removal action to confirm compliance with the design and attainment of performance standards.
- **Section 7 – Summary of Activities Conducted in Accordance with the WQMCCP and the Biological Opinion** details activities that were conducted to comply with the WQMCCP (USEPA 2008 and Appendix R) and Biological Opinion (NMFS 2008 and Appendix S) and provides required reporting information.
- **Section 8 – Documentation of Performance Standards Attainment** summarizes the specific verification activities used to attain performance standards.
- **Section 9 – Field Monitoring Quality Assurance/Quality Control Documentation** provides a summary of the quality assurance/quality control (QA/QC) activities conducted during the field activities associated with the construction phase.
- **Section 10 – Certifications and Institutional Controls** details the actions required to maintain capped areas.
- **Section 11 – Construction Costs** details the costs associated with implementation of the Phase I project.

KMB00006568

- **Section 12 – Lessons Learned** provides a list of lessons that were learned throughout the implementation of the Phase I project that will be helpful to refer to during the design stages of the Phase II project.
- **Section 13 – Phase I Removal Action Contact Information** summarizes the contact information for private and public representatives involved with the Phase I project.
- **Section 14 – References** summarizes the references used in the document.

KMB00006569

2 SITE BACKGROUND

2.1 Terminal 4 Removal Action Area

The T4 facility itself is within or adjacent to the Portland Harbor Superfund Site. The RAA is defined in the AOC for the Removal Action as "that portion of the site adjacent to and within the Port's T4 at 11040 North Lombard, Portland, Multnomah County, Oregon, extending west from the ordinary high water line on the northeast bank of the Lower Willamette River to the edge of the navigation channel, and extending south from the downstream end of Berth 414 to the downstream end of Berth 401, including Slip 1, Slip 3, and Wheeler Bay" (USEPA 2003a).

The Port is a port district of the State of Oregon, which owns the T4 uplands between River Miles (RMs) 4.1 and 4.5 on the Lower Willamette River. The Port also currently owns a portion of the submersible and submerged lands in Slip 1 and Slip 3 located within the RAA. The remainder of the submersible or submerged land is owned by the State of Oregon and managed by the State of Oregon Department of State Lands (DSL).

A vicinity map and site plan locating T4 is provided on Figure 1.

2.2 Summary of Site Investigations

A summary of the physical and chemical characterization information that was collected at T4 to characterize the existing site conditions and used to inform the design and develop the Phase I Removal Action is discussed below.

2.2.1 Physical Characterization

Geotechnical information that was used for various components of the design is summarized below. In general, this information was used for assessing the feasibility of dredging in the different dredge areas, assessing cap stability in shoreline areas, and for assessing stability of shoreline structures near to which dredging and/or capping occurred.

Geotechnical data in these areas were provided by performing laboratory tests on samples from the in-water borings/cores, and field tests including pocket penetrometer tests, torvane tests, and standard penetration resistance. Results of the laboratory tests

KMB00006570

show that the recently deposited sediment overlying the grey, loose to medium-dense sands consist predominantly of very soft organic silt and clay with liquid limits ranging from about 70 to nearly 100 percent, and moisture contents ranging from 67 to 106 percent. The fines content of this sediment generally ranges from 51 to 96 percent, with average fines content ranging from 75 to 85 percent.

Based on consolidation and plasticity results, as well as on testing conducted in the field (including pocket penetrometer tests, torvane tests, and standard penetration resistance), it was expected that these soils would be normally consolidated and have very low undrained shear strengths. The undrained strength of the very soft sediment was estimated to be on the order of about 20 to 140 pounds per square foot (psf). The material dredged in Slip 3 was expected to consist of very soft to soft, slightly sandy to sandy organic silt and clay. Areas of higher density sediment were expected to be encountered during dredging and more likely with deeper depths where native soils are encountered. The sediment dredged at Berth 414 was expected to consist of very soft to soft, clayey, fine sandy silt with occasional wood chunks. In addition, debris was anticipated to be encountered during the dredging.

2.2.2 *Elutriate Testing*

The dredging elutriate test (DRET) is used to help assess water quality at the point of dredging. As reported in the Final DAR (Anchor 2008a), the DRET results for a composite dredge prism sample showed that water quality effects from toxic constituents resuspended by dredging were expected to be negligible (DAR Table 8, Anchor 2008a). All metals results were well below their respective acute water quality criteria, with the exception of copper. The DRET copper concentration (4.3 micrograms per liter [µg/L]) was just slightly above the hardness-based acute criterion (3.6 µg/L, a very stringent criterion considering the low hardness of 25 milligrams per liter (mg/L) in the Willamette River); similar concentrations have been reported as ambient background levels in the Willamette River (~5 µg/L dissolved copper; USGS 2006). As reported in the DAR (Table 8, Anchor 2008a) 9 µg/L is the DEQ suggested default background concentration for copper in freshwater (DEQ 2002). Only a few polycyclic aromatic hydrocarbons (PAHs) were detected, and the few detected PAHs were two or more orders of magnitude below their acute water quality guidance values (USEPA 2003b).

KMB00006571

No dichloro-diphenyl-trichloroethane (DDT) isomers, polychlorinated biphenyls (PCBs), or petroleum compounds were detected.

2.2.3 Disposal Suitability

The results of the analyses of samples from sediment cores collected from the Slip 3 dredge area in December 2007, including Toxicity Characteristic Leaching Procedure (TCLP) tests, were presented in Appendix G to the DAR (Anchor 2008a). The concentrations of TCLP constituents were below the regulatory levels; therefore, the sediment was not characteristically toxic. Because the sediment did not meet any of the other regulatory definitions of hazardous waste, the sediment was managed at the Wasco County Landfill as nonhazardous waste. The characterization data were also provided to Wasco County Landfill and used to characterize the sediment for disposal. USEPA Region 10, Office of Compliance and Enforcement, confirmed in an e-mail from Xiangyu Chu to Timothy Brincefield and Sean Sheldrake that the Wasco County Landfill was operating in compliance with their permit and was acceptable to receive waste from a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action under the Off-Site Rule (Code of Federal Regulations, Title 40, Part 300.440).

2.2.4 Slip 3 General Chemical Characterization

A number of sources of existing sediment chemistry data for T4 are available from historical investigations of sediment contamination. The Port has been investigating the nature and extent of sediment contamination at T4 since before 1988. Federal and state agencies, including the U.S. Army Corps of Engineers (USACE), USEPA, and DEQ, have investigated the nature and extent of sediment contamination in the Willamette River and have collected sediment samples in the vicinity of T4 as part of their investigations (BBL 2004). Most recently, sediment chemistry data were collected as part of the T4 Early Action design (Anchor 2006).

The primary source of sediment chemistry data that was used for the design of the Phase I Removal Action was the data collected during development of the T4 Early Action Engineering Evaluation/Cost Analysis (EE/CA; BBL 2005). Other historical reports containing data with acceptable quality assurance and documentation that was considered included:

KMB00006572

- USEPA Portland Harbor Sediment Investigation Report (Weston 1998)
- Remedial Investigation Report, Terminal 4, Slip 3 Sediment (Hart Crowser 2000)
- Willamette River Channel Maintenance Characterization Study (USACE 1999)

Based on a review of the existing data, Table 2 of the DAR (Anchor 2008a) presents the constituents of concern (COCs) at Slip 3 that exhibited exceedances of Probable Effects Concentration (PEC) values in the EE/CA or in prior investigations. These COCs are listed in Table 2 of the DAR (Anchor 2008a) along with their maximum PEC exceedance ratios (i.e., maximum concentration divided by PEC value). PEC values and actual concentrations for various areas are provided on figures referenced in Sections 4 and 5 of the DAR (Anchor 2008a).

These identified COCs were used to guide the design of the Phase I Removal Action in terms of identifying the target areas for dredging, as well as which parameters to model for contaminant transport evaluations. The head of Slip 3 adjacent to the Bank Excavation and Backfill Replacement Area (BEBRA) work (BBL et. al. 2005) was also a target area for the Phase I Removal Action due to observations of sheens in that area.

Additional pre-construction samples were collected in the RAA in December 2007. As described in the Sampling and Analysis Plan (SAP) for Phase I sediment quality (Anchor 2007b), the objectives of the pre-construction sampling event included chemical analysis of 11 core locations in Slip 3 and north of Berth 414 to further define the depth and extent of Phase I dredging areas.

The results are presented in the Pre-construction Sampling Data Report, which is provided as Appendix G to the DAR (Anchor 2008a). The results were incorporated into the existing sediment quality dataset for use in the design of the Phase I Removal Action.

2.2.5 Wheeler Bay General Chemical Characterization

Composite surface soil samples were collected along the bank of Wheeler Bay. The composite samples were analyzed for total petroleum hydrocarbons (TPH), PAHs,

KMB00006573

PCBs, pesticides, metals, and phthalates. TPH, PAHs, pesticides, metals, and phthalates were detected in one or more of the samples, summarized as follows.

- PAHs were detected in the samples at concentrations that exceeded the preliminary screening levels.
- None of the pesticide concentrations exceeded industrial Preliminary Remediation Goals (PRGs). With the exception of 4,4-DDT at two locations, no pesticides exceeded terrestrial screening level values (SLVs) in the riverbank samples.
- The composite samples detected metals (arsenic, cadmium, copper, lead, and zinc) above regional background concentrations and the preliminary screening levels.
- Bis(2-ethylhexyl)phthalate was detected in one sample but was below the preliminary screening level.

KMB00006574

3 SUMMARY OF THE PHASE I REMOVAL ACTION DESIGN AND CONSTRUCTION PLANNING

This section summarizes the Phase I Removal Action design details as described in the DAR (Anchor 2008a) and the construction planning details for implementation of the design as described in the Final RAWP (Anchor 2008b).

The Phase I Removal Action design was developed in accordance with the USEPA Action Memo (USEPA 2006). The design incorporated USEPA comments on the EE/CA (BBL 2005) and on the overall T4 Removal Action 30 and 60 percent design submittals and provides the specific details for the Removal Action activities. The RAWP (Anchor 2008b) presented the construction planning details for the implementation of the design with significant input from the contractors. Together, these documents provided the specific details for what the Removal Action activities are, and a plan for implementing those activities. These details are summarized below for dredging; transportation, transloading, and disposal; capping; and shoreline stabilization activities.

3.1 Dredging

As part of the Phase I Removal Action, dredging was required in isolated areas of Slip 3 and north of Berth 414 (see Figure 2). There are two unique dredge plans as part of the Phase I Removal Action:

- Berth 411 "Plus" – Three areas that are immediately adjacent to Berth 411, adjacent to Pier 5, and north of Berth 414. Dredge elevations in this area were controlled by the chemistry data.
- Berth 410 – An area adjacent to Berth 410, which was being removed down to navigational depths at an elevation of between -39.3 to -41.3 feet National Geodetic Vertical Datum (NGVD).

The basis of the dredge design relates to dredging performance standards and design objectives and criteria that are discussed in detail in the DAR (Anchor 2008a). The design details based on this information, as well as construction planning details, are summarized in this section for the Berth 411 "Plus" and Berth 410 dredge areas. The sampling locations used in the Phase I dredge area design are depicted on Figure 2 and are summarized in Table 2.

KMB00006575

3.1.1 Design Details

3.1.1.1 Berth 411 "Plus" Areas

The lateral boundaries of the Slip 3 and North of Berth 414 dredge prism were developed by determining the extent of surface sediment exceeding 20 times the PEC ratio. This boundary was predetermined based on a core-by-core analysis of PEC exceedances as shown and discussed in detail in Section 4.2.2 of the DAR (Anchor 2008a). The depth and elevation of dredging within the Slip 3 and north of Berth 414 dredge prism were predetermined based on a core-by-core analysis of PEC exceedances. The depth of contamination was predetermined for each core location using compaction-corrected sampling intervals and chemical analytical results. The dredge prism within each unit was set at or below the deepest point of contamination within a given area based on cores within that unit. The sizing and orientation of the units were established based on anticipated dredging approaches as detailed in the DAR (Anchor 2008a). A paid allowable overdepth thickness of 12 inches was set for the contractor based on dredging equipment tolerances and other constructability considerations. The maximum allowed depth the contractor could dredge to was 12 inches below the paid overdredge allowance described above. The total volume of dredged material from the Berth 411 "Plus" area was expected to be approximately 4,750 cubic yards (cy) without overdredge, to approximately 6,800 cy including payable overdredge.

A portion of the dredge footprint would not have full removal down to a PEC exceedance ratio of 10 due to the concern over slope stability and waterfront structures. After completion of dredging, these select areas would have a sand layer placed. The area of partial removal was 13,300 square feet. Six inches of the sand layer would equate to 400 tons of sand (assuming 1.65 tons per cy for the sand). To ensure adequate coverage, the contractor was required to place 600 tons (roughly 50 percent above the 6-inch target).

3.1.1.2 Berth 410 Area

The dredge design for the Berth 410 area was 150 feet wide extending from the Berth 411 "Plus" dredge area towards the navigational channel to provide safe navigation

KMB00006576

for vessels calling on Berth 410/411 to a required depths of -39.3 feet NGVD. Therefore, areas above elevation -39.3 feet NGVD were identified for removal. As with the Berth 411 "Plus" dredge design, a paid allowable overdepth thickness of 12 inches was given to the contractor based on dredging equipment tolerances and other constructability considerations. In addition, the maximum allowed depth the contractor could dredge to was 12 inches below the paid overdredge allowance described above. Therefore, for Berth 410, the maximum allowed dredge depth was -41.3 feet NGVD. The total volume of dredged material expected from the Berth 410 area was about 3,650 cy without overdredge, to about 6,300 cy including payable overdredge.

3.1.2 Construction Planning

Construction planning for the dredging activities (including sand layer placement) is discussed in detail in Section 2 of the RAWP (Anchor 2008b), and highlights including sequencing and the planned dredge and sand layer placement methods are summarized below. This section also discusses the planned method for containing the water that drained out of the dredge material on the transport barges.

The following construction sequence was anticipated for the dredging and sand layer placement work:

- Dredging would begin after completion of the mobilization and setup of the transloading facility at The Dalles, Oregon. The first dredge location would be at the small area just north of Berth 414. This work was expected to be completed in 1 day.
- The offloading derrick (Sea Vulture), the transport barge containing sediment dredged from the first dredge area, and the barges to be used for the spill containment at the transloading facility would be towed together up river to The Dalles transloading facility.
- The Berth 411 "Plus" area would be dredged from the head of the slip towards the mouth. The duration of the work was anticipated to be 10 days. Transport (haul) barges would be loaded one day and offloaded the next, requiring 2 days to complete the dredge, haul, offload, and return cycle.

KMB00006577

- Offloading at The Dalles transloading facility would occur concurrently with the dredging operation.
- A short shutdown would occur at the completion of the Berth 411 "Plus" dredging before the Berth 410 dredging occurred ("Shutdown Dredging Event 1"). During the shutdown, the dredge plant, material barges, upland transload equipment, and on-highway haul trucks would demobilize. The on-water transload equipment would not demobilize.
- After remobilization of the equipment, the sand layer would be placed following the completion of the Berth 411 "Plus" dredging during the Shutdown Dredging Event 1 time period.
- The Berth 410 dredging would be completed in a similar sequencing as described above for Berth 411 "Plus". The work would occur for 3 days and then Shutdown Dredging Event 2 would occur.
- During this second shutdown, the capping work at the head of Slip 3 would occur.
- Remobilization for additional dredging to address remaining high spots, if any, would then occur, and the final dredging would require up to 4 days.

3.1.2.1 Dredge Method

The planned dredge method for the Berth 411 "Plus" and Berth 410 areas was to use a mechanical bucket. Specifically, the contractor was planning to perform the dredging using a 20-cy Cable Arm clamshell bucket and if sediment could not be dredged due to a denser river bottom, a 10-cy heavy-duty Atlas round-nose clamshell bucket would be used to reach final grade.

3.1.2.2 Barge Water Containment Method

As the material was dredged and placed into a barge, water from the dredge material was collected and contained as described in this section. Each flat-deck material barge was to have up to 6-foot-high fully enclosed watertight welded steel bin walls, and all scupper holes were to be closed off and secured. The barge was to be loaded in a manner to prevent listing, and material was to be loaded with special care to fill no more than 1-foot from the top of the bin walls.

KMB00006578

Temporary barrier walls were to be secured at a 45-degree angle in all four corners of the transport barges to facilitate sediment dewatering. The barriers were to have seepage holes cut along the base with screens secured at the openings to retain the solids and allow water to flow behind the barrier for pumping to the lash combo barge. Slotted 55-gallon drums were to be set behind the temporary barrier for water gathering and pump placement. There were to be pumps stationed on each corner of the material barge during dredging operations with two to three workers dedicated for transfer of water to the lash barge. The lash barge was to be made up of four compartments and have approximately 450,000 gallons of total liquid capacity.

The lash barge was to be hauled to Berth 408 and offloaded to the designated upland sanitary sewer manhole at T4 (see DAR Figure 1 for location, Anchor 2008a). The Port obtained a permit from the City of Portland Bureau of Environmental Services (BES) (Batch Discharge Number 2008-027). The estimated water discharge volume was up to 1.5 to 2 million gallons. The discharge rate was to be kept below 100 gallons per minute as monitored with a flow meter. If water removal was required from the lash barge prior to the first scheduled shutdown, the barge would be transported to Cascade General, located on Swan Island, to be pumped into large holding tanks without any discharge flow restriction. This work would be done at night with no impact on the dredging operation. Additionally, if the water did not meet the BES compliance requirements, the lash barge would have also been transported to Cascade General to be pumped into holding tanks and treated prior to discharge.

3.1.2.3 Sand Layer Placement Method

For the placement of the sand layer in Berth 411, a grid pattern of cells would be drafted and downloaded to the computer in the dredge cab. HME planned to use a 10-cy Atlas re-handle bucket with a width of 8 feet. Placement of 1 ton (approximately 0.8 cy) of the sand layer per 22 square feet of area would be accomplished by determining the weight of sand layer material required for each grid (8 feet by 25 feet +/- 200 square feet) with a full bucket. Each cell would require approximately 7.3 cy (5.8 tons) of sand layer material. HME determined that filling

KMB00006579

the bucket a minimum of 75 percent full before placement would assure at least the minimum coverage of 1 ton per 22 square feet.

Positioning the floating crane to start placement of the sand layer would be done in a manner to prevent the spuds of the barge from settling into any of the placed layer. All work would begin near shore and work offshore, covering 60 to 75 feet of width before repositioning the floating crane.

To spread the sand layer evenly, the bucket would be lowered to the water surface and then cracked open. The operator would then swing throughout the cell until all of the material was removed from the bucket. The operator would then position the bucket at the center of the covered cell and push the capping target button located near the swing control lever. The capping target button would fill the cell selected with color and store the position to a saved file. Usage of this feature would allow the operator to keep track of the area that had been covered. Figure 6 of the RAWP (Anchor 2008b) illustrates the Base Cap Type 3 capping placement grid.

3.2 Transportation, Transloading, and Disposal

Dredged sediment transportation, transloading, and disposal activities are described in the DAR (Anchor 2008a) and RAWP (Anchor 2008b). The design details, as well as construction planning details, are summarized in this section for the disposal of the dredged sediment.

3.2.1 Design Details

The primary design detail related to transportation, transloading, and disposal was that the material would be disposed of at an upland disposal facility. The specific details related to this activity were to be developed by the contractor as part of the construction planning process. The Transportation and Disposal Plan (TDP) presented in the DAR (Anchor 2008a) as Appendix F, along with the Construction Specifications (Appendix E of the DAR, Anchor 2008a), detail the requirements for transporting and disposing of dredged sediment to the landfill. In general, the intent during design was that dredged sediment would be loaded into haul barges and taken to a transloading facility, where the material would be transferred from the barges to trucks or rail cars for transportation to disposal facilities. Upland soils and other wastes were expected to be loaded directly

KMB00006580

onto trucks for transport to disposal facilities or for transfer to rail cars for transport. The waste materials were to be delivered to the disposal facilities by truck or rail. If rail transport was used, the contractor was to transload the waste from rail cars to trucks within the disposal facility for final delivery of the material to the landfill.

3.2.2 Construction Planning

Construction planning for transportation, transloading, and disposal activities is discussed in detail in Appendices D1 and E of the RAWP (Anchor 2008b) as part of HME's dredging, transportation, and disposal plan. In general, HME determined that the dredged sediment would be placed into sealed haul barges, and hauled to the Port of The Dalles for offloading. The material would be disposed of at the Wasco County Landfill (Appendix D1 of the RAWP contains the offloading facility permit from DEQ). Planning details determined for hauling material by barge, transloading and disposal of material at the landfill, and hauling material by truck are summarized below.

3.2.2.1 Hauling Material by Barge

Sediment barges were to be transported to the Bernert Barge Lines (Bernert) Terminal located in The Dalles (see RAWP Figure 7 for barge haul route map, Anchor 2008b). The transport started at Willamette RM 4, with movement initially downstream to Willamette RM 0/Columbia RM 101.5. The upstream transport was to initiate at Columbia RM 101.5 to the Bernert facility in The Dalles at Columbia RM 189.

The 2,500- to 3,000-ton sediment barges were to be attached to the *Sea Vulture* with fleeting facilitated by a winch affixed to the *Sea Vulture* for offload. The material was to be offloaded with a 14-cy Cable Arm environmental clamshell bucket. Two drip containment barges were to be strategically located with fabricated drip plate(s) placed as shown on Figure 9. The two drip containment barges, with 20-foot by 8-foot watertight open-top containers, and the watertight sediment transfer box were to be placed at dock's edge. The placement of the drip containment was to be in the path of the *Sea Vulture's* offload swing radius to eliminate the potential of spilling sediment into the river, onto the dock, and on the ground upland (see RAWP Figure 8, Anchor 2008b).

KMB00006581

Prior to the departure of any loaded sediment barge from Portland Harbor, an extended weather forecast was to be researched for the transit to The Dalles transloading facility. Results of these weather checks are included in Appendix L1. As stated in the DAR (Anchor 2008a) and the RAWP (Anchor 2008b), the barges were to be covered if weather warranted. Weather with high winds and hot, dry weather would trigger the need for covering.

3.2.2.2 Transloading and Disposal of Sediment and Debris at Subtitle D Landfill

The initial activity for this portion of the T4 project was the development of the upland transloading facility, which included pavement improvements, stormwater management berms, watertight transload box installation, drying agent storage, truck lining station, truck covering station, and dry decontamination station (see RAWP Figure 8, Anchor 2008b).

Pavement improvements were to include subgrade preparation and paving of the existing gravel area along the east side of the property. In addition to the new pavement in this area, existing joints and transitions were to be sand seal coated. Extruded asphalt curbing was to be installed to corral precipitation and add a redundant mechanism to isolate potential spillage (if any) in the re-handle/transloading process.

Ecology blocks were to be used to develop the drying agent containment area within reach of the load-out excavator. The drying agent was to be stockpiled at the landfill and was to be backhauled to the Bernert yard as needed to maintain a sufficient quantity to supplement the sediment moisture reduction program. The drying agent was to be stockpiled on both the barge and the ground adjacent to the excavator.

A custom, fully-welded, watertight steel fabricated box was to facilitate a large target for the clamshell bucket to transfer the sediment for rehandle to on-highway 8-axle truck and trailers. The walls of the box were to be of sufficient height to eliminate the potential of splattering sediment outside of the containment as the clamshell bucket opened.

KMB00006582

Prior to load-out in the trucks, each bed was to be fully lined with plastic. Concurrently, bed liners were to be shipped/stored, the lining and truck bed covering stations were to be constructed, and the truck haul routes (temporary pavement markers) were to be established. Upon completion of loading the trucks, each truck bed was to be covered prior to departure to the landfill. If sediment spillage occurred at the transfer point, the material was to be immediately hand-shoveled, swept up, and incorporated into the load.

Dust suppression was to be handled with water misting of the sediment via the water pumps on the *Sea Vulture*. A widespread water misting system was to be strategically placed to moisten the exposed sediment and completely eliminate airborne particulates. In addition, dust was to be fully suppressed at the surge/transload box. This was to be accomplished in the same manner as described above, with water sourced from either one of the pumps on the *Sea Vulture* or the upland fire hydrant located at the entrance to the Bernert facility. All water used for dust suppression was to be contained within the barge.

The truck loading procedure was to be as follows:

- Truck beds were to be lined at the bed lining station.
- Trucks were to pull into the loading zone.
- Sediment offloaded by the *Sea Vulture* was to be placed in the surge/transload box.
- The 70,000-pound excavator was to supplement and mix the drying agent with the sediment as needed to absorb any moisture prior to loading in the truck.
- Trucks were to be loaded with special care to direct the material for transport to the Wasco County Landfill. On-board axle scales were to facilitate loads to legal limits.
- The loaded truck was to be inspected for any residual spillage of sediment and immediately cleaned off.
- The loaded truck was to then move to the tarping station for load coverage prior to disembarking to the landfill.

KMB00006583

- Concurrently with the offload of sediment, submersible pumps were to be available to pump off any free liquids generated in the process either in the transport barges or surge box. Water generated was to be allowed to settle and the water was to be pumped off to a water hauler for disposal at the Wasco County Landfill. During pumping operations, all connections were to be visually monitored for signs of leakage.
- Housekeeping was imperative and personnel were to be dedicated to maintain drip pans, haul routes, and truck decontamination through the entire cycle of operations.

As a precaution, two Baker/Frak tanks were to be permanently stationed on one of the drip containment barges and the upstream end of the *Sea Vulture* to facilitate free liquids (if any) pumped off of the sediment transport barges. During pumping operations, all connections were to be visually monitored for signs of leakage.

3.2.2.3 Hauling Material by Truck

The trucks were to haul on the designated haul route shown on RAWP Figure 9 (Anchor 2008b). Trucks were to weigh in, generating certified scale weights of each load for detailed recording. The load was to be dumped and trucks were to exit and return to the Bernert yard to start another round of the cycle.

The approved landfill was the Subtitle D Wasco County Landfill facility in The Dalles. The drying agent was a landfill-approved material produced at the Camas, Washington, Georgia-Pacific paper plant. This material was an ash-based byproduct generated in the process of paper production.

3.3 Head of Slip 3 Capping

As part of the Phase I Removal Action, a cap was required to be placed at the head of Slip 3. This cap was designed to consist of two layers. The lower layer is the base cap, which serves to isolate the contaminants. The DAR (Appendix E, Anchor 2008a) describes two types of the base cap:

- Base Cap Type 2 – This material is a sandy gravel to gravelly sand. The coarser gradation allows the material to be placed on steeper slopes.

KMB00006584

- Base Cap Type 3 – This material has the same gradation as the Base Cap Type 2 material but it has organoclay amended at 10 percent by weight.

Above the base layer is an armor layer, which is designed to resist erosive forces. The gradation of the armor layer is a function of the design erosive forces. The armor layer is referred to as Type 3 Armor. The basis of the head of Slip 3 cap design relates to capping performance standards and design objectives and criteria that are discussed in detail in the DAR (Anchor 2008a). The design details based on this information, as well as construction planning details, are summarized in this section for the head of Slip 3 cap.

3.3.1 Design Details

The head of Slip 3 cap consists of two unique parts. In front of the timber bulkhead, the cap serves to confine contaminated sediment from receptors that cannot be dredged because of stability concerns, as well as to provide a wedge to increase the stability of the bulkhead. The portion of the cap behind the bulkhead serves to confine contaminated sediment from receptors and also control sheens.

The DAR (Anchor 2008a) provides a detailed summary of the analyses that were performed to determine the appropriate thickness of the cap based on the following considerations:

- Chemical isolation and sheen control
- Erosion (i.e., from wind-induced waves, vessel-induced waves, currents, and/or propeller wash
- Slope stability
- Bioturbation
- Consolidation
- Operation

Based on the results of these analyses, the cap design consists of two components as shown on Figure 9 of the DAR (Anchor 2008a):

- Behind the timber bulkhead – at least 18 inches of Base Cap Type 3 overlain with 18 inches of Base Cap Type 2 overlain with Armor Type 3.

KMB00006585

- In front of the timber bulkhead – 18 inches of Base Cap Type 3 overlain with Type 3 Armor rock buttress.

3.3.2 Construction Planning

Construction planning details for the head of Slip 3 cap area are summarized in the RAWP (Section 4, Anchor 2008b). Figure 10 in the RAWP shows a cross section through the cap at the head of Slip 3. The cap section was to consist of 870 tons of Base Cap Type 3 material (sand and gravel mixed with organoclay) below 90 tons of Base Cap Type 2 material (to be placed behind the timber bulkhead only) and 2,450 tons of Type 3 Armor material. The cap was to first be placed in front of the timber bulkhead to increase the stability.

The following sequencing was anticipated for the placement of the head of Slip 3 cap:

- First, the Base Cap Type 3 material was to be placed offshore. Then the wedge would be placed on top of the Base Cap Type 3 material against the timber bulkhead to increase the stability.
- After the wedge was placed, the work behind the sheetpile wall would begin. First, the existing armor and filter blanket material would be removed as needed to expose the bottom of the existing sand fill amended with organoclay. This fill was placed as part of the BEBRA work. The armor material would be stockpiled for reuse.
- Organoclay-amended fill material would then be placed from elevation 3 feet NGVD to a minimum of 1 foot above the existing organoclay-amended fill to ensure a continuous layer. The area that needed to be addressed with the new organoclay-amended fill was the bench excavated into the silt at the time of the BEBRA installation. That bench would be entirely covered with organoclay/sand under the design as shown on Figure 9 of the DAR (Anchor 2008a) (with the only excavation being removing a small portion of armor/gravel placed during the BEBRA; there was to be no silt excavation). Visual observations during excavation were to indicate if the bottom elevation of the new excavation and fill needed to be lowered. Unnecessarily taking the new excavation and fill down to the timber bulkhead would be difficult due to access and would compromise the integrity of the bulkhead.

KMB00006586

- After the organoclay-amended fill was placed, 18 inches of Base Cap Type 2 material was placed, and then a layer of filter material followed by armor placed on top.

3.3.2.1 Capping Methods

The in-water portion of the Base Cap Type 3 material at Slip 3 was to be placed by the same method as discussed for the sand layer placement (see Section 3.1.2.3). As with the sand layer, the capping target button, upon depression, was to fill the cell selected with color and store the completed location in the computer file. Armor was to be placed with a skip box either by the *Sea Hawk* or *Sea Horse* on the water side of the existing wall at the head of Slip 3.

Placement of the material for the land component of the cap was to be performed in combination with the walking excavator and Base Cap Type 3 and Base Cap Type 2 materials fed by a water crane via skip box for surgical placement and dressing in the sloped area. Initially, the walking excavator, equipped with a winch to tie off to a much heavier piece of mobile equipment at the top, was to carefully remove the Class 100 armor in the area(s) of placement. The processed Base Cap Type 3 material on the barge was to be skip-placed in the segment to be capped within reach of the walking excavator. Cap material was to then be spread from the base of the slope upward in each segment. Upon completion of the cap placement and inspection, the Base Cap Type 2 was placed, followed by the filter blanket. The armor was to be rehandled and carefully replaced over the filter blanket. The plan was to completely finish a section, across the total width, in three to four 30- to 40-foot lengths, then move to the next segment. By not opening the entire upland area, overall stability of the upper slopes would be better maintained, greatly reducing the potential for needing movement in and out of the easily damaged existing planting areas.

3.4 Wheeler Bay Shoreline Stabilization

As part of the RI/FS and Source Control Measure Voluntary Cleanup Program (VCP) Agreements between DEQ and the Port, the Wheeler Bay river bank area was identified as requiring a source control measure for stabilization. Potentially erodible river bank soil in the vicinity of Wheeler Bay contains concentrations of PAHs, metals, and/or pesticides

KMB00006587

above screening levels for human and ecological receptors. A Source Control Alternatives Evaluation (SCAE) was completed to select a source control measure for the Wheeler Bay bank (Ash Creek/NewFields 2007). In the SCAE, general approaches for source control of the soil on the Wheeler Bay bank were identified and assessed. Based on the results of that evaluation, the recommended source control alternative for the potentially erodible river bank soils in Wheeler Bay was armoring with regrading/revegetation of the upper slope. Additionally, in USEPA's Action Memo for the Removal Action at T4 (USEPA 2006), the remedy identified for a portion of the Wheeler Bay bank slope was a sediment cap based on higher PAH concentrations in one surface sample location.

The basis of the shoreline stabilization design relates to performance standards and design objectives and criteria that are discussed in detail in the DAR (Anchor 2008a). The design details based on this information, as well as construction planning details, are summarized in this section for the Wheeler Bay shoreline stabilization.

3.4.1 Design Details

The DAR (Anchor 2008a) provides a detailed summary of the analyses that were performed to determine the appropriate design of the shoreline stabilization treatment in Wheeler Bay based on the following considerations:

- Geotechnical
- Erosion (i.e. from wind-induced waves, vessel-induced waves, currents, and/or propeller wash

Based on this information, Figures 10 and 11 of the DAR (Anchor 2008a), as well as sheets C-1, C-2, C-3, L-1 and L-2 in Appendix D of the DAR, detail the design and construction of the Wheeler Bay shoreline stabilization. Each of the different components of the shoreline work has a different total thickness. Figure 11 of the DAR presents a detail showing how the different components would be tied together to produce an even surface down the slope.

As shown in the sections, the existing slope along the shoreline is typically 2 horizontal to 1 vertical (2H:1V), or steeper. To increase the stability of the shoreline area, one of two measures would be completed:

KMB00006588

- From Stations 0 to 7+42, the slope would be graded back to 3H:1V. The surface of the new slope above elevation 15 feet NGVD would be planted to resist erosion. The surface of the new slope below elevation 15 feet NGVD would be armored.
- From Station 7+42 to the south, the slope would be graded back by filling to 2H:1V with armor. The presence of upland structures and pavements adjacent to the slope prevent cutting the slope back. Building the slope out into the water would cause loss of habitat and impact the existing outfall in the area. The existing slope shows no indications of instability.

The portion of the slope above elevation 15 feet NGVD would have combinations of coir fabric, jute mat, and plantings to resist erosive forces. The lower portions of the shoreline stabilization area (typically below elevation 15 feet NGVD) would require granular erosion resistance. Based on the erosion analysis, an armor layer with cobbles would be required. This corresponds to an Oregon Department of Transportation (ODOT) Type 100(E) armor. This layer would need to be placed on a filter layer of sandy gravel to gravelly sand. In addition, placement of a layer of habitat material would be placed over the armor layer and large woody debris with rootballs (salvaged and new) would be placed and/or anchored along the shoreline between elevations 10 and 15 feet NGVD.

3.4.2 Construction Planning

Construction planning details for the Wheeler Bay shoreline stabilization are summarized in the RAWP (Section 5, Anchor 2008b).

3.4.2.1 Earthwork and Landscaping Sequence and Methods

The methods for the Wheeler Bay shoreline stabilization earthwork and landscaping are summarized below. This work was to be completed from shore with land-based equipment.

- **Erosion Control.** Erosion control would be installed prior to beginning any site earthwork. At a minimum, silt fence would be installed on the sides and downslope of the project area. Construction fencing would delineate the project area along the railroad.

KMB00006589

- **Dust Control.** Dust control would be provided at all times during onsite activities. Primary dust control would be by water truck and fire hose. Operational procedures would be adjusted during periods of high wind to maintain optimal dust control.
- **Debris Removal.** Large woody debris within the project site would be removed from the beach and stockpiled on-site for future reuse. All other debris within the project area (generally consisting of concrete, asphalt, and treated wood but also including miscellaneous refuse) would be removed for recycling or disposal.
- **Grade Control.** Prior to the start of excavation, the area would be surveyed and staked by a third-party Professional Land Surveyor (PLS). Surveying and grade control performed during the excavation and fill process would be performed by Envirocon's in-house surveyor with oversight from the third-party PLS.
- **Clearing and Grubbing.** Clearing and grubbing would take place the first week onsite following installation of the erosion-control measures. The work would be performed with an excavator and articulated truck.
- **Subgrade Cut and Fill.** Subgrade cut and fill would begin the end of the first week onsite and would be performed with two excavators, an articulated truck, a water truck, and compaction equipment.
- **Installation of Surface Materials (Elevation 10 feet to 15 feet).** The installation of the fill materials would commence following verification that the subgrade is at the appropriate elevation. The demarcation layer, select fill, armor stone, habitat cover, large woody debris, and habitat logs would be placed as depicted on the Drawings and described in the Construction Specifications (DAR Appendices D and E, respectively, Anchor 2008a). Installation would be performed with an excavator, backhoe, dozer, articulated truck, water truck, and compaction equipment.
- **Installation of Surface Materials (Elevation 15 feet to 30 feet).** Installation of the fill materials would take place once the toe had been constructed to elevation 15 feet. Installation of the demarcation layer, topsoil, and coir fabric would be conducted per the plans and specifications. Installation would be performed with an excavator, backhoe, dozer, articulated truck,

KMB00006590

and water truck. Mulch would be installed between elevation 15 and 20 feet using a pneumatic blower to the depth specified in the Drawings and Construction Specifications (DAR Appendices D and E, respectively, Anchor 2008a).

- **Planting and Seeding.** The installation of plant materials would begin in the end of the fourth week onsite. Planting would occur following the topsoil placement and would be performed under the supervision of a qualified landscaping professional. Willows would be planted between elevation 15 feet and 20 feet. Cottonwoods would be planted at elevation 20 feet. Hydroseeding and jute matting would be placed per the Drawings and Construction Specifications (DAR Appendices D and E, respectively, Anchor 2008a) above elevation 20 feet.

3.4.2.2 Methods for Transportation and Disposal of Excess Materials

Materials generated for removal from the site included vegetation free of soil, rootballs, and other grubbing materials containing soil, concrete debris, asphalt concrete debris, miscellaneous debris, and excess soil from subgrade cut and fill. Practices for on-site handling and off-site transportation of these materials are discussed in the Environmental Protection Plan (EPP) and the TDP in the RAWP (Appendices C2 and D2, respectively, Anchor 2008b). These materials would be handled, transported, and recycled or disposed of in accordance with the following guidelines.

Handling. All materials bound for off-site recycling or disposal would be either direct-loaded into trucks for transportation to the landfill or stockpiled on-site pending loading and transport. If stockpiled outside the boundary of grading activities, waste materials (materials bound for off-site disposal at a landfill) would be placed on plastic. These stockpiles would be covered and secured with plastic if stockpiled for more than 1 day.

Materials bound for off-site recycling would be cleaned of soil using the following approach:

KMB00006591

- Loading and hauling of debris for recycling would be subject to inspection and approval of USEPA.
- Debris would be gripped by the excavator and soil shaken loose at the point of removal.
- Debris would be stockpiled for inspection/cleaning prior to loading.
- Each debris piece would be inspected for attached soil. Attached soil would be removed by dry sweeping as necessary until free of visible soil (maximum of 5 percent of surface area covered with soil). After inspection, clean debris would be loaded for off-site transport.

Transportation. Materials would be transported by truck in accordance with U.S. Department of Transportation requirements. Trucks would weigh in, generating scale weights of each load for detailed recording.

Recycling or Disposal. Materials removed from the site would be recycled or disposed of in accordance with the following:

- Vegetation free of soil would be sized and transported to an approved wood waste recycler. The identified recycler was Waste Connections' Wasco County Landfill.
- Concrete and asphalt concrete free of soil would be sized appropriately and transported to an approved recycling facility. The identified recycler was Porter W. Yett Co. of Portland, Oregon.
- Rootballs and other grubbing materials containing soil, miscellaneous debris, and excess soil from subgrade cut and fill would be transported as waste to Waste Connections' Wasco County Landfill.

KMB00006592

4 DREDGING AND CAPPING CONSTRUCTION ACTIVITIES

The Phase I Removal Action dredging and capping construction activities began on August 12, 2008, and were completed on October 1, 2008. Activities associated with this work were detailed and documented in daily reports prepared by the field construction QA representatives. The daily reports were compiled into weekly reports, and copies of the weekly reports are provided in Appendix A. Photographs were taken throughout the project and are provided in Appendix K.

All work was conducted in accordance with the project Drawings and Construction Specifications (Appendices D and E, respectively, to the DAR, Anchor 2008a) or approved revisions to those requirements, which are also discussed in this section. All changes to or clarifications of the project design were documented with a Construction Change (CC) and/or a Request for Information (RFI), reviewed, and approved by the Port and USEPA. Table 4 provides a complete list of all CCs and RFIs for the dredging and capping portion of the project (see Table 9 for Wheeler Bay CCs and RFIs). Figure 3 depicts the post-dredge bathymetry, before the sand layer was placed in the Berth 411 area at the head of Slip 3. Figures 4, 4a, 4b, 4c, and 4d show the as-built configuration of the post-dredge surface. Figure 5 shows approximate coverage of the Base Cap Type 3 material in-water and behind the bulkhead as well as the extent of the upland excavation. Figures 6 and 6a show the as-built configuration of the head of Slip 3 cap. A complete set of as-built drawings signed by a registered professional engineer is provided in Appendix Q. A final site inspection was completed with a representative of USEPA (Andrew Somes of Parametrix) on October 10, 2008, and no outstanding issues were identified.

The remainder of this section provides details related to the dredging and capping construction schedule, activities, and deviations from the design.

4.1 Project Schedule

The original schedule for the T4 dredging and capping project (RAWP Figure 5a, Anchor 2008b) had a planned timeline of approximately 9 weeks to reach completion (August 11 through October 3, 2008). Actual completion was achieved in approximately 10 weeks (August 12 through October 10, 2008). Descriptions of significant changes in the planned project timeline are summarized as follows:

KMB00006593

- Dredging in the Berth 411 "Plus" areas was essentially completed on August 25, 2008, and dredging began in Berth 410 on August 25, 2008, before the first dredge shutdown to facilitate a resumption of Kinder Morgan Terminal operations. Dredging in Berth 410 resumed during the second Kinder Morgan Terminal shutdown period until September 6, 2008. Dredging of identified remaining high-spots within the Berth 411 "Plus" areas was completed on August 26 and 28, 2008, and September 10, 2008. Dredging of the remaining high-spots at Berth 410 was completed on September 8, 2008.
- Placement of the sand layer in the Berth 411 "Plus" dredging area occurred after dredging was completed in Berth 410 on September 12, 2008, rather than between Berth 411 "Plus" and Berth 410 dredging activities. This schedule change was discussed with USEPA during the August 20, August 27, and September 3, 2008 Weekly Construction Meetings.
- While dredging and capping were completed by October 1, 2008, the final barge load was held on the barge and not unloaded at the transloading facility until October 10, 2008. The transloading facility was being utilized for another project during the interim period, which led to unloading of the final barge load with T4 material being delayed until completion of transloading and decontamination activities related to the other project.

4.2 Mobilization

Mobilization primarily occurred between August 4 and 15, 2008, at T4 and the transloading facility. Specific details associated with mobilization activities at each location are described in detail below.

4.2.1 Terminal 4

Mobilization activities at T4 included installation of the fish diversion net, setup of the site office and field gear locker, and preparation for dredging and capping. The fish diversion net was set as described in Section 7.3 of the DAR (Anchor 2008a) on August 4, 2008, and installation was completed on August 5, 2008. Mobilization of dredging equipment to T4 occurred on August 12, 2008. A turbidity curtain and oil-absorbent boom were installed around the derrick and barge before dredging began.

KMB00006594

Capping equipment was mobilized to the site on September 12, 2008. The Slip 3 cap component was constructed with the water crane *Sea Hawk* and a low-impact walking excavator (spider hoe) on the steep bank dry section for the Base Cap Type 3. The *Sea Horse* is a Manitowoc Vicon3900B pedestal-mounted unit on a 110-foot by 48-foot by 8-foot-high barge. The barge has two spuds for stability.

4.2.2 Transloading Facility

Development of the upland transloading facility included pavement improvements, stormwater management berms, installation of a watertight transload box, drying agent storage, truck lining station, truck covering station, and dry decontamination station (see RAWP Figure 8, Anchor 2008b).

Pavement improvements included subgrade preparation and paving of the existing gravel area along the east side of the property. In addition to the new pavement in this area, existing joints and transitions were sand seal coated. Extruded asphalt curbing was installed to corral precipitation and add a redundant mechanism to isolate potential spillage (if any) in the re-handle/transloading process.

Ecology blocks were used to develop the drying agent containment area within reach of the load-out excavator, and the drying agent was stockpiled at the landfill. A custom, fully-welded, watertight steel fabricated box was placed at the site. Concurrently, bed liners were shipped/stored, the lining and truck bed covering stations were constructed, and the truck haul routes (temporary pavement markers) were established. "Trucks entering and leaving" signs were to be installed on both sides of the road accessing the Bernert yard to establish notice to the public. Mobilization was completed the morning of August 12, 2008.

4.2.3 Pre-construction Surveying

A pre-construction bathymetric survey of the Berth 411 "Plus" and Berth 410 dredge areas and head of Slip 3 cap area was performed by David Evans and Associates, Inc. (DEA) on July 24, 2008. This survey served as the baseline condition for the dredging and capping areas and was compared to progress surveys conducted during the Removal Action to verify that design elevations had been attained.

KMB00006595

4.3 Dredging

4.3.1 Summary of Dredging Activities

Dredging in Slip 3 began on August 12, 2008, and continued through September 10, 2008 and the sand layer was placed between September 12 and 16, 2008, as follows:

- Dredging was started and completed (with the exception of dredging to remove some identified remaining high-spots on September 10, 2008) in the area north of Berth 414 on August 12, 2008. Approximately 280 cy of material were dredged in this area using a 20-cy clamshell bucket.
- Dredging started in the center square dredge area within Slip 3 on August 13, 2008, and was completed on August 14, 2008. Approximately 1,070 cy of material were dredged in this area using a 20-cy clamshell bucket.
- After dredging was completed in the center square dredging area, HME demobilized the dredging equipment from the T4 site until August 18, 2008.
- Dredging began in Berth 411 on August 18, 2008, using a 20-cy Cable Arm bucket. However, a 10-cy digging bucket was used for dredging on August 24 and 25, 2008, when armor and/or hard native sediment were encountered. Dredging in Berth 411 was completed (except for dredging to remove some identified remaining high-spots performed on August 26 and 28, 2008) on August 25, 2008.
- Dredging began in Berth 410 on August 25, 2008, using the 10-cy digging bucket. A dredging shutdown in Berth 410 began on the afternoon of August 29, 2008, to facilitate Kinder Morgan operations. Dredging in Berth 410 resumed again on September 2, 2008, and continued through September 6, 2008, using the 20-cy Cable Arm bucket.
- Dredging to remove some identified remaining high-spots occurred in Berth 410 on September 8, 2008, and in the area north of Berth 414 on September 10, 2008, using the 20-cy Cable Arm bucket.
- A portion of the sand layer was placed on September 12, 2008. HME placed additional sand layer material on September 13 and 16, 2008. A summary table of the quantities of material placed each day is provided in Table 5. The sand layer survey report is provided in Appendix F.

KMB00006596

A detailed log summary of dredging activities is provided as Table 6. A total of 12,819 cy of sediment were removed during the project. 262,830 gallons of dredge elutriate was pumped from the sediment scows into the lash barge during the project. Documentation related to dredging elutriate discharge permitting (City of Portland BES permit letter), as well as the final batch discharge report provided to BES are provided in Appendix N.

4.4 Transportation, Transloading, and Disposal

Transportation, transloading, and disposal activities occurred from August 18, 2008, through October 10, 2008. Summary logs of sediment and elutriate water offloaded at the transloading facility and transported to the landfill are provided in Tables 7 and 8, respectively. A total of 12,819 cy of sediment were dredged. At total of 20,070 tons of sediment were offloaded and hauled to the Wasco County Landfill during the project. Approximately 400 tons of additional material from the excavation of the cap area at the head of Slip 3 was also offloaded and hauled to the landfill. Documentation (weight tickets provided by the landfill) of disposal material amounts, as well as the special waste permit are provided in Appendix L1. Documentation related to weather checks performed to determine wind velocity (and whether covering of barges would be required) is also provided in Appendix L1.

4.5 Capping

Capping began September 12, 2008 and continued through October 1, 2008. HME began placing Base Cap Type 3 material on the water side of the pinch pile bulkhead at the head of Slip 3 on September 13, 2008. HME finished placement of the Base Cap Type 3 material on September 16, 2008. A log summary of capping material placement each day is provided in Table 5. HME began placing Type 3 Armor material on the water side of the pinch pile bulkhead at the head of Slip 3 on September 16, 2008, and continued placement on September 17, 18, 30, and October 1, 2008.

Landside of the pinch pile bulkhead, HME removed the existing surficial armor and excavated the subgrade down to the BEBRA on September 22, 2008. HME then placed approximately 325 tons of Base Cap Type 3 material on the slope on September 23 and 24, 2008 (850 tons total for the entire head of Slip 3 cap), and 405 tons of Base Cap Type 2. A

KMB00006597

geotextile was placed between the two layers as shown on the project Drawings (Appendix D of the DAR, Anchor 2008a). On September 25, 2008, HME placed back about 115 tons of the armor removed on September 22, 2008. The armor was placed up to elevation 5 feet Columbia River Datum (CRD). The remainder of the armor behind the bulkhead was placed on September 30 and October 1, 2008.

Survey data completed after construction indicated that the height of the rock buttress in front of the timber bulkhead was lower than shown on the construction drawings. A technical memorandum was generated to detail the assessment of the head of Slip 3 cap after construction and is provided in Appendix O. The memorandum reviews the cap design and interim monitoring requirements, summarizes the cap construction activities and results, and concludes with a recommended path forward. The recommended path forward is to implement and continue monitoring the head of Slip 3 cap in accordance with the Interim Monitoring and Reporting Plan (IMRP; Appendix C of the DAR, Anchor 2008a). Overall, stability has been improved relative to the pre-construction condition. However, long-term performance of the timber bulkhead is unknown as the piles age. Therefore, monitoring under the IMRP could indicate a need for additional rock in the low area to reduce the stress on the timber bulkhead.

4.6 Demobilization

4.6.1 Terminal 4

HME demobilized dredging equipment from the T4 site after dredging the Slip 3 center square on August 14, 2008. HME then re-mobilized dredging equipment back to the site before beginning dredging in Berth 411 on August 18, 2008. A dredging shutdown occurred to facilitate Kinder Morgan operations the afternoon of August 29 through September 1, 2008. HME demobilized during this time. Dredging resumed September 2, 2008, until Berth 411 and Berth 410 dredging was complete, after which dredging equipment was again demobilized from the site on September 10, 2008. Capping equipment was mobilized to the site on September 12, 2008, and then demobilized on October 1, 2008, when capping was completed.

KMB00006598

4.6.2 Transloading Facility

There were two sets of demobilization activities that occurred at the transloading facility. Upon substantial completion of the T4 Phase I Removal Action project, the first round of demobilization and decontamination procedures occurred on September 12, 2008. This first set of activities included performing hand cleanup on the *Sea Vulture* and associated drip containment barges affixed to the Bernert Terminal. The upland equipment was thoroughly inspected and swept clean of residual sediment (if any). This equipment consisted of an excavator, rubber-tired loaders for barge cleanup, and on-highway end-dump trucks and trailers. All residual material was loaded and hauled to the designated landfill for proper disposal. Complete demobilization of the site did not occur until October as the offloading facility was being used for another project.

The barge transload facility underwent additional dismantling and cleanup on October 10, 2008. The splash pans were scraped and swept of any residual sediment and the transfer/surge box was swept by hand. The transfer box was then pressure-washed and vacuumed of the rinsate by West Coast Marine Services. Containment linings were gathered up for consolidation in a dump truck for disposal at the landfill. The entire site was swept of residual debris.

4.6.3 Haul and Lash Barge Decontamination

Construction equipment decontamination procedures were observed on six occasions by Anchor monitoring personnel. The decontamination events observed are summarized in Section 6.7. The construction equipment decontamination observation reports are provided in Appendix G1.

4.7 Construction Deviations from the Design for Dredging, Transportation, Transloading, Disposal, and Capping

Overall, a majority of the T4 Phase I Removal Action project was completed in accordance with the design documents as described in the DAR (Anchor 2008a). However, some portions of the project were constructed differently than had been described in the design documents to more efficiently achieve the RAOs. These deviations generally fall into two categories: changes to the final design, or additions to the final design. In all cases, deviations were approved by the Port and USEPA through the use of CCs or RFIs. In

KMB00006599

addition, there were cases where clarification to the design occurred during construction and was documented with an RFI. Relevant clarifications, even if no deviation occurred, are documented in this section along with the deviations as described below:

- CC#4 Piling Removal at the Head of Slip 3 – Ten piles were identified in the area of construction of the head of Slip 3 cap. The piles were not identified in the design survey. The piles were cut off above the water. The upper sections were recycled, and the lower sections were pulled and disposed of at an appropriate landfill.
- RFI#12 Filter Fabric Material Used in the Head of Slip 3 Cap – The Construction Specifications (Appendix E of the DAR, Anchor 2008a) did not identify which geotextile should be used. A polypropylene, needle-punched non-woven geotextile such as Mirafi 160N or equivalent was specified by the design engineer.
- CC#5 Head of Slip 3 Cap Armor Elevation – Survey data completed after construction indicated that the height of the rock buttress in front of the timber bulkhead was lower than shown on the construction drawings. This deviation is summarized in Section 4.5.1 and a technical memorandum that provides an assessment of the as-built cap and rock buttress is provided in Appendix O. The memorandum reviews the cap design and interim monitoring requirements, summarizes the cap construction activities and results, and concludes with a recommended path forward.

KMB00006600

5 WHEELER BAY SHORELINE STABILIZATION CONSTRUCTION ACTIVITIES

The Wheeler Bay shoreline stabilization project began on August 5, 2008, and was completed on October 14, 2008. Activities were documented in daily reports. The daily reports were compiled into weekly reports, and copies of the weekly reports are provided in Appendix A. Photographs were taken throughout the project and are provided in Appendix K.

All work was conducted in accordance with the project Drawings and Construction Specifications (Appendices D and E, respectively, to the DAR, Anchor 2008a) or approved revisions to those requirements, which are also discussed in this section. All changes to or clarifications of the project design were documented with a CC and/or a RFI, reviewed, and approved by the Port and USEPA. A complete list of all CCs and RFIs for the Wheeler Bay portion of the project is provided in Table 9 (see Table 4 for dredging and capping CCs and RFIs). Figures 7 and 7a show the as-built configuration of the Wheeler Bay shoreline stabilization area. A complete set of as-built drawings signed by a registered professional engineer is provided in Appendix Q.

A final site inspection was completed with a representative of USEPA (Andrew Somes of Parametrix). A preliminary final inspection was completed on October 10, 2008. Only one item was identified: replace portions of the silt fence removed as part of demobilization. The missing silt fence was replaced on October 10, 2008. A final inspection was completed on October 22, 2008. No issues were identified except that USEPA wanted to verify installation and operation of the irrigation system. Mr. Andrew Somes visited the site on November 6, 2008, and verified operation of the irrigation system.

5.1 Project Schedule

The original schedule for the Wheeler Bay shoreline stabilization project (see Appendix P) had a planned timeline of approximately 5 weeks to reach completion (August 4 through September 10, 2008). Actual completion was achieved in 10 weeks (August 5 through October 14, 2008). One to two weeks of the increase in the project timeline resulted from inevitable delays associated with construction (e.g., delays caused by suppliers or subcontractors, demands of other projects, etc.). The remaining 3- to 4-week increase resulted from project changes or product availability (discussed in Section 5.6), summarized as follows:

KMB00006601

- Relocation of electrical and telephone utilities was added to the project after notice to proceed (CC-1.1). These utilities and storm water facilities were located along the top of the bank where excavation was planned, so much of the project earthwork could not begin until utility work was completed. Utility relocation work was completed concurrently with site earthwork. However, work that was originally planned to be completed within about 2 weeks of the start of the project (site clearing and grading) was not completed until about 5 weeks after the start of the project.
- The original Habitat Cover delivered to the project site consisted of angular rock, which technically met the Construction Specifications (Appendix E of the DAR, Anchor 2008a). However, habitat cover consists of rounded rock. Rounded rock meeting the specification was not readily available and had to be produced for the project. The delay resulting from delivery of the habitat cover extended the project schedule 1 to 2 weeks.
- Miscellaneous contract changes (CC-3, Remove Fire Boat Pier; CC-7, Place Port Topsoil; CC-8, Grade Top of Bank) added nearly 1 week to the project schedule.

5.2 Mobilization

Mobilization primarily occurred between August 5 and August 7, 2008, and included delivery of equipment, setup of temporary facilities, pre-construction surveying, erosion/sedimentation control, and construction of temporary access roads. Some activities such as erosion/sedimentation control continued throughout the project.

5.2.1 Equipment

Primary equipment mobilized and generally on-site during the project included a water truck, PC300 excavator, JD450 dozer, HM300 off-road dump truck, and a Bomag 66-inch roller. Other equipment used included a front-end loader and second excavator.

5.2.2 Temporary Facilities

Temporary facilities were set up between August 5 and August 7, 2008. Temporary facilities included a fenced enclosure and a container for on-site storage of equipment and materials located outside the exclusion zone; a break area with covered tables, restroom, washing facilities, and a decontamination station; and temporary fencing (CC-2) around the exclusion zone (except along the river).

KMB00006602

5.2.3 Pre-construction Surveying

On August 11 and 12, 2008, a pre-construction survey was completed to identify existing ground surface contours and to lay out temporary stations for grade checking throughout the project. The survey was used to set final grades to as closely as possible balance cut and fill after removal of debris and unsuitable soil.

5.2.4 Erosion/Sedimentation Control

Erosion and sedimentation control consisted of a silt fence surrounding the entire project on the river side and a rock construction access pad at the exit to the paved road. The silt fence was installed on August 6 and 7, 2008. The construction access pad was constructed adjacent to the paved road at the east edge of the project on August 12, 2008. The silt fence was inspected daily and repaired/replaced as needed. Daily reports documented silt fence repair/maintenance activities on 13 separate occasions between August 13 and October 10 (generally once every 3 working days).

5.2.5 Temporary Access

On August 6, 2008, two railroad crossings were constructed (using crushed rock) to provide truck access to the project site (see Appendix P).

5.3 Summary of Wheeler Bay Shoreline Stabilization Activities

This section discusses construction of the various elements of the Wheeler Bay shoreline stabilization project. The project layout is discussed using the following terminology:

- Station – The project begins at Station 0+00 and ends at Station 8+20. The first number in the station designation represents 100 feet along the baseline. The baseline for the project generally corresponds to the top of bank for the finished project. The second number represents the number of feet past the station number. For example, Station 3+50 represents the point 350 feet along the baseline from the beginning of the project.
- Elevation – Elevations provided use the NGVD 29-47 datum. In addition to station, project feature locations are described based on the target finish grade elevation at the location. The project had three primary elevation zones based on the primary mechanism to resist erosive forces: elevation 10 to 15 feet features armor rock;

KMB00006603

elevation 15 to 20 feet features deep topsoil, heavy-duty erosion-control fabric, and cottonwood/willow trees; and elevation 20 feet to top of slope (generally between elevation 29 and 33 feet) features topsoil with native grasses covered by jute matting for temporary erosion control.

In general, the project consisted of reshaping the Wheeler Bay shoreline to a more stable configuration (flatter slopes), capping existing soil to prevent direct contact by potential receptors, and surface materials to improve resistance to erosive forces.

Figure 7 shows a plan view of the as-built configuration of the Wheeler Bay shoreline. Finish grade slopes between Stations 0+00 and 7+00 range from 3H:1V to 4.2H:1V, equal to or flatter than the goal of 3H:1V. From Stations 7+00 to 8+20, finish grades slopes are 2H:1V, equal to the goal. Figure 7a shows typical cross sections for the finished construction.

5.3.1 Clearing, Grubbing, and Grading

Site grading was completed between August 6 and October 4, 2008. Primary site grading was completed by September 11, 2008. However, touch-up grading of the subgrade was completed on September 17 and 27, 2008, and grading to remove the temporary access road was completed on October 4, 2008. Grading activities generally proceeded as follows:

- A temporary access road was constructed to the bottom of the slope generally between Stations 1+50 to 2+50.
- The excavator was used to clear vegetation, small debris, and associated soil. This material was loaded into the off-road dump truck, transported via the access road to a stockpile at the top of slope, and subsequently loaded into trucks for off-site disposal (see Section 5.4).
- Large concrete debris was cleaned of soil and stockpiled separately at the top of the slope. This material was subsequently loaded into trucks for off-site recycling (see Section 5.4).
- Existing large woody debris (LWD) within the project area was cleaned of soil and removed and stockpiled on site for later replacement within the project area.
- Subgrade was achieved by a combination of excavation, hauling, dozing, and compaction. Subgrade was achieved with primarily cut between Stations 0+00

KMB00006604

and 3+00, primarily fill between Stations 3+00 and 6+00, and a combination of cut and fill from Stations 6+00 to 7+00. From Stations 7+00 to 8+20, subgrade preparation consisted primarily of clearing of vegetation. Minor excavation occurred on the upper 10 feet of the slope to achieve a maximum finish slope of 2H:1V.

- In fill areas, subgrade was compacted with the roller. In cut areas to receive topsoil, subgrade was loosened using the ripping tool on the dozer.
- Subgrade cut and fill were controlled on a daily basis with slope staking and progress surveys.

5.3.2 Armor

Armor was placed in two areas on the project. Betweens Station 0+00 and 7+00, armor was placed from elevation 10 to 15 feet. Between Stations 7+00 and 8+20, armor was placed between elevation 10 to 25 feet.

Stations 0+00 to 7+00. The armor section within this area consists of a demarcation layer (orange construction fencing), filter fabric (see Appendix P), 18 inches of select fill, and 18 inches of Type 3 Armor (Class 100 armor). The top of the armor section was completed 1 foot below finish grade to accommodate 1 foot of Habitat Cover (see Section 5.3.3). Figure 7a shows the armor installation for this area. Armor section layer thickness and grade were controlled on a daily basis with slope staking and progress surveys.

The armor section (demarcation layer, filter fabric, select fill, and armor) was placed in three phases. From August 26 to September 4, 2008, the armor section was placed between Stations 0+00 to 1+50 and between Stations 6+50 to 7+00. From September 11 to 19, 2008, the armor section was placed between Stations 2+50 and 6+50. On October 3, 2008, after removal of the temporary access road, the armor section was placed between Stations 1+50 to 2+50.

Stations 7+00 to 8+20. The subgrade in this area was covered with existing armor up to elevation 25 feet. The design called for Class 100 armor to be added to the slope to stabilize areas of erosion and flatten the overall slope to 2H:1V. The existing armor

KMB00006605

between Stations 7+00 to approximately 7+50 consisted primarily of concrete debris. This debris was removed during clearing, exposing the subgrade. Consequently, filter fabric and 18 inches of select fill were placed prior to armor within this area. From Stations 7+50 to 8+20, armor was placed directly on existing armor. Figure 7a shows the armor installation for this area. Armor section layer thickness and grade were controlled with slope staking and progress surveys on a daily basis.

Armor placement was completed between Stations 7+00 and 8+20 primarily between August 27 and September 4, 2008. The transition area from Station 7+00 to 7+50 (as revised by CC-5) was completed on September 19, 2008.

Table 10 lists material import quantities for the project. The total quantity of select fill and armor rock delivered to the project was 1,200 and 1,250 tons, respectively. These quantities are consistent with the design quantities required for the armor section.

5.3.3 Habitat Cover

Habitat cover was placed between Stations 0+00 and 7+00 to a depth of 1 foot over the armor between elevation 10 and 15 feet. Habitat cover thickness and grade were controlled on a daily basis with slope staking and progress surveys. Habitat cover was initially placed in early September between Stations 0+00 and 1+50. However, the material used consisted of crushed angular rock. This angular material was spread thin to fill the armor voids, and material meeting the requirement for rounded rock was ordered (RFI #14; see Section 5.6). Habitat cover was placed from September 30 to October 6, 2008. Figure 7a shows the habitat cover installation for the project.

Table 10 lists material import quantities for the project. The total quantity of Habitat Cover delivered to the project was 2,076 tons, the minimum order quantity. Approximately 650 tons of habitat cover was placed over the armor section, consistent with the design quantity required. Approximately 900 tons of the material was used to fill the low area upland from the top of slope (CC-8). The remainder is stockpiled for the Port's use.

KMB00006606

5.3.4 Top Soil

Topsoil was placed as follows:

- Stations 0+00 to 7+00, elevation 15 to 20 feet – In this area, the section consisted of a demarcation layer on the subgrade (orange construction fencing), 2 feet of topsoil, and coir erosion-control fabric (anchored in trenches and staked in place). See Figure 7a.
- Stations 0+00 to 7+00, elevation 20 feet to Top of Slope (elevation 29 to 33 feet) – In this area, the section consisted of a demarcation layer on the subgrade (orange construction fencing), 1 foot of topsoil, and jute matting (anchored in a top trench and stapled in place). See Figure 7a.
- Stations 7+00 to 8+20, elevation 25 feet to Top of Slope (elevation 33 to 34 feet) – In this area, the section consisted of 1 foot of topsoil and jute matting (anchored in a top trench and stapled in place). See Figure 7a.

Topsoil was delivered to the site in trucks equipped with a conveyor delivery system. Topsoil thickness and grade were controlled on a daily basis with slope staking and progress surveys. Topsoil was placed between September 22 and October 8, 2008. Jute matting was not completed until after hydroseeding (see Section 5.3.5).

Table 10 lists material import quantities for the project. The total quantity of topsoil delivered to the project was 1,740 cy, consistent with the design volume required for the project.

5.3.5 Planting

Landscaping work included tree planting, mulch placement, hydroseeding, and irrigation installation, as follows:

- Trees – Trees were planted between elevation 15 and 20 feet from Stations 0+00 to 7+00 (see Figure 7a and Appendix P). Black Cottonwood were planted at 10 feet on center along the 20-foot elevation contour (approximately 70 total). An equal mix of Scouler Willow and Hooker Willow were planted at approximately 4 feet on center between elevation 18 to 20 feet (approximately 320 total). Columbia River Willows were planted at approximately 4 feet on center between elevation 15 to 18 feet (approximately 320 total). The trees were delivered to the

KMB00006607

site on September 25, 2008 (see Appendix P). The trees were planted between October 4 and 8, 2008. A representative from the nursery was on-site to oversee planting methodology.

- Mulch – Mulch, consisting of medium fir bark, was placed after trees were planted in the same area as the trees (see Figure 7a). The mulch was placed to a depth of at least 4 inches and typically about 6 inches. Mulch was placed on October 8 and 9, 2008, using the same conveyor trucks used for topsoil delivery.
- Hydroseed – Hydroseed consisted of a mix of grass seed (native grasses for long-term sustainable coverage and a sterile wheat for short-term erosion control; see Appendix P), fertilizer, wood fiber, and a binding agent. It was applied by spraying to the areas with 1 foot of topsoil (elevation 20 feet to top of bank between Stations 0+00 to 7+00, and elevation 25 feet to top of bank above Station 7+00 – see Figure 7a). The hydroseed was applied on October 9, 2008. After hydroseeding, the jute matting was rolled over the hydroseeded area and stapled in place. Stapling was completed on October 10, 2008. Steel fence posts with twine/flagging were installed at the top of slope as a temporary fence to protect the newly planted areas from accidental intrusion. On October 22, 2008, grass was observed extending about 1 inch above the jute matting throughout the project area.
- Irrigation – The irrigation system was installed by the Port between October 14 and October 27, 2008. The system is an above-ground, 5-year temporary irrigation system. It generally consists of a 2-inch polyvinyl chloride (PVC) header line along the top of the bank with three 1.5-inch laterals down the bank to the trees. Further laterals feed impulse-head sprinklers on 3-foot risers spaced at 30-foot centers. Sprinklers at 30-foot centers were also installed on the 2-inch header. This system provides overlapping coverage of all areas planted with trees or hydroseeded. A timer on the system will turn on the water on alternate days when the weather is dry. The system was started and successfully tested on October 27 and 28, 2008.

5.3.6 Habitat Logs and Large Woody Debris

Habitat logs and LWD were placed on the finished surface of the Habitat Cover (Stations 0+00 to 7+00) between elevation 10 and 15 feet. Figure 7a shows the location of the

KMB00006608

habitat logs and LWD. LWD consisted of natural wood removed from the project area during clearing and grubbing that was stockpiled for reuse. This material generally consisted of "driftwood" such as large limbs and trunks of trees with diameters typically in the range of 4 to 24 inches and lengths of 10 to 20 feet. As the habitat cover material was placed, the LWD was scattered on the surface without anchoring. LWD was placed from September 27 to October 3, 2008.

Habitat logs consisted of Douglas fir logs with an intact root wad. The logs were obtained from forest land in the northern Oregon Coast Range (see Appendix P). A total of 12 logs were placed in four groups of 3 logs arranged in a triangular pattern. Habitat log groups were located between elevation 10 and 15 feet, nominally at Stations 0+15, 2+40, 4+90, and 6+90. Each log is anchored to a concrete block by a galvanized chain. The concrete blocks are buried completely below the subgrade elevation. The anchor blocks were buried prior to installation of the armor layer at each location (between August 26 and September 11, 2008). Habitat logs were placed and chained in place between September 27 and October 3, 2008.

5.4 Transportation, Recycling, and Disposal

Two material streams were exported off site for recycling or disposal: concrete and asphalt debris for recycling and vegetation/soil/debris for landfill disposal.

Large concrete debris was cleaned of attached soil (less that 5 percent of surface covered with soil based on visual assessment), loaded into trucks, and transported to Construction Material Exchange in Portland, Oregon, for recycling. Material was hauled to the recycler on August 14 and September 9, 2008. Table 11 lists material quantities transported to the recycler. Appendix L2 includes copies of the truck tickets. A total of 406 tons of concrete were transported for recycling.

Clearing debris consisting of incidental vegetation, rubble and small debris, and soil was loaded into trucks and transported to the Wasco County Landfill for disposal. Material was hauled to the landfill between August 14 and September 19, 2008. Table 12 lists the material quantities transported to the landfill. The approved special waste application (see

KMB00006609

Appendix P) and the truck tickets are included in Appendix L2. A total of 1,200 tons of material were transported to the landfill for disposal.

Haul trucks were decontaminated prior to leaving the landfill. Decontamination reports are included in Appendix G2.

5.5 Demobilization

Demobilization included removal of equipment and temporary facilities and cleanup of the project site. These activities are summarized as follows:

- October 10, 2008 – Removed east railroad crossing
- October 13, 2008 – Removed break area
- October 14, 2008 – Removed west railroad crossing
- October 15, 2008 – Removed temporary fence surrounding exclusion zone and storage area; completed fire hydrant use (dust control water); and graded temporary fence line
- October 16, 2008 – Removed storage container from site
- November 13, 2008 – Removed silt fence at elevation 10 prior to river rising

Construction equipment was decontaminated prior to demobilization. Decontamination reports are included in Appendix G2.

5.6 Construction Deviations from the Design for Wheeler Bay Shoreline Stabilization

The project was completed in accordance with the design documents. Some portions of the project were constructed differently than the design documents to more effectively achieve the RAOs. These deviations generally fall into two categories: changes to the final design, or additions to the final design. In all cases, deviations were approved by the Port and USEPA through the use of CCs or RFIs. In addition, there were cases where clarification to the design occurred during construction and was documented with an RFI. Relevant clarifications, even if no deviation occurred, are documented in this section. Deviations and clarifications from the original design are discussed below:

- CC-1.1, Relocate Electrical and Telephone Utilities at Top of Bank – The original design did not identify the presence of utilities along the top of the bank within the project area. This change included removing and replacing the existing telephone

KMB00006610

and electrical lines to locations outside the project grading area. Electrical product specifications were included in the submittals as listed in Appendix P. The utility relocation work was completed between August 18 and September 10, 2008. On October 15, a 12-inch riser was added to the telephone handhole to accommodate placement of the Port-supplied topsoil (see CC-7, below).

- CC-3, Remove Fire Boat Access Structure – The original design called for removal of only the first section of walkway from the fire boat access structure. Upon removal of the walkway, the remaining structure was visibly unstable. CC-3 called for removal of all walkways and the removal of all piles located above elevation 10 feet. Removal of the pier progressed as follows:
  - The Fire Boat Pier at Wheeler Bay consisted of a five-span (designated for the purpose of this report as Spans 1 through 5 from the shore outward) walkway structure extending from the top of the bank out into Wheeler Bay (about 150 feet from the top of the bank). The first four spans were each about 20 feet. The walkway was constructed of concrete with a wooden railing. The final span (the "ramp") was about 70 feet and consisted of a wooden walkway pinned at the shore end to allow the walkway to pivot, rising and falling with changes in the river level. The dock had long been removed, so the river end of the ramp was simply supported by resting on a loop of cable. The walkway was supported at the top of the bank and by five wooden pile bents with two piles per bent (designated for the purpose of this report as Bents 1 through 5 from the shore outward). Bents 1 and 2 were located above elevation 10 feet. Bent 3 was near elevation 8 feet, and Bent 4 was near elevation 5 feet. Bent 5 was located in the water below elevation 0 feet. All piles and wood structures appeared to be pressure-treated.
  - Span 1 had partially collapsed prior to beginning construction. In accordance with the original design, it was removed during the week of August 11, 2008.
  - The remainder of the structure was removed on August 18, 2008, between 07:45 and 11:30. At the time of the work, the water was near elevation 3 feet.
  - Spans 2 through 4 and Bents 1 and 2 were demolished and removed using the large excavator. The piles for each bent were pulled using the large excavator.
  - To remove Span 5 (the ramp), two excavators were used reaching from the shore. No equipment entered the water. During setup, the subcontractor determined

KMB00006611

that the ramp could not be removed without destabilizing Bents 3 and 4. The piles for these bents were removed.

- After removal of Bent 4, the land end of Span 5 was resting on the ground (the water end continued to rest on the cable loop). The subcontractor positioned the two excavators on either side of the ramp and attempted to remove it intact. However, as the ramp was pulled toward land, it broke apart, fell, and caught the support cable in its descent. The force of this fall broke the two piles of Bent 5. The ramp fell at the water line, shoreward of a row of piles near elevation 0 feet, and the broken piles from Bent 5 landed in the water several feet from the water line. The ramp and broken piles were immediately removed to the shore. After removal of the broken piles, a slight sheen (originating where the broken ends of the piles contacted the water) and turbidity were visible in the water at the point of the ramp's fall. No sheen was observed at the location of Bent 5. An absorbent boom and absorbent pads were laid to contain the sheen (see Section 7.1.1.4).
- The Port was immediately notified of the activities. Anchor was on-site shortly thereafter and took water quality measurements (see Section 7.1.1.4).
- On the afternoon of August 18, 2008, at low tide, absorbent pads were used to remove observed spots of sheen on the sand. No turbidity was observed.
- At 0700 on August 19, 2008, no sheen or turbidity was observed at the location of the former Fire Boat Pier. No sheen was observed thereafter.

- CC-5, Revise Grading in Slope Transition Area Near Station 7+36 – The original design called for a rapid transition from a 3H:1V slope to a 2H:1V slope in the vicinity of Station 7+36. However, a manhole and storm drain are present near the top of slope between Stations 7+00 and 7+36, and the top of slope between Stations 7+36 and 8+20 was steeper than 2H:1V. The transition area was revised as follows:
  - The slope above Station 7+36 was flattened to 2H:1V
  - The 3H:1V slope ends at Station 7+00 and the transition to the 2H:1V slope occurs gradually between Stations 7+00 and 7+36
- CC-7, Place Port-Supplied Topsoil Along Top of Bank – Prior to the project, the Port removed existing topsoil and landscaping from the top of the bank along Wheeler Bay. The topsoil was stockpiled off the project site. During the project, the Port requested that the Wheeler Bay stabilization contractor replace the Port's topsoil

KMB00006612

along the top of the bank after completion of the stabilization project. On October 10, 2008, the topsoil was placed between Stations 0+00 to 8+20, from the top of the bank back 20 feet. The Port then re-installed plantings in this area.

- CC-8, Grade Top of Bank – After placement of the Port-supplied topsoil, a low area existed between the topsoil and the railroad. The Port requested that excess material imported for Habitat Cover be used to fill the low area. On October 13 and 14, 2008, the low area was filled so that the finished grade slopes approximately one-half percent away from the railroad.
- RFI#12, Select Fill Did Not Meet Specification – The select fill proposed for the project was low on sand-size particles and, therefore, it did not meet the specification (Appendix E of the DAR, Anchor 2008a). However, the only loss of function from this deficiency was the capacity to effectively retain the underlying subgrade sand. As documented in RFI#12, the select fill was suitable for use provided a geotextile fabric was placed between the subgrade and select fill. The use of a geotextile was added to the project.
- RFI#14, Initial Habitat Material Did Not Meet Specification – Approximately 150 lineal feet of the project was completed with material meeting the Habitat Cover specification (Appendix E of the DAR, Anchor 2008a) except that the material was angular rather than rounded. The angular material was graded to the top of the armor prior to placing Habitat Cover meeting the specification. Angular material originally intended for Habitat Cover was approved for use as select fill.
- RFI#17, Jute Matting Installation – The project Drawings and Construction Specifications (DAR Appendices D and E, respectively, Anchor 2008a) had contradicting instructions for installation of the jute matting. This RFI was used to clarify that the method indicated on the Drawings (jute matting overlapping 12 inches and held in place with 12-inch staples) was the correct method.
- RFI#18, Demarcation Layer Below Trees – The Construction Specifications (Appendix E of the DAR, Anchor 2008a) called for cutting an "X" in the demarcation layer beneath each tree. This specification originated under the premise that a fabric would be used as the demarcation layer and cutting the fabric would be necessary to allow free growth of the tree roots. However, the actual demarcation layer has a net-like structure with 1.75-inch by 1.75-inch holes. These holes provide sufficient

KMB00006613

openings in the demarcation layer for roots to penetrate freely into the underlying soil, so cutting the demarcation layer at each tree was not required.

KMB00006614

6 SUMMARY OF MONITORING AND CONSTRUCTION QUALITY ASSURANCE ACTIVITIES

Monitoring and construction QA activities were conducted during the Phase I Removal Action construction according to the RAWP (Anchor 2008b) and DAR (Construction Quality Assurance Plan [CQAP], Appendix A, Anchor 2008a). Specific monitoring and QA activities and results are described below. These results were used to verify that the construction design had been implemented as described in the DAR and RAWP and that Removal Action performance standards were attained, as described in Section 8. The water quality monitoring activities conducted in accordance with the WQMCCP (USEPA 2008 and Appendix R) and Water Quality Monitoring Plan (WQMP; Appendix H of the RAWP, Anchor 2008b), as well as activities required by the Biological Opinion (NMFS 2008 and Appendix S), are described in Section 7.

6.1 Visual Monitoring Results

Because all of the Wheeler Bay construction activities occurred out of the water in the dry, a number of visual monitoring activities occurred. Visual monitoring was conducted at least daily for ongoing project activities. In all cases, visual monitoring either confirmed compliance with the project specifications or corrections were made to bring the issue into compliance. Visual monitoring included the following:

- Site Conditions – Visual monitoring was used to verify that erosion-control features were installed prior to site work. The perimeter fence and signage were observed at least daily to verify that they were in working order or corrected if necessary.
- Shoreline Stabilization – Earthwork activities were controlled with progress surveys. In addition, visual monitoring included checks of slope grades with a hand level, verification of material layer thicknesses with a tape measure, verification of general material characteristics of each fill type, and qualitative confirmation of compaction using a hand probe. Visual monitoring was used to verify that debris removed from the site was free of soil.
- Vegetation and Groundcover – Mulch thicknesses were verified with a tape measure. Placement of erosion-control fabrics, habitat logs, LWD, and hydroseed were visually verified. Spacing of trees was spot-checked using a tape measure.
- Environmental Protection Measures – The silt fence was observed at least daily and repaired as needed (see Section 5.2.4). The project site, stockpiles, and the adjacent paved road were observed at least daily and after rain events for evidence of erosion

KMB00006615

or tracking of sediment. No substantive erosion events were observed throughout the project. The adjacent Wheeler Bay was observed for turbidity or sheen on at least a daily basis. Except for the incident associated with removal of the Fire Boat Pier (see Section 5.6), there were no incidences of observed sheen or turbidity. Equipment was observed constantly for evidence of leakage, excessive noise, or excessive exhaust. Dust monitoring is discussed in Section 6.9.

6.2 Bathymetry Surveys

6.2.1 Dredging

Daily bathymetry surveys were performed by HME to compare to the design dredge depths and determine progress made by dredging. A final post-dredge survey of the Berth 411 "Plus" area was completed by DEA on August 26, 2008, to confirm HME's progress surveys. The survey results showed minimal additional dredging was needed in Berth 411 and in the area north of Berth 414 to meet target design elevations. The Port and USEPA agreed to leave the remaining material above design grade in Berth 411 (approximately 30 cy) because the sediment was dense and appeared to be native material due both to the gradation (sandy with gravels) observed and the fact that it was standing at an angle steeper than 2H:1V. A post-dredge survey of the Berth 410 area was completed by DEA on September 8, 2008. The survey showed additional dredging needed in the Berth 410 area. Another post-dredge survey was performed by DEA on October 10, 2008, after dredging to remove identified high-spots was performed in Berth 410 and the area north of Berth 414, and the results indicated that the target design elevations had been attained.

6.2.2 Capping

HME performed a pre-cap survey on September 12, 2008. Daily progress bathymetry surveys were also performed by HME. HME performed a bathymetric survey on September 12, 2008, after placement of the organoclay was completed and on October 1, 2008, after the armor installation was completed. DEA performed a bathymetric survey of the in-water portion of the cap on October 10, 2008. As discussed in Section 4.5.1, due to the fact that some areas of rock buttress in front of the timber bulkhead were lower than shown on the construction drawings, an additional survey was performed by DEA on October 21, 2008, in part to confirm short-term stability of the timber bulkhead.

KMB00006616

6.3 Borrow Source Material Characterization Documentation

6.3.1 Terminal 4 Sand Layer and Capping Material

Borrow source materials from the sand layer and capping activities were tested for grain size and chemical quality by HME and compared to criteria specified in Table 2 of the RAWP (Anchor 2008b). Results are listed in Appendix B1. Analytical laboratory reports and data validation reports are included in Appendices I1 and J1, respectively. The initial chemistry testing results for the sand layer and Base Cap Type 3 materials were incomplete—missing analysis for oxychlordane. The Port decided to go ahead with placement of the material. All other related chemicals of concern were non-detect or below the criteria. USEPA concurred with placing the material, noting that the Port would need to assume the risk if the oxychlordane results were above the criteria. The sample was reanalyzed and oxychlordane was not detected.

6.3.2 Wheeler Bay Shoreline Stabilization Material

The soil materials imported for the armor section were select fill (3-1/2-inch-minus crushed gravel and sand and 1-1/2-inch-minus crushed gravel and sand) and Class 100 armor (approximately 3-inch to 10-inch rock). Based on visual observation, the armor met the project specifications. The select fill was tested for grain size and chemical quality (see Appendix P). Results are listed in Appendix B2. Based on the grain size results, the select fill was slightly deficient of sand-size particles, but the material was approved for use on the project provided filter fabric was placed between the subgrade and the select fill (RFI #12; see Section 5.6). The select fill met the chemical quality criteria in the project specifications.

The habitat cover consisted of a well-graded mix of sand and rounded gravel with no silt and a maximum particle size of 2 inches. The habitat cover was tested for grain size and chemical quality (see Appendix P). Results are listed in Appendix B2. Based on the results, the habitat cover met the grain size and chemical quality criteria in the project specifications.

Topsoil consisted of a 2:1 ratio (by volume) mix of sandy loam and compost. The topsoil was tested for grain size and chemical quality (see Appendix P). Topsoil chemical

KMB00006617

quality met all criteria in the project specifications except for butylbenzylphthalate: the detected concentration was 21 micrograms per kilogram (µg/kg) versus the criterion of 20 µg/kg. USEPA approved use of this topsoil (Submittal No. 7). The grain size results indicated that the soil portion of the topsoil did not meet specifications. Additional sand was needed to bring the results within specifications. Sand used in the Habitat Cover (already chemically tested and approved for use on the project) was added to the topsoil mix and a sample was tested for grain size (see Appendix P). The resulting material met project specifications and was approved for use. Results for approved materials are listed in Appendix B2.

6.4 Transloading Facility Soil Monitoring Results

In accordance with the TDP (Appendix D1 of the RAWP, Anchor 2008b), soil samples were collected at and near the transloading facility before operations began (August 18, 2008), during operations (September 2 and 8, 2008), and after operations were completed (September 12, 2008). The six sampling locations are shown on Figure 10. Location S-01 represents conditions at the entrance to the transloading facility. Existing fine sandy silt and crushed stone was sampled at Location S-01. Locations S-02 and S-03 represent conditions near the exit of the facility. Surrogate sample locations were set up at these locations per the sampling plan because the facility is paved right up to the retaining wall. The surrogate sample locations were glass baking pans filled with purchased "All Purpose Sand." Location S-04 was intended to represent background conditions at the facility and was located well off the truck route used for the transloading operations. Bernert's Barge Maintenance uses this unpaved portion of the property for staging material and equipment but, as planned, this location was as removed as possible from transloading operations. Locations S-05 and S-06 were located south of the entrance to the transloading facility, in the direction of travel for the loaded trucks. Sampling Locations S-05 and S-06 were at the bottom of the ditch adjacent to the road. Existing fine sandy silt and crushed stone were sampled at Locations S-04 through S-06. Transloading facility soil sampling data sheets are provided in Appendix C3.

Based on the results of the soil sampling, the operation of the transloading facility resulted in no tracking of contamination on-site or from the site to River Road. The analytical data are summarized in Table 16. Scattered detections of low concentrations of PAHs were

KMB00006618

reported in the two locations near the exit from the transloading facility (S-02 and S-03). Low concentrations of phthalates (mostly flagged as associated with laboratory blank contamination) were also reported in these two samples. TPHs were not detected in any of the samples from these locations. The highest concentrations of PAHs were found on the side of River Road (S-05) in the background sampling round, before operations began at the transloading facility. The second and third highest concentrations were found at the on-site background location (S-04) and the other River Road location (S-06) before operations began. At all three of these locations, concentrations remained the same or dropped as the project progressed.

The concentrations of metals (cadmium, lead, and zinc) remained mostly consistent over the course of the project. Exceptions to this generalization are that concentrations of lead dropped from 39.9 to 16.9 milligrams per kilogram (mg/kg) at the background location (Location S-04) and rose from 36.2 to 82.3 mg/kg at one of the locations on River Road (S-05). All of the concentrations measured for cadmium, lead, and zinc are well below health-based criteria (USEPA Region 6 residential soil screening levels).

6.5 Transportation and Disposal Documentation

Monitoring of transportation and disposal included documentation of these activities throughout the construction process. Daily Construction Reports were used to document visual observations of operations at the transloading facility, and a disposal log was maintained throughout operations. The Daily Construction Reports and the updated disposal log were provided to USEPA throughout the project and the final disposal logs for sediment/debris and water are provided as Tables 7 and 8, respectively.

The operation of the transloading facility was performed in accordance with the TDP (Appendix D1 of the RAWP, Anchor 2008b). Sediment and debris were offloaded from transfer barges into a steel mixing box using a crane-mounted dredge bucket, and dried sediment was transferred from the mixing box to trucks using an excavator. Free water was pumped from the transfer barge to a tank on the support barge and then removed from the tank in vacuum trucks for disposal by Waste Connections. Cellulose-based drying agent was added to the sediment to absorb residual free water on the transfer barge and in the mixing box. Trucks and pups were lined with sheet plastic prior to loading sediment and

KMB00006619

were covered prior to leaving the transloading facility. On the first day of offloading, water was observed dripping from one truck; however, it was raining heavily that day and is unclear if the water was related to the rain event or the consistency of the material. As an added safety measure, additional truck lining and drying agent were used as necessary. No truck leakage was observed throughout the remainder of the project.

The entire operating area of the transloading facility was paved, and all truck-loading operations were performed on a disposable geotextile. An attendant removed any incidental spilled sediment (spills of small quantities, between 1 and 25 cubic centimeters, of material generally resulted from splashing if a large rock or piece of debris was loaded into a truck holding soft sediment) from the geotextile and the sides of the truck and pup before the truck left the loading area. Additional inspections of the exterior of the truck bed and pup were typically performed by the driver and by Anchor. HME removed additional material if any was found.

Although no tracking of contaminated materials was observed, trucks unloading clean drying agent would generally drive over some of the clean material while unloading and get drying agent on the rear tires. The tracking of this material on-site was noted, and the material was removed using a street sweeper kept on-site for this purpose.

6.6 Batch Discharge Sample Monitoring Results

Dredged sediment that was placed on sealed barges during construction generated elutriate that was dewatered into a water management lash barge for future batch discharge into a City sanitary sewer manhole. The water management barge was a four-module lash unit consisting of four watertight compartments. Eight water samples were taken from the compartments on four days prior to discharge and submitted for laboratory analysis of parameters specified by BES. Each compartment was sampled twice, with BES performing analysis on one set of samples and HME performing analysis on the other set of samples. Concentration limits of analytes were specified by BES. The batch discharge water sample results and BES batch discharge criteria are provided in Table 17. No exceedances of criteria were observed.

KMB00006620

6.7 Construction Equipment Decontamination Observation Results

6.7.1 Terminal 4 Dredging and Capping

Construction equipment decontamination procedures were observed on six occasions by Anchor monitoring personnel. The decontamination events observed are summarized below. The construction equipment decontamination observation reports are provided in Appendix G1:

- *Chetco* barge decontamination: Decontamination was observed and documented on September 9, 2008. The *Chetco* barge was swept using a street sweeper and subsequently power-washed. Rinsate and sediment were collected and disposed of appropriately.
- *Umpqua* barge decontamination: Decontamination was observed and documented on September 12, 2008. The *Umpqua* barge was swept using a street sweeper and subsequently power-washed. Rinsate and sediment were collected and disposed of appropriately.
- *Reedsport* barge decontamination: Decontamination was observed and documented on September 29, 2008. The *Reedsport* barge was swept using a street sweeper and subsequently power-washed. Rinsate and sediment were collected and disposed of appropriately.
- Transloading facility transloading box decontamination: Decontamination of the transloading box occurred on October 10, 2008, during demobilization of the transloading facility in The Dalles. The transloading box was scraped and power-washed. Sediment and rinsate were pumped into 55-gallon drums for future disposal.
- Water management lash barge decontamination: Decontamination of the lash barge occurred over 4 days, from October 14 to 17, 2008. Anchor monitoring personnel were on site on October 16, 2008, to observe decontamination procedures. HME reported that all four holds of the lash barge were power-washed and rinsate was pumped to vacuum trucks for future disposal.
- Barge 47 decontamination: Decontamination was observed and documented on October 22, 2008. Barge 47 was swept using a street sweeper and subsequently power-washed. Rinsate and sediment were collected and disposed of appropriately.

KMB00006621

6.7.2 *Wheeler Bay Shoreline Stabilization*

Construction equipment was decontaminated prior to demobilization. Decontamination reports are included in Appendix G2.

6.8 Cultural Resources Monitoring

Archeological Investigations Northwest, Inc. reviewed the Port's T4 Archaeological Monitoring Protocol dated December 2006 and determined that there would be specific coordination and monitoring requirements for the proposed Phase I Removal Action if native soil would be removed within archaeological sensitivity areas in Slip 3 and Wheeler Bay. Further evaluation of Phase I Removal Action activities within Slip 3 and Wheeler Bay concluded that no native soils would be disturbed within the archaeological sensitivity areas as part of the construction activities, as described below:

- Dredging in Slip 3 within the archaeological sensitivity area will not encounter native material. This conclusion was based on the cores taken in the Phase I dredging areas as summarized in Appendix G of the DAR (Anchor 2008a). The core logs for cores collected within the Berth 410 dredging area that overlaps with the archaeological sensitivity area indicated that only fill material would be dredged (dredging to -39.3 feet NGVD with 2 feet of allowable overdredge to -41.3 feet NGVD). This area is within the Port's regular maintenance dredging area. Based on the cores taken in the dredge area on the south side of the Slip that overlaps the archaeological sensitivity area (T4-PI-08), only fill material was expected to be dredged (dredging to -42 feet NGVD with 1 foot of allowable overdredge to -43 feet NGVD).
- Excavation associated with the Wheeler Bay shoreline stabilization work was not expected to encounter native soil in areas that overlapped with the archaeological sensitivity area. Based on information provided in the Slip 1 upland RI, the fill beneath the Wheeler Bay area is greater than 25 feet thick. All of the work occurred above elevation 10 feet NGVD with the top of bank at approximately elevation 30 feet NGVD, so all of the excavation work was approximately 20 feet deep or less within the fill.

Based on this information, no archaeological monitoring was planned for the Phase I Removal Action construction activities, unless it was determined in the field that dredging

KMB00006622

to additional depths extending into the native soils was necessary to complete the dredging activities.

There were no instances where dredging or excavation depths were altered in the field during construction that extended into native soils within the archaeological sensitivity areas. Therefore, archaeological monitoring was not required or conducted during the Phase I construction.

6.9 Health and Safety Monitoring Results

Primary health and safety concerns during the project were physical hazards (e.g., slips, falling into the water, or construction equipment). Procedures to address these concerns were identified in the Health and Safety Plan (HASP; Appendix J of the DAR, Anchor 2008a), and reinforced with daily safety meetings at the beginning of the work shift.

6.9.1 Wheeler Bay Health and Safety

Monitoring of health and safety concerns was addressed as follows according to the Wheeler Bay (ACA) HASP (Appendix A2 of the RAWP, Anchor 2008b):

- Observation for compliance with personal protective equipment (PPE) requirements – The Contractor's Project Manager verified that these requirements were addressed at all times. Compliance was documented in the Construction Weekly Progress Reports (see Appendix A).
- Documentation of incidents – Each daily report included documentation of health and safety incidents, if any. On August 18, 2008, lightning struck on or near the Wheeler Bay shoreline stabilization work site. No one was injured and the subcontractor implemented their lightning response strategy—all personnel remained inside a motor vehicle until 30 minutes had passed after the last thunder was heard.
- Observation for dust – For the Wheeler Bay shoreline stabilization work, throughout the project all contractor personnel observed for indicators of potential dust hazards. These indicators included visible drying of previously wetted surfaces, activities known to cause dust generation (e.g., soil excavation, grading, etc.), or presence of visible dust in the air. Any time that any one of these indicators was observed, the water truck was used to wet the soil surface.

KMB00006623

Use of the water truck for dust control during Wheeler Bay shoreline stabilization work was documented in the Construction Weekly Progress Reports (see Appendix A). Overall, there were no substantive observations of visible dust in the air, as described by the monitoring results below. Dust monitoring stations were established at two locations for the Wheeler Bay shoreline stabilization work to verify that dust levels were within action levels. One station was located near the west end of the work area at Station -0+23. A second station was located at the edge of the project site adjacent to the Kinder Morgan Bulk Terminals facility, the nearest neighbor to the project site, at Station 7+48. In general, the monitors were operated during working hours when weather permitted (e.g., the monitors were not deployed during periods of rain or fog that interfere with or invalidate results). In some cases, the monitors malfunctioned and data were not collected. The air monitoring logs were included with the daily reports, and copies are included in Appendix H2. The particulate action level identified in the Wheeler Bay site-specific HASP (Appendix A2 of the RAWP, Anchor 2008b) was 500 micrograms per cubic meter ($\mu g/m^3$) and was not exceeded. Detected particulate levels were typically less than 100 $\mu g/m^3$ and ranged from 0.7 to 485 $\mu g/m^3$.

6.9.2 *Terminal 4 Dredging and Capping Health and Safety*

Monitoring of health and safety concerns was addressed as follows according to the Dredging and Capping (HME) HASP (Appendix A1 of the RAWP, Anchor 2008b):

- Observation for compliance with PPE requirements – The Contractor's Project Superintendent verified that these requirements were addressed at all times. Compliance was documented in the Construction Weekly Progress Reports (see Appendix A).
- Documentation of incidents – Each daily report included documentation of health and safety incidents, if any. No incidents were reported throughout the duration of the project associated with the dredging and capping activities.
- Dust monitoring was performed according to the Dredging and Capping Contractor Health and Safety Plan (CHASP; Appendix A1 of the RAWP, Anchor 2008b). Monitoring was performed before and during dredging activities on August 12, 2008. Monitoring was also performed before and during transloading

KMB00006624

activities at the transloading facility on August 18 and 21, 2008 (see Appendix H1). Monitoring results confirmed that dust levels during the construction activities were not significantly different that background dust levels and were substantially less than the action level of 1.50 milligrams per cubic meter (mg/m^3) specified in the CHASP. This monitoring and compliance was documented in the Construction Weekly Progress Reports (see Appendix A).

6.9.3 Terminal 4 Post-Dredging Dive Operation Health and Safety

A diving operation was conducted on September 17, 2008. Subcontract divers from Northwest Underwater Construction, LLC (NUC) performed a visual survey of the sand layer placed after dredging in Berth 411. Diving operations were performed according to the requirements in Section 3.3.2 of the HASP (Appendix J of the DAR, Anchor 2008a) and Dive Plan, except for the one deviation noted below. In addition to the HASP, a Diving Safety Manual and Dive Plan were prepared by the diving subcontractor and submitted to USEPA and the U.S. Coast Guard (USCG) for review and comment prior to dive operations.

There was one deviation from the Dive Plan that occurred during the dive event. Neoprene gloves were used in addition to (over) the specified nitrile gloves to provide additional protection from chafing of the dry suit. The neoprene gloves were disposed of after the dive, which is the same decontamination procedure specified in the Dive Plan decontamination standard operating procedure (SOP) as the procedure for the nitrile gloves.

KMB00006625

7 SUMMARY OF ACTIVITIES CONDUCTED IN ACCORDANCE WITH THE WQMCCP AND THE BIOLOGICAL OPINION

This section details the activities that were conducted during the Phase I Removal Action to comply with the terms and conditions outlined in the WQMCCP (USEPA 2008) and the Biological Opinion (NMFS 2008), as well as any approved deviations. These documents, along with documentation of the approved deviations, are provided in Appendices R (WQMCCP) and S (Biological Opinion). This section also provides the reporting requirements for each document.

7.1 WQMCCP Compliance

Water quality field and laboratory parameter monitoring at T4 and the transloading facility was conducted during dredging, offloading, and capping activities in accordance with the WQMCCP (USEPA 2008 and Appendix R) and WQMP (Appendix H of the RAWP, Anchor 2008b). Discrepancies between the two documents and a resulting protocol to use as a path forward were documented in a memorandum that the Port sent to EPA on August 5, 2008. This memorandum is provided in Appendix R and relates to water quality monitoring depths, water quality frequency, background water quality monitoring, and water quality monitoring locations.

The Wheeler Bay shoreline stabilization component of the Removal Action did not include in-water work, so no routine water quality monitoring other than visual observation was conducted. The exception being CC3, Remove fire Boat Access Structure, described in Section 5.6. Throughout the project, monitoring protocols were evaluated based on the field and laboratory results, and the intensity of monitoring was adjusted as authorized by USEPA.

A background water quality survey was conducted prior to construction on June 26 and 30, 2008, and July 2, 2008, according to procedures specified in the WQMP (Appendix H of the RAWP, Anchor 2008b). During this survey, three independent measurements (at the top, middle, and bottom water depths) were made at four stations on each of the 3 days. The background water quality results and 90th percentile calculations of those results are summarized in Tables 13 and 14. Details related to the pre-construction monitoring are provided in the Background Water Quality Data Report which is provided as Appendix M

KMB00006626

of this report. During construction at the T4 site, the 90th percentile calculations were updated with new data as they became available.

7.1.1 Terminal 4 Water Quality Monitoring Activities

Consistent with the WQMP (Appendix H of the RAWP, Anchor 2008b), field parameter monitoring (i.e., turbidity, temperature, DO, and pH) and laboratory parameters monitoring (i.e., total suspended solids [TSS], dissolved metals [cadmium, lead, and zinc] and PAHs [priority pollutant list]) were performed at T4. Figure 8 shows the locations of the water quality monitoring stations at the site. Field and laboratory parameter measurements were generally collected at three depths—3 feet below the surface, mid-depth, and 3 feet above the bottom. The water quality monitoring collection forms for T4 are provided in Appendix C1. These forms provide details of field observations including sampling times, weather conditions, water conditions, silt plumes, distressed or dying fish, and any other relevant anecdotal or unusual observations. Instrument calibration documentation for equipment used to collect water quality monitoring data is provided in Appendix R.

7.1.1.1 Sampling Frequency

Frequency of compliance monitoring was dependent on the implementation of either Tier I (high intensity) or Tier II (low intensity) sampling regimens, as summarized below for field and laboratory parameters:

Field Parameters:

- Tier I: Four rounds of compliance station sampling starting 1 hour after construction activities begin. If no exceedances detected during the first four rounds, reduce to one round of sampling for each 4-hour period of construction.
- Tier II: One round of sampling for each day of construction.

Laboratory Parameters:

- Tier I: Collection of daily water samples for laboratory analysis.
- Tier II: Collection of weekly water samples for laboratory analysis.

KMB00006627

7.1.1.2 Field Parameters

A summary of the sampling approach for collection of field parameters is provided below. This sampling approach did not change throughout the duration of the construction activities. Sample station descriptions are provided in Table 15 and are shown on Figure 8. At each sample station, parameters were taken at three depths – 3 feet from the surface, mid-depth, and 3 feet from the bottom.

- Background Station Sampling – Field parameters at the upstream background station were collected daily during construction activities. Data collected from this station were added to the pre-construction background dataset and were used to calculate a 90th percentile turbidity value that was updated daily and used as a basis for the trigger during construction.
- Compliance Monitoring – Field parameters were taken at three compliance stations (100 meters from the center of construction) and one 50-meter early warning station (50 meters from the center of construction) during all in-water construction activities. Exceedance of a trigger value for any field parameter except for turbidity at the 100-meter compliance stations resulted in implementation of additional best management practices (BMPs) as described in the WQMP (Appendix H of the RAWP, Anchor 2008b). In the event that turbidity values were greater than the trigger value at one or more of the three 100-meter compliance stations, field parameters were taken at the turbidity compliance stations (S3M-S, S3M-M, S3M-N) and one early warning station (S3M-E). Turbidity compliance stations S3M-S, S3M-M, and S3M-N were located 100 meters from the harbor line into the channel (Figure 8). Station S3M-E served as a turbidity early warning station and was located 50 meters from the harbor line. An exceedance of the turbidity trigger value at S3M-S, S3M-M, or S3M-N resulted in the implementation of the response action flow chart described in Figure 4 of the WQMP (Appendix H of the RAWP, Anchor 2008b). Because Berth 414 is located in the main channel of the Willamette, the 100-meter compliance stations also served as turbidity compliance stations in place of the S3M stations.

KMB00006628

Results

The Tier I monitoring specified at the site included four rounds of field parameters sampling beginning 1 hour after the start of construction activities. Turbidity results at the 100-meter sampling locations exceeded the trigger values on a number of occasions during dredging. Therefore, additional monitoring at the turbidity compliance locations was required. As such, soon after the project began, the Port and USEPA agreed that only three rounds of field parameters would be required within the first 4-hour period, due to the length of time needed to complete each round.

Results from the field parameter monitoring conducted during construction are provided in Appendix D1 and are compared to the triggers (Table 3). Additionally, the field parameter results and comparisons to triggers are also provided in Appendix A. No exceedances were identified for DO, temperature, or pH throughout the duration of the Phase I Removal Action project. Turbidity values exceeded the trigger value on two occasions during dredging activities, as described below:

- On August 12, 2008, a slight turbidity exceedance (0.8 Nephelometric Turbidity Units [NTU]) occurred 100 meters from the Berth 414 dredging operation. The exceedance was confirmed by retaking the measurement at the location of the exceedance and by re-checking the turbidity at the background station. The confirmed exceedance was reported at 14:30. At that time, Port representative Nicole LaFranchise and Anchor representative John Verduin were notified. In addition, the water quality monitoring field crew conferred with USEPA representative Andrew Somes. The group discussed additional field measurements that could be taken to confirm whether the exceedance was construction-related. Dredging in Berth 414 was completed at 14:40 and water quality monitoring was concluded at that time. Per USEPA's request, Anchor staff spoke with HME to determine what additional BMPs could be employed, or what BMPs could be implemented more effectively moving forward to prevent exceedances such as the one observed on that day. Based on discussions with HME, the following additional BMP was to be implemented moving forward during the project:

KMB00006629

- Reduce the amount of material in each bucket load. The design dredge depth at Berth 414 was essentially the depth at which HME would reach using the dredging bucket, provided that a relatively full "bite" was taken each time. In the future, despite the engineering constraints, the dredge operator would be instructed to take smaller "bites" with the dredging bucket. Subsequent monitoring that occurred on August 13, 2008 demonstrated no turbidity exceedances.

- Elevated turbidity readings were also reported on September 10, 2008, at the end of a monitoring round conducted after to remove some identified remaining high-spots occurred in Berth 414. The elevated turbidity readings were due to tug activity occurring outside of the RAA.

No field parameter trigger values were exceeded during capping activities throughout the entire project.

7.1.1.3 Laboratory Parameters

A summary of the sampling approach for collection of laboratory samples is provided below. This sampling approach did not change throughout the duration of the construction activities except in instances where laboratory sample collection was not required per agreements negotiated between the Port and USEPA.

When laboratory sampling was required, a total of four samples were collected daily: one from the background station (BG-01 or BG-01R) at the depth with the highest measured turbidity, and one sample from each of three depths at the compliance station 100 meters from the center of construction with the highest turbidity. During Tier I sampling, samples were taken from the station with the highest turbidity during a prescribed monitoring round. The specific round designated for sampling rotated on a daily basis to prevent sample collection from the same round on any two consecutive days, and to achieve more representative results. Sample station locations are depicted on Figure 8 and sample station descriptions are provided in Table 15. Due to very low and/or undetectable results

KMB00006630

for project COCs, sampling protocols were modified on a case-by-case basis with the approval of USEPA.

Results

There were no exceedances of criteria for laboratory parameters during the Phase I Removal Action construction activities as shown in the results presented in Appendix D1.

All laboratory results were provided to the Port within very strict turnaround times as described in the Laboratory Communication Plan submitted to EPA on July 28, 2008. No issues with laboratory turnaround times occurred throughout the duration of the Removal Action.

7.1.1.4 Visual Monitoring

Visual monitoring was conducted in accordance with the WQMCCP (USEPA 2008 and Appendix R) and WQMP (Appendix H of the RAWP, Anchor 2008b) for turbidity plumes. No turbidity plumes were observed during dredging activities. Visual monitoring only detected two turbidity plumes during organoclay capping activity in Slip 3. These plumes dissipated rapidly and no exceedances of criteria were observed at the 100-meter compliance boundary.

One visual observation associated with removal of the Fire Boat Pier resulted in water quality monitoring in Wheeler Bay (see Section 5.6). When removing the pier, the ramp fell at the water line, shoreward of a row of piles near elevation 0 feet, and the broken piles from Bent 5 landed in the water several feet from the water line. The ramp and broken piles were immediately removed to the shore. After removal of the broken piles, a slight sheen (originating where the broken ends of the piles contacted the water) and turbidity were visible in the water at the point of the ramp's fall. No sheen was observed at the location of Bent 5. An absorbent boom and absorbent pads were laid to contain the sheen. The Port was immediately notified of the activities. Anchor was on-site shortly thereafter and took water quality measurements. Water quality field parameters were measured at 50 meters

KMB00006631

and 100 meters from the location of the construction activity. No exceedances for field parameter criteria were noted at either location.

7.1.1.5 Approved Deviations to the WQMCCP

- On August 19, 2008, USEPA approved the Port's proposal to reduce the monitoring frequency to once every 4 hours if no exceedance was identified following four consecutive hourly events. Furthermore, if the same construction activity occurred the next day, the sampling frequency would be maintained at once every 4 hours. The rationale being that when work started in a new area or construction activities changed, the Port would perform hourly sampling at the start, but then if no exceedances were observed, monitoring could be reduced to once per 4 hours for the duration of that activity, even if that activity continued for more than 1 day. This protocol was discussed at length with USEPA, and is consistent with other water quality certifications and similar past projects in Anchor's experience.
- On August 26, 2008, USEPA approved a reduction in water quality monitoring to the Tier II level for the Slip 3 dredging activities. This approval was based on 12 days of field parameter and 9 days of grab sample laboratory results, which demonstrated that there were no adverse impacts to water quality due to dredging activities. Monitoring remained on a Tier II schedule until capping began at the head of Slip 3, which required monitoring to revert to the Tier I schedule.
- On September 18, 2008, the Port requested to reduce the monitoring frequency to Tier II after receiving three analytical reports with results below project criteria for capping activities at the head of Slip 3. USEPA approved the monitoring frequency reduction on the same day and monitoring continued for the duration of the project at the Tier II frequency.
- The background station used during construction was changed mid-way through the project. The details and rationale for this change are provided below. From August 12 to 21, 2008, BG-01 was used as the background station. BG-01 is shown on Figure 8 and was located 300 meters upstream of Slip 3 and 10 meters channel-ward of the Toyota pier and harbor line. The depth at BG-01 was approximately 43 feet. On August 21, 2008, turbidity at

KMB00006632

the bottom depth of BG-01 was recorded at 4.9 NTU. Concurrently, the turbidity at the bottom depth of the south (upstream) turbidity compliance station was recorded at 11.0 NTU. The depth at this station was approximately 58 feet. Due to a downstream current, it is unlikely that the elevated turbidity readings were related to the construction activity. The Port recommended to USEPA that the background station be relocated 100 meters channel-ward of the Toyota pier to better represent the depths present at the turbidity compliance stations. USEPA accepted the Port's recommendation, and on August 22, 2008, the background station was relocated to station BG-01R located 300 meters upstream of Slip 3 and 100 meters channel-ward of the Toyota pier and harbor line (Figure 8). The approximate depth at the revised background station, BG-01R, was 72 feet.

- On August 15, 2008, USEPA directed the Port to select chemistry sampling times randomly throughout the day as dredging occurred, not just during the first round of monitoring. USEPA also directed that the samples could be selected subjectively to occur when elevated turbidity (e.g., a turbidity exceedance at the point of compliance) was observed during one of the monitoring events. The Port and USEPA agreed that the chemistry sampling would occur such that the monitoring round during which the chemistry sample was taken would be moved back one round for each subsequent day of dredging (i.e., on the first day of dredging, the chemistry sample would be taken during the first round of monitoring; on the second day of dredging, the chemistry sample would be taken during the second round of monitoring, etc.). Once the sample was taken from the last monitoring round (typically the fourth round), the rotation would move back to selecting the chemistry sample during the first round of monitoring.
- On August 19, 2008, USEPA approved the Port's proposal to remove the requirement to analyze for metals during work in the Berth 410 dredge area. The proposal was made based on the fact that in the WQMP (Appendix H of the RAWP, Anchor 2008b), the Port had selected parameters for each subarea to monitor based on the extent of exceedances of the PEC criteria in the sediment at each subarea. Metals concentrations in the Berth 414 and Berth 410 subareas were lower than in the other subareas.

KMB00006633

7.1.2 Transloading Facility Water Quality Monitoring Activities

Consistent with the WQMP (Appendix H of the RAWP, Anchor 2008b), field parameters (i.e., turbidity, temperature, DO, and pH) were collected during offloading at the transloading facility. Figure 9 shows the location of each water quality monitoring station at the site. The water quality monitoring forms for the transloading facility are provided in Appendix C2. Similar to the forms for T4, these forms provide details of field observations including sampling times, weather conditions, water conditions, silt plumes, distressed or dying fish, and any other relevant anecdotal or unusual observations. Instrument calibration documentation for equipment used to collect water quality monitoring data is provided in Appendix R.

7.1.2.1 Monitoring Frequency

Similar to the T4 site, monitoring frequency at the transloading facility was dependent on the implementation of either Tier I (high intensity) or Tier II (low intensity) sampling regimens, as summarized below for field parameters:

- Tier I: Four rounds of compliance station sampling starting 1 hour after construction activities begin. If no exceedances detected during the first four rounds, reduce to one round of sampling for each 4-hour period of construction.
- Tier II: One round of sampling for each day of construction.

7.1.2.2 Field Parameters

A summary of the sampling approach for the collection of field parameters is provided below. This sampling approach did not change throughout the duration of the construction activities. Sample station descriptions are provided in Table 15. At each sample station, parameters were taken at three depths – 3 feet from the surface, mid-depth, and 3 feet from the bottom. Pre-construction water quality sampling was not conducted at the transloading facility. Trigger criteria for related parameters were determined using the daily background station field parameter results.

- Background Station Sampling – Field parameters were collected at the upstream background station, located 50 meters upstream from the

KMB00006634

offloading barge during construction activities. Data collected from this station was used to calculate trigger criteria for downstream results.

- Compliance Monitoring – Field parameters were taken at three 100-meter compliance stations (100 meters from center of the off-loading barge) during all in-water construction activities at the transloading facility. The frequency of compliance monitoring rounds was dependent on the implementation of either Tier I (high intensity) or Tier II (low intensity) sampling regimens as described below:

Results

The field parameter results at the 100-meter compliance locations did not exceed trigger criteria at any point during the monitoring program.

Results for field parameters collected during construction are provided in Appendix D2 and are compared to the triggers (Table 3). Additionally, the field parameter results and comparisons to triggers are also provided in Appendix A. No exceedances were identified for DO, temperature, pH, or turbidity during the monitoring events for the duration of the transloading portion of the project. One variance did occur on August 21, 2008, when the rope attached to the Van Dorn sampler was caught in the boat's propeller and the Van Dorn sampler was lost. Monitoring was suspended for 4 hours and depth 3 at the Middle Station and all depths at the North Station were not taken until a new Van Dorn sampler was delivered later that day.

7.1.2.3 Approved Deviations from the WQMCCP

- On August 20, 2008, after 3 days without exceedances at the compliance stations, monitoring was reduced to a Tier II schedule. Monitoring was further reduced to one round per week after USEPA approval on August 26, 2008. This approval was based on 8 days of field parameter sampling, where water quality results demonstrated that there were no adverse impacts to water quality due to transloading activities.

KMB00006635

7.1.3 Best Management Practices Employed During Phase I

The WQMCCP (USEPA 2008 and Appendix R) requires the Port to provide a list of the BMPs that were used during project implementation, when and why the BMPs were used, and an assessment of the effectiveness of those BMPs. General BMPs and activity-specific BMPs were used on a daily basis as determined through the design process and development of the RAWP (Anchor 2008b). A description of additional BMPs that were implemented in addition to the general and activity-specific BMPs is also provided below where appropriate. A complete list of all the BMPs and environmental protection measures that were used during the Phase I Removal Action are provided in a Summary of Relevant Environmental Protection Measures and BMPs memorandum provided in the Final RAWP.

7.1.3.1 General BMPs

- All diesel-powered off-road vehicles and equipment over 50 horsepower (HP) used on the project sites for 3 consecutive days or more were fueled with ultra-low sulfur diesel (ULSD). Five thousand five hundred thirty six (5,536) gallons of ULSD with no more than 15 ppm sulfur were used by the contractor during the Removal Action. The use of ULSD rather than the standard diesel with 500 ppm of sulfur resulted in an 85% reduction in sulfur released to the air.
- Drip pans were used under stationary equipment and at points of liquid transfer.
- Fuel transfers were performed in accordance with USCG Oil Transfer Procedures aboard each derrick barge.
- Diesel fuel was stored in fuel tanks aboard the derrick barges. Unleaded gasoline was stored in double-wall fuel tanks aboard the derrick barges.
- All fuel transfer hoses were inspected, tested, marked, and maintained in accordance with USCG requirements.
- Flammable or combustible materials were stored in flammable storage cabinets in either the manufacturer's original shipping container or in portable fire safety containers.
- All containers were kept tightly closed and sealed when not in use.
- All containers were clearly labeled as to contents and capacity.

KMB00006636

- Oil-sorbent pads and/or sweep were used to cleanup deck spills.
- All equipment maintenance was performed aboard the derrick or materials barges.
- Equipment such as fuel hoses, oil drums, oil or fuel transfer valves, and fittings were checked regularly for drips or leaks, and were maintained to prevent spills to the river.
- Construction barges were situated in areas of sufficient depth so as to not ground out during low water conditions.
- Prior to entering the water, all equipment was checked for leaks and completely cleaned of any external petroleum products, hydraulic fluid, coolants, and other deleterious materials.
- A spill containment and control plan was kept on site during construction activities and contained notification procedures, specific cleanup and placement instructions for different products, quick response containment and cleanup measures that were available, proposed methods for placement of spilled materials, and employee training for spill containment.
- Materials such as booms and sorbent pads were available on-site, and were available for use to contain and clean up petroleum products if spilled or released as a result of project activities. The booms were deployed in Slip 3 prior to and during work at the head of Slip 3.

No additional general BMPs were implemented during the Phase I Removal Action as no need was identified during the water quality monitoring activities.

7.1.3.2 Dredging BMPs

- Sediment barges were sealed on all four sides to prevent any leakage of sediment or liquid.
- A majority of the Berth 411 "Plus" dredging was completed before the Berth 410 dredging began.
- Dredge passes generally proceeded from the head of the slip towards the mouth. Levels of contamination in the dredge material were typically higher towards the head. Depths of required cuts were also typically thicker towards the head of Slip 3.

KMB00006637

- The contractor completed a horizontal dredge pass across the dredge surface before moving to the next deeper pass. A dredge pass is defined as a horizontal dredge cut consisting of up to two "bites" of the dredge bucket—one "bite" occurred as the derrick worked from one side of each reach to the other and the second "bite" occurred as the derrick worked back in the other direction.
- The contractor began dredging at the highest elevation of material to be removed and worked toward the lowest elevation. "Glory holing"did not occur.
- The contractor sequenced their work such that there was one last pass across the entire Berth 411 "Plus" dredge area.
- Overfilling of the bucket was not allowed.
- The contractor paused the dredge bucket as it broke the surface of the water and allowed the bucket to drain free water prior to swinging and placing dredge material on the haul barge. This bucket dewatering activity was conducted behind a silt curtain. No water quality monitoring exceedances were documented as a result of this activity; therefore, USEPA did not direct the contractor to avoid overwater bucket dewatering.
- No bottom stockpiling or multiple bites of the clamshell bucket occurred.
- The contractor sealed off barge scuppers on haul barges and repaired any holes in fences to prevent water or sediment from draining off a haul barge.
- Barges were not overfilled.
- No grounding of construction barges occurred.
- Overdredging at the base of a slope did not occur.
- Dragging of the dredged surface to level the mudline did not occur.
- Experienced dredge operators were used.
- Contractor vessel draft and movement was controlled within dredge areas during construction to limit the potential for scour.
- Slopes were generally dredged beginning with the highest elevation of material to be removed and working toward the lowest elevation.
- Slopes were dredged between cuts and adjacent to slopes as designed (i.e., slopes were not oversteepened during dredging).

KMB00006638

- A global positioning system (GPS) was used to ensure material removal from the proper locations.
- Standard barge loading controls were observed including no barge overfilling (less than 85 percent capacity). The barges were loaded so that enough freeboard remained to allow for safe movement of the barges and their material on their planned routes.
- A Closed or Environmental Bucket was used where feasible. This technology consists of specially constructed dredging buckets designed to reduce turbidity from suspended solids from entering the water. The Closed or Environmental bucket was not suitable in certain situations, including situations with sediment of medium or greater density. During dredging, the Port notified USEPA and received approval to use the digging bucket when the type of material precluded the use of the Closed or Environmental Bucket.
- All digging passes of the bucket were completed without any material being returned to the wetted area. Dumping of partial or full buckets of dredged material back into the project area did not occur. Dredging of holes or sumps below the maximum depth, and redistribution of sediment by dredging, dragging, or other means also did not occur.

Additional dredging BMPs were implemented beginning on August 13, 2008, and August 18, 2008, in response to elevated turbidity measurements identified during water quality monitoring activities. These additional BMPs were identified by the Port, HME, and USEPA's contractor after observing dredging operations for a few days and included the following:

- The amount of material in each bucket load was reduced.
- The operator closed the bucket as slowly as possible on the bottom.
- The operator paused before hoisting the bucket off of the bottom to allow any overage to settle near the bottom.
- The operator hoisted the bucket through the water column more slowly.
- The operator made sure all the material had been placed into the barge from the bucket before returning the bucket to the water to take another bite of material.

KMB00006639

- The operator "slammed" open the bucket after material was dumped to dislodge any additional material that was clinging to the bucket.

Follow-up monitoring activities that occurred after these additional BMPs were implemented demonstrated no turbidity exceedances that were attributed to the dredging activity.

7.1.3.3 Capping BMPs

- An absorbent containment boom was installed around the head of Slip 3 capping area and sand layer area prior to placement of sand or capping materials.
- In general, capping did not begin until after a majority of the dredging was completed. Debris of concern in cap areas was properly removed and disposed of prior to capping. Debris of concern was any debris that extended above the mudline grade more than half the total thickness of the cap section in that area.
- All caps on slopes were placed from the toe of the slope up towards the crest.
- The base cap layer was placed in a manner to minimize disturbance and mixing of cap material and sediment.
- The entire base cap layer was placed prior to placing the armor layer.
- The armor layer was placed in a manner that did not damage the base cap layer. Damage includes penetration of the armor layer material into the base cap layer.
- Use of spuds did not occur in areas previously capped.
- The contractor did not drag cap areas to even out cap overplacements.
- To ensure proper cap placement, in-situ cap materials were placed in a controlled and accurate manner, slowly releasing the material from a clamshell bucket rather than dropping it in larger amounts. The placement occurred starting at lower and working to higher elevations.
- Surface booms, oil-absorbent pads, and similar materials were on site for any sheens that occurred on the surface of the water during construction.
- Cap material was from an approved upland source.

KMB00006640

No additional capping BMPs were implemented during the Phase I Removal Action as there were no exceedances of field or chemistry parameters that were identified by the water quality monitoring activities.

7.1.3.4 Transport, Offloading, and Disposal BMPs

- The sediment barges were monitored continuously by the Site Superintendent at T4 and the Site Supervisor at The Dalles for any sign of leakage or spillage during loading, offloading, and transporting from the offload site to the landfill. If any leakage or spillage was detected, the operations were terminated until repairs and/or a remedy was in place. All leakage or spillage of dredged materials were cleaned up promptly and transported to the landfill for disposal.
- Drip pans, steel plates, open-top containers, and sediment screens were used at all points of transfer of dredged material to prevent leakage from contacting the surrounding soils or water. All containment structures were bermed to contain sediment and prevent runoff.
- During transport and handling of sediment, adequate containment measures and inspections were employed to minimize spillage.
- Bin-barges or flat-deck barges with watertight sideboards were used and were covered as weather warranted.
- No material leaked from the bins or overtop the walls of the barge.
- Metal spill aprons, upland spill control curbing and collection systems, and other spill control measures were used when transferring material from the haul barges to the transloading facility. A dribble apron was used to catch and collect any material dropped during offloading operations. No material re-entered the river at the offloading facility.
- No water was created or discharged. Any free liquid remaining in the haul barge was removed and contained for appropriate disposal.
- Dock curbing was used to prevent any potential spill material and rainwater from entering the river.
- Routine visual inspections of the loading area and access routes were performed. Caution was exercised so that material did not leak out of the

KMB00006641

haul trucks, slosh over the tops, or blow out of the trucks during transport from the offloading facility to the final disposal site.

- The transfer area and all equipment used in transfer activities was cleaned and decontaminated.
- Dewatering of sediment occurred either in a barge or at an approved upland facility. The elutriate that was dewatered in a barge was released into a municipal sanitary sewer system, pursuant to applicable discharge requirements.
- No release of either sediment or water back into the Willamette River or Columbia River from the transport barge was allowed.
- The sediment was covered during transport on the barge to prevent it from blowing back into the river if winds were predicted to be greater than 20 miles per hour during transport.

No additional BMPs were implemented during transport, offloading, and disposal activities as no water quality monitoring parameters were ever exceeded.

7.1.3.5 Wheeler Bay Slope Stabilization and Capping BMPs

- Visual monitoring took place whenever construction was actively underway.
- All reasonable means and methods to control or divert upslope stormwater runoff away from cleared and grubbed areas, stockpiled materials, and other disturbed areas that were open or stockpiled for periods longer than 2 weeks were employed.
- Construction entrances, exits, and parking areas were graveled or paved to reduce the tracking of sediment onto public or private roads, and maintained for the duration of the project.
- Unpaved roads on the site were graveled or under other effective erosion and sediment control measures, either on the road or downgradient, to prevent sediment and sediment-laden water from leaving the site.
- Existing vegetation was preserved where practicable, and open areas were revegetated after grading or construction as necessary.

KMB00006642

- Soil stockpiles were continuously secured or protected from runoff and erosion with temporary soil stabilization measures or protective cover throughout the project.
- Ongoing maintenance, repair, and restoration of erosion, sediment, and pollution control (ESPC) measures were provided to keep them continually functional.
- Any use of toxic or other hazardous materials included proper storage, application, and disposal.
- When trucking saturated soils from the site, either watertight trucks were used or loads were drained on-site until dripping had been reduced to minimize spillage on roads and streets.
- Construction equipment did not enter the water.
- Generally, erosion control measures were selected and implemented according to DEQ's *Sediment and Erosion Control Manual* (GeoSyntec 2005) and remained in place during all of the shoreline activities to prevent material from entering the waterway. During removal of the fire boat pier, equipment operated to the water's edge without a silt fence, as approved by USEPA. When piling broke, a boom was deployed to contain sheen.
- Cap material was from an approved upland source.

No additional BMPs were implemented during the Wheeler Bay work as no water quality monitoring results indicated a need to alter construction activities.

7.1.4 River Velocity Monitoring Results

In accordance with the WQMCCP (USEPA 2008 and Appendix R), river water velocity measurements were taken at the background sampling locations at the transloading facility and at T4. River velocity measurements taken at the beginning of the project at both locations were much less than the trigger of 1.0 feet/second. Monitoring of river velocity was discontinued in The Dalles shortly after the beginning of the project because variation in river velocity was minimal from day to day. In addition, the action triggered by exceedance of this parameter (stop operations and secure silt curtains and other containment barriers) did not apply in The Dalles since in-water silt curtains and other containment devices were not being used.

KMB00006643

Monitoring of river velocity was also discontinued at the T4 site in Portland shortly after the beginning of the project because variation in river velocity was minimal from day to day, and the center of construction activities for dredging and capping was predominantly within and at the head of Slip 3 during the course of the project. As a result, the turbidity curtain deployed by HME was generally not impacted by the flow of the river. In addition, all silt curtains deployed at the Wheeler Bay shoreline stabilization area of the site were well above the water line. Finally, the water quality monitoring program was designed to demonstrate compliance without the need to determine velocity or flow direction. Hence, velocity measurements were discontinued.

7.2 Compliance with the Biological Opinion

The reporting requirements outlined in the Biological Opinion (NMFS 2008 and Appendix S) state that the Port will provide the following information:

- All monitoring items, including turbidity measurements: this information is provided in Section 7.1.
- Size of the dredged area (amount and aerial extent), depth of sand cap, and dates of initiation and completion of work: this information is provided in Sections 4 and 5.
- Discussion of the implementation of the terms and conditions for reasonable and prudent measure #1: Minimize the incidental take from project related activities by applying permit conditions to the proposed action that avoid or minimize adverse impacts to water quality and the ecology of aquatic systems: This discussion is provided in Section 7.2.1, below.

7.2.1 Implementation of Terms and Conditions

The terms and conditions of the Biological Opinion (NMFS 2008 and Appendix S) were incorporated into the construction documents by reference, and a summary of the conditions was provided in the "Summary of Relevant Environmental Protection Measures and BMPs" memorandum provided in the Final RAWP (Anchor 2008b). A brief discussion of each condition is given below, except for the water quality monitoring activities, which are described in detail in Section 7.1.

KMB00006644

7.2.1.1 General Conditions

- Work Window: The Port conducted all Phase I Removal Action activities within the summer in-water work window between July 1 and October 31, 2008.
- Notice to Contractors: Prior to the beginning of work, all contractors working on site were given a complete list of reasonable and prudent measures, and terms and conditions listed in the Biological Opinion (NMFS 2008 and Appendix S).
- Minimize Impact Area: As documented in Section 4, the dredging impacts were confined to the minimum area necessary to complete the project.

7.2.1.2 Dredging Conditions

- No fallback or redistribution: All digging passes of the bucket were completed without any material being returned to the wetted area. Dumping of partial or full buckets of dredged material back into the project area was not allowed. Dredging of holes or sumps below the maximum depth, and redistribution of sediment by dredging, dragging, or other means was not allowed.
- Cycling time: Clamshell cycling times were slowed, as indicated by water quality monitoring results, to reduce turbidity and sediment drift to adjacent areas.
- A closed-lip environmental bucket was used as much as possible. When the material type precluded the use of this type of bucket, the Port notified USEPA.
- Debris: All large anthropogenic debris was removed from dredged sediment and transported to an appropriate disposal site.
- Materials such as booms and sorbent pads were available on-site, and were used as necessary to contain and clean up petroleum products spilled or released as a result of project activities. The booms were deployed in Slip 3 prior to and during work at the head of Slip 3.
- No release of either sediment or water back into the Willamette or Columbia Rivers from the transport barge was allowed.

KMB00006645

7.2.1.3 Capping Conditions

- The Wheeler Bay upland cap over contaminated soil received a demarcation layer at the base of the cap with an orange construction fencing barrier.
- Institutional controls for the caps are discussed in Section 10.
- Contaminated soil or sediment was capped in place with a minimum of 12 inches of clean cover material.

7.2.1.4 Fish Diversion Net

A fish diversion net was deployed at the mouth of Slip 3 on August 4 and 5, 2008, to divert fish from entering the slip during dredging and capping activities. The net extended 180 feet at a 45-degree downstream angle to the harbor line. The diversion net spanned from the surface to a depth of 20 feet, was held in place with a system of lead lines and anchors, and consisted of 3/16-inch-diameter nylon mesh. Lighted, flashing buoys were placed at the surface of the net to prevent inadvertent collisions. USCG was notified of the presence of the diversion net.

The net remained in place and intact until it was removed on October 2, 2008, following the completion of in-water construction activities at T4. The net was observed on a daily basis during in-water construction activities. No fish or other aquatic organisms were observed to be caught in the net during in-water construction activities or at the time of removal.

7.2.1.5 Habitat Measures

- Vegetation Cover in Wheeler Bay: The Port must achieve 80 percent aerial coverage by established (i.e., not newly planted) vegetation at year 5. Invasive plants species do not count toward the 80 percent cover. This condition has been incorporated into the Interim Monitoring and Reporting Plan for Wheeler Bay.
- The Port will submit its proposed compensatory mitigation plan to the National Marine Fisheries Service (NMFS) for approval or disapproval within 2 years of the start of operations under the Biological Opinion (NMFS 2008 and Appendix S), and complete all actions necessary to carry out the plan within 5 years after the date the plan is approved. As described in 40

KMB00006646

CFR 232.3(f)(2), NMFS will consider any time lag between commencement of sediment removal and the start of compensatory mitigation activities that exceeds 2 years to be an additional temporal loss of aquatic resource function when determining whether to approve or disapprove the proposed mitigation ratio.

7.2.1.6 Fish Visual Monitoring

Daily monitoring for distressed fish was performed during construction activities. One dead salmon floating in the SE corner of the head of Slip 3 adjacent to the capping area was identified at 13:10 on September 16, 2008; however, it was determined that the fish's death was not related to the construction activity at T4. The fish was discovered about 15 to 20 minutes after capping activities (placement of the organoclay layer) had ended, so no construction activities were occurring at the time of the discovery. The fish was an approximately 12- to 18-inch hatchery fish (coho) and was in a deteriorated state, indicating that the fish had been dead for some time. Additionally, an HME representative reported seeing a dead fish in the middle of the river adjacent to T4 earlier that morning. The water quality monitoring crew collected samples in the area where the fish was found. The water samples were analyzed for DO and total sulfides. The analytical and field parameter results for September 16, 2008, are provided in Appendix E. The field parameters showed DO levels between 8.6 and 8.8 mg/L throughout the water column. The analytical results showed DO levels of 8.8 mg/L at the surface. Sulfides were non-detect with a reporting limit of 0.05 mg/L. Based on all of these factors, the Port concluded that the construction activities did not cause the fish's death and that the fish washed into the slip area long after it had died. The USEPA and NMFS were immediately notified of these details. Later, NMFS reported that it was appropriate to dispose of the fish and it did not need to be kept (Munn 2008), and the fish was subsequently released back into the river approximately 1 mile downstream of the construction site on the opposite side of the river.

No other dead or distressed fish were observed at T4 or the transloading facility before, during, or after construction activity.

KMB00006647

7.2.1.7 Transport and Upland Disposal Conditions

- Weather Conditions: If weather conditions were unsuitable to monitor the dredging operations, then in-water operations were required to stop until conditions were suitable for monitoring again. This occurred once, when lightning struck the upland portion of the T4 site.
- Transport: To prevent it from blowing back into the river, the sediment was covered during transport on the barge if winds were predicted to be greater than 20 miles per hour during transport. Documentation of the predicted wind speeds is provided in Appendix L1.
- Upland Disposal Site: The upland disposal site was to be large enough to accommodate the quantity of material and water to be placed there to allow adequate settling. This condition was not applicable as the material was dewatered on the disposal barge and then barged to the transfer facility. At the transfer facility, the material was mixed with a drying agent and placed onto trucks to be taken to the landfill. No discharge of water from the upland disposal site to waterways with Endangered Species Act (ESA)-listed salmonids occurred.

7.2.2 Approved Deviations from the Biological Opinion

A few deviations from the Biological Opinion (NMFS 2008 and Appendix S) were requested by the Port and USEPA prior to implementation of the Phase I Removal Action. NMFS-approved deviations from the Biological Opinion are described in detail below:

- Term and Condition 1(e)(i): A geobarrier was required for all caps, which would include the Slip 3 in-water cap. USEPA requested that this be changed to only require the geobarrier for the Wheeler Bay (upland) cap. The cap requirement for in-water caps was not practicable or desirable (i.e., it would be difficult to place and would not serve an IC purpose). NMFS approved this change on July 29, 2008 (see email documentation in Appendix S).
- Term and Condition 1(h)(vii): The turbidity trigger was limited to 3 NTU over background, whereas the WQMCCP (USEPA 2008 and Appendix R) set the trigger at 5 NTU over background. USEPA requested the turbidity trigger be

KMB00006648

changed to 5 NTU over background. NMFS approved this change on July 29, 2008 (see email documentation in Appendix S).

- Term and Condition 1(d)v: This requirement stated that "post-dredge sampling would include a full suite of parameters, including metals, SVOC, PCBs and TOC." The Port requested that this requirement be changed to be consistent with the Interim Monitoring and Reporting Plan, which stated that pb, zn, cd; PAHs; TPH would be analyzed and 4 composite samples would be analyzed for PCBs and DDTs. The 4 composite samples would come from North of B414 dredge area, Pier 5 dredge area, sand cover area within B411 dredge area, and B411 dredge area outside of the sand cap area. NMFS approved of this change on August 8, 2008 (see email documentation in Appendix S).
- Term and Condition 1(g)i: This requirement stated that "Cable and concrete would not be used to anchor large wood into the bankline in Wheeler Bay". The Port requested that this condition be removed. If the large wood could not be anchored in place, the Port was not willing to place them in Wheeler Bay because of the concern of placing unanchored logs and having them move around and damage the toe of the slope and placed cap. NMFS approved of this change on August 8, 2008 (see email documentation in Appendix S).
- On Page 9 of the Biological Opinion under Conservation Measures, it stated that "The dredge bucket will be swung directly to the haul barge after it breaks the surface, using the minimal swing distance. The contractor will not pause the bucket as it breaks the surface of the water." The Port requested that this conservation measure be changed to be consistent with the Final RAWP and Final DAR, which stated that: "The contractor shall pause the dredge bucket as it breaks the surface of the water and allow the bucket to drain free water prior to swinging and placing dredge material on the haul barge. Note that USEPA may direct the contractor to avoid overwater bucket dewatering as a contingency BMP if water quality exceedances are documented." NMFS agreed to this change only if the bucket dewatering occurred within the confines of a silt curtain and if the water quality sampling and analysis meets the agreed upon criteria on August 8, 2008 (see email documentation in Appendix S).

KMB00006649

8 DOCUMENTATION OF PERFORMANCE STANDARDS ATTAINMENT

As mentioned previously, USEPA and the Port identified performance standards for each Phase I Removal Action activity during the design process. The CQAP (Appendix A of the DAR, Anchor 2008a) provides specific details about the QA/QC and responsibilities necessary to accurately evaluate achievement of the performance standards for each construction activity. These verification and monitoring activities were performed throughout the implementation of the Phase I Removal Action as described in the previous section. Attainment of performance standards, as verified through construction QA/QC activities, are described below by activity.

8.1 Dredging

8.1.1 Performance Standards

Performance standards were developed for the Berth 411 "Plus" and Berth 410 dredging to govern design and construction. Each of the standards is discussed below.

Berth 411 "Plus" Dredging – Remove sediment that poses the highest ecological and human health risk. Removal of the highest risk sediment will provide a permanent solution of contaminant mass removal from the river. Specifically, the dredging will meet the following performance standards:

- Remove contaminated sediment defined as those with surface sediment having a greater than 20 PEC exceedance ratio down to a specified elevation coinciding with PEC exceedance ratios of 10 or less as predetermined by sediment core data. If full removal is not technically feasible, complete partial removal and place a minimum 6-inch-thick sand layer to be determined by quantity measures (i.e., volume of cap material placed per surface area).
- Reduce contaminant levels in the Berth 411 "Plus" dredging area.
- Conduct the work consistent with the BMPs listed in the Dredging, Transportation, and Disposal specification (Appendix E of the DAR; Section 352023, Anchor 2008a) in order to minimize the movement of material with elevated chemical concentrations into unintended areas.
- Conduct the work consistent with the BMPs listed in the Dredging, Transportation, and Disposal specification (Appendix E of the DAR; Section 352023, Anchor 2008a), in order to minimize dredging residuals and minimize recontamination of adjacent sediment.

KMB00006650

- Conduct the work consistent with the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R) in order to minimize water quality impacts outside the compliance boundary.
- Conduct the work consistent with the Biological Opinion developed by NMFS (2008) (Appendix S).

Berth 410 Dredging – Remove sediment to a depth necessary to maintain navigable water depths for deep-draft vessels that call at the Slip 3 berths consistent with the Port's statutory authorization and USEPA's Action Memo (USEPA 2006). Specifically, the dredging will meet the following performance standards:

- Remove sediment to depths that allow vessels to safely access berthing areas in Slip 3.
- Conduct the work consistent with the BMPs listed in the Dredging, Transportation, and Disposal specification (Appendix E of the DAR; Section 352023, Anchor 2008a), in order to minimize the impacts to surrounding sediment and the "leave" surface of the dredge area.
- Conduct the work consistent with the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R) in order to minimize water quality impacts outside the compliance boundary.
- Conduct the work consistent with the Biological Opinion developed by NMFS (2008) (Appendix S).

8.1.2 Quality Assurance Documentation

As described in the CQAP (Appendix A of the DAR, Anchor 2008a), construction QA activities for the Berth 411 "Plus" and Berth 410 dredging included pre- and post-construction bathymetry surveys to confirm the depth and extent of dredging, observation of dredging to confirm compliance with specified dredge sequencing to minimize impacts to nearby areas, and water quality monitoring to confirm compliance with the WQMCCP (USEPA 2008 and Appendix R) and WQMP (Appendix H of the RAWP, Anchor 2008b). QA documentation (e.g., laboratory reports, field notes, photographs, bathymetry, and water quality monitoring results) have verified that the Slip 3 dredging meets all of the performance standards. Compliance with the performance standards is summarized below.

KMB00006651

8.1.2.1 Final Design Elevations Attained

The primary QA activity for the Berth 411 "Plus" and Berth 410 dredging was to verify that HME achieved compliance with the final design elevations. The final design elevations for the Berth 411 "Plus" areas were determined to reduce contaminant concentrations by removing contaminated sediment with surface concentrations greater than 20 PEC exceedance ratio and to be at an elevation coinciding with PEC exceedance ratios of 10 or less as predetermined by sediment core data. The final design elevations for the Berth 410 area were determined to allow vessels to safely access berthing areas in Slip 3. It is important to note that there were no chemical-based performance standards for the removal.

Attainment of these elevation-defined performance standards was verified through bathymetry surveys (single-beam surveys using integrated Hypack software and a differential global positioning system [DGPS] unit for horizontal control) were conducted frequently to monitor changes in bottom elevation throughout dredging. Following each progress survey, HME, the Port, and Anchor reviewed the elevation data to determine what areas of the dredge prism required further dredging to achieve the design elevations. This process continued until the HME progress survey indicated the entire dredge prism satisfied the design elevations.

To ensure that the survey was accurate, DEA performed an independent bathymetry survey throughout the RAA using multi-beam equipment. The HME and DEA surveys were compared and, in coordination with USEPA, it was determined that both were very similar to each other, indicating a few small areas that required minimal additional dredging of identified hot-spots. Following this additional dredging, DEA conducted surveys to verify that grade deficiencies indicated in the final bathymetry surveys had been addressed by the final dredge passes. All survey information was reviewed in coordination with USEPA's consultant to verify completion of the removal. Surveys were performed in Berth 411 after dredging was complete, and again after the sand layer was placed. Post-dredge (pre-sand layer) bathymetry is provided in Figure 3. The plan and cross-section locations and cross-

KMB00006652

sections showing the as-built post-dredge surface relative to the design elevations are shown in Figures 4 through 4d.

Review of the cross-section comparisons of as-built to design elevations in Figures 4a through 4d indicate that the performance elevations were met over a majority of the dredge areas. There were two instances where performance elevations were not met. A description of each instance and resolution of the discrepancy is provided below:

- HME began doing dredging to remove identified high-spots in Berth 411 on August 26 and August 28, 2008, based on the DEA post-dredge survey. HME removed roughly 160 feet of the "slope transition" area identified in the DEA survey. There was about 30 cy remaining in the transition area between the higher elevation dredge cell against the sheetpile wall and the deeper area further from the bulkhead toward the middle of the slip. The sediment was dense and appeared to be native material due both to the gradation (sandy with gravels) observed, and the fact that it was standing at an angle steeper than 2H:1V. This material would have required the heavier digging bucket to remove. The Port requested that this 30 cy of material not be removed as part of Phase I since the remainder of the area identified for dredging to remove identified high-spots appeared to be dense native sediment. USEPA concurred with this request.
- The Port identified a few isolated locations within the Berth 410 area that were slightly above the neat line elevation. The areas were adjacent to the sheetpile wall. The Port felt that these areas would not impact navigation and requested to USEPA that they not be further dredged. USEPA concurred with this request.

8.1.2.2 Work Conducted was Consistent with the BMPs Listed in the Dredging, Transportation, and Disposal Specification (Appendix E of the DAR; Section 352023)

Dredging work was consistent with the BMPs listed in the Dredging, Transportation, and Disposal Specification (Appendix E of the DAR; Section 352023, Anchor 2008a) as verified by construction monitoring and documented in the Construction Weekly

KMB00006653

Progress Reports provided in Appendix A. The BMPs that were followed are listed below:

- The Berth 411 "Plus" dredging was substantially completed before the Berth 410 dredging began.
- Dredge passes proceeded from the head of the slip towards the mouth. Levels of contamination in the dredge material were typically higher towards the head. Depths of required cuts were also typically thicker towards the head of Slip 3.
- The contractor completed a horizontal dredge pass across the dredge surface before moving to the next deeper pass. A dredge pass is defined as a horizontal dredge cut consisting of up to two "bites" of the dredge bucket—one "bite" would occur as the derrick worked from one side of each reach to the other, and the second "bite" would occur as the derrick worked back in the other direction.
- The contractor began dredging at the highest elevation of material to be removed and work toward the lowest elevation. "Glory holing" was not allowed.
- The contractor sequenced their work such that there was one last pass across the entire Berth 411 "Plus" dredge area.
- Overfilling of the bucket was not allowed.
- The contractor paused the dredge bucket as it broke the surface of the water and allowed the bucket to drain free water prior to swinging and placing dredged material on the haul barge.
- No bottom stockpiling or multiple bites of the clamshell bucket was allowed.
- The contractor sealed off barge scuppers on haul barges and repaired any holes in fences to prevent water or sediment from draining off a haul barge.
- Barges were not overfilled.
- No grounding of construction barges occurred.
- Overdredging at the base of a slope did not occur.
- Dragging of the dredged surface to level the mudline did not occur.

KMB00006654

8.1.2.3 Work Conducted was Consistent with the WQMP, WQMCCP, and Biological Opinion

The water quality monitoring program that was implemented during the Phase I Removal Action at T4 was developed based on the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R). Water quality monitoring occurred throughout the duration of the dredging activities, as described in Section 7.1 of this report, to confirm consistency the WQMP and WQMCCP.

Before dredging operations began, HME and all construction monitoring personnel were given the Biological Opinion (NMFS 2008 and Appendix S) to review. As a result, HME adjusted their implementation plans, as necessary, to comply with all the terms and conditions described in the Biological Opinion. Additionally, all monitoring personnel were aware of the specific terms and conditions detailed in the Biological Opinion and were directed to notify the Construction Manager if a construction activity was identified that did not comply, so that action could be taken to bring the activity back into compliance.

Specific details related to activities implemented to comply with the WQMCCP (USEPA 2008 and Appendix R) and the Biological Opinion (NMFS 2008 and Appendix S) are provided in Section 7.

8.2 Head of Slip 3 Capping

8.2.1 Performance Standards

Performance standards identified for the head of Slip 3 capping activities included:

- Design the chemical isolation layer, where necessary, to contain sheens exiting from the shoreline.
- Design the armor layer of the cap to resist bed shear velocities induced by the largest of 100-year flood flow, 100-year waves, vessel-induced waves from typical passing vessels, and anticipated propeller wash from vessels that operate in the area.
- Use import cap material that meets defined chemical goals (presented in the Capping specification of Appendix E of the DAR; Section 352025, Anchor 2008a).

KMB00006655

- Conduct the work consistent with the BMPs listed in the Capping specification (Appendix E of the DAR; Section 352025, Anchor 2008a), in order to minimize mixing of cap material with underlying contaminated sediment.
- Conduct the work consistent with the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R), in order to minimize water quality impacts outside the compliance boundary.
- Conduct the work consistent with the Biological Opinion developed by NMFS (2008) (Appendix S).

8.2.2 Quality Assurance Documentation

As described in the CQAP (Appendix A of the DAR, Anchor 2008a), QA for the cap construction included chemical and physical testing of import materials, observation of material placement to verify cap thickness and extent, verification of material quantities used, pre- and post-construction bathymetry surveys to confirm design elevations were achieved, and water quality monitoring to confirm compliance with the WQMCCP (USEPA 2008 and Appendix R) and WQMP (Appendix H of the RAWP, Anchor 2008b). QA documentation (e.g., laboratory reports, field notes, photographs, material quantity measures, bathymetry, and water quality monitoring results) have verified that the head of Slip 3 cap meets all of the performance standards. Compliance with the performance standards is summarized below.

8.2.2.1 Cap Designed to Contain Sheens and to Resist Erosive Forces

The entire cap behind the timber bulkhead was designed to include an 18-inch layer of Base Cap Type 3 material, which contains 10 percent organoclay capable of adsorbing sheen prior to entering surface water. This cap was placed on September 23 and 24, 2008, as detailed in the Construction Weekly Progress Report for the week of September 22 to 28, 2008 (Appendix A). In addition, the cap was designed to include an 18-inch layer of Type 3 Armor material to resist erosive forces. This type of material was selected based on erosion analyses performed during the development of the design. This armor was placed over the caps both in front of and behind the timber bulkhead. On September 16, 2008, HME placed a layer of Type 3 Armor material over the entire cap in front of the bulkhead. From September 23 through October 1, 2008, HME place a geotextile, Base Cap Type 2 sand, and Type 3

KMB00006656

Armor layer over the cap behind the timber bulkhead. Placement of the cap as designed was verified by field observation.

8.2.2.2 Cap Material Design Elevations were Achieved

Attainment of the capping design elevations for the portion of the cap on the river side of the timber bulkhead was verified through progress bathymetry surveys (single-beam surveys using integrated Hypack software and a DGPS unit for horizontal control) that were conducted during capping to monitor changes in bottom elevation. Progress surveys were conducted during placement of the cap material and the cap armor material to ensure the design elevations for each layer were achieved. Following each progress survey for these layers, HME, the Port, and Anchor reviewed the elevation data to determine what areas required further capping to achieve the design elevations. This iterative process continued until the most recent survey indicated design elevations were achieved in the cap areas. DEA performed an independent bathymetry survey throughout the RAA to verify the HME survey findings.

For the portion of the cap on the land side of the timber bulkhead, attainment of the capping design elevation was verified through placement of stakes on the slope to identify how much material was necessary to meet the cap thickness requirements for the Base Cap Type 3 and Base Cap Type 2 materials. The attainment of the design thicknesses was initially verified in the field as documented in the Construction Daily Reports.

As-built cap elevations are provided in Figures 5 and 6, and 6a. Review of these figures indicates that capping achieved the performance standard thicknesses over the areas addressed, except for the height of the rock buttress in front of the timber bulkhead as part of the head of Slip 3 cap. As described in Appendix O, the performance standards are still achieved for this activity despite the difference in cap elevation.

KMB00006657

8.2.2.3 Cap Import Material Met Defined Chemical Goals and Physical Characteristics

Attainment of this performance standard was achieved through comparison of the chemical and physical characteristics of the proposed borrow materials (i.e., base cap material and cap armor material) to the chemical and physical characteristics identified in Table 2 of the RAWP (Anchor 2008b). To confirm that the imported material was environmentally acceptable, USEPA requested the design include the following text excerpted from the specifications established for the McCormick & Baxter Superfund capping project, "cap material to be used for construction of the sediment cap will be imported, clean, granular material free of roots, organic material, contaminants, and all other deleterious and objectionable material" (Ecology and the Environment 2003).

Borrow source materials from the sand layer and capping activities were tested for grain size and chemical quality by HME and compared to criteria specified in Table 2 of the RAWP (Anchor 2008b). Results are listed in Appendix B1. Analytical laboratory reports and data validation reports are included in Appendices I1 and J1, respectively. The initial chemistry testing results for the sand layer and Base Cap Type 3 materials were incomplete—missing analysis for oxychlordane. The Port decided to go ahead and place the material. All other related chemicals of concern were non-detect or below the criteria. USEPA concurred with placing the material, noting that the Port would need to assume the risk if the oxychlordane results were above the criteria. The sample was reanalyzed and oxychlordane was not detected.

8.2.2.4 Work Conducted was Consistent with BMPs Listed in the Capping Specification (Appendix E of the DAR; Section 352025)

The head of Slip 3 capping work was consistent with the BMPs listed in the Capping Specification (Appendix E of the DAR; Section 352025, Anchor 2008a) to minimize mixing of the cap material with the underlying contaminated sediment as verified by construction monitoring activities and documented in the Construction Weekly Progress Reports provided in Appendix A. The BMPs that were followed are listed below:

- The base cap layer was placed in a manner to minimize disturbance and mixing of cap material and sediment.

KMB00006658

- Use of spuds was not allowed in areas previously capped.
- The contractor was not allowed to drag cap areas to even out cap overplacements.
- The contractor installed and maintained absorbent booms around the head of the Slip 3 cap construction area.

8.2.2.5 Work Conducted was Consistent with the WQMP, WQMCCP, and Biological Opinion

The water quality monitoring program that was implemented during the Phase I Removal Action at T4 was developed based on the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R). Water quality monitoring occurred throughout the duration of the head of Slip 3 capping activities, as described in Section 7.1 of this report, to confirm consistency with the WQMP and WQMCCP.

Before capping operations began, HME and all construction monitoring personnel were given the Biological Opinion (NMFS 2008 and Appendix S) to review. As a result, HME adjusted their implementation plans, as necessary, to comply with all the terms and conditions described in the Biological Opinion. Additionally, all monitoring personnel were aware of the specific terms and conditions detailed in the Biological Opinion and were directed to notify the Construction Manager if a construction activity was identified that did not comply, so that action could be taken to bring the activity back into compliance.

Specific details related to activities implemented to comply with the WQMCCP (USEPA 2008 and Appendix R) and the Biological Opinion (NMFS 2008 and Appendix S) are provided in Section 7.

8.3 Transportation, Transloading, and Disposal

8.3.1 Performance Standards

The performance standards for transportation and disposal activities included the following:

KMB00006659

- Documentation of no loss of material from the trucks during transport from the transfer station to the landfill
- Documentation of no off-site tracking of the material from the transfer station through collection of pre- and post-construction soil samples at the transfer station
- Conduct the work consistent with the BMPs listed in the Dredging, Transportation, and Disposal specification (Section 352023; Appendix E of the DAR, Anchor 2008a) in order avoid losses of dredged material during the hauling and disposal process.

8.3.2 Quality Assurance Documentation

As described in the CQAP (Appendix A of the DAR, Anchor 2008a), construction QA activities for the transportation, transloading, and disposal work included observation of the transloading operation to document no loss of material from the trucks before leaving the transfer facility and pre- and post-soil chemistry monitoring to verify no off-site tracking of material. QA documentation (e.g., laboratory reports, field notes, and photographs) have verified that the transportation, transloading, and disposal activities met all of the performance standards. Compliance with the performance standards is summarized below.

8.3.2.1 No Material Lost During Transport from Transfer Station to the Landfill

To document that no loss of material occurred during transportation of the material to the landfill from the transfer station, Anchor tracked each truck that transported sediment, debris, or liquid and verified that the truck number for each truck carrying sediment and debris leaving the transloading facility matched the records provided by the landfill. The weight records for all loads of waste received at the landfill are summarized in Tables 7 and 8. In addition, observation during truck loading occurred and was documented in the Construction Weekly Progress Reports (Appendix A).

8.3.2.2 No Off-Site Tracking Occurred

To document that no off-site tracking of contaminants occurred from the transfer station, and in accordance with the TDP (Appendix D1 of the RAWP, Anchor 2008b),

KMB00006660

soil samples were collected at and near the transloading facility before operations began, during operations, and after operations were completed. Based on the results of the soil sampling, the operation of the transloading facility resulted in no tracking of contamination on-site or from the site to River Road. Additional details related to the soil sampling results are provided in Section 6.4.

8.3.2.3 Work Conducted was Consistent with the BMPs Listed in the Dredging, Transportation, and Disposal Specification (Appendix E of the DAR; Section 352023)

The transportation, transloading, and disposal work was performed consistent with the BMPs listed in the Dredging, Transportation, and Disposal specification (Section 352023; Appendix E of the DAR, Anchor 2008a) in order to avoid losses of dredged material during the hauling and disposal process, as verified by construction monitoring activities documented in the Construction Weekly Progress Reports provided in Appendix A.

8.4 Wheeler Bay Shoreline Stabilization

8.4.1 Performance Standards

Specific performance standards for the Wheeler Bay shoreline stabilization work included the following:

- To the extent feasible, regrade banks to slopes that will be stable under long-term conditions.
- For areas where armoring is necessary, design the armor layer to resist bed shear velocities induced by the largest of 100-year flood flow, 100-year waves, vessel-induced waves from typical passing vessels, and anticipated propeller wash from vessels that operate in the area.
- Eliminate direct contact with contaminated river bank soils.
- Use import material for fill and grading that meets defined chemical goals (presented in Appendix E of the DAR; Site Clearing, Earthwork and Shoreline Stabilization specification; Section 312000, Anchor 2008a).
- Conduct the work consistent with the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R) in order to minimize water quality impacts outside the compliance boundary.

KMB00006661

- Conduct the work consistent with the Biological Opinion developed by NMFS (2008) (Appendix S).

8.4.2 Quality Assurance Documentation

As described in the CQAP (Appendix A of the DAR, Anchor 2008a), QA for the shoreline stabilization (cap) construction included chemical and physical testing of import materials, observation of material placement to verify material placement thickness and extent, verification of material quantities used, pre- and post-construction surveys to confirm design elevations were achieved, and water quality monitoring to confirm compliance with the WQMCCP (USEPA 2008 and Appendix R) and WQMP (Appendix H of the RAWP, Anchor 2008b). QA documentation (e.g., laboratory reports, field notes, photographs, material quantity measures, and surveys) have verified that the shoreline stabilization area meets all of the performance standards. Compliance with the performance standards is summarized below.

8.4.2.1 Design Shoreline to be Stable, Resist Erosive Forces, and Eliminate Direct Contact with Contaminated River Bank Soils

To increase the stability of the shoreline, the design determined that a majority of the shoreline could be graded back to a 3H:1V slope and planted to resist erosion in the upper elevations, and protected with an armor layer in the lower elevations. Where the slope could not be graded back, additional armoring was necessary to stabilize the shoreline. Based on the erosion analyses conducted during the design phase, an armor layer of large rock was necessary to withstand erosive forces. In addition, the cap material consisting of 18 inches of select fill was placed on top of the graded surface to eliminate direct contact with contaminated river bank soil. An orange construction fabric was also placed between the graded surface and the cap material to mark the transition between cap material and the river bank soil. For the toe portion (from elevation 15 feet NGVD down to the bottom of new grading), an armor layer was placed over the filter layer. The armor was covered with 1 foot of habitat material, large woody debris, and habitat logs. Documentation of the placement of the shoreline stabilization materials is provided in the Construction Weekly Progress Reports for Wheeler Bay in Appendix A.

KMB00006662

8.4.2.2 Shoreline Stabilization Design Elevations were Achieved

On August 11 and 12, 2008, a pre-construction survey was completed to identify existing ground surface contours and to lay out temporary stations for grade checking throughout the project. The survey was used to set final grades to as closely as possible balance cut and fill after removal of debris and unsuitable soil. Subgrade cut and fill were controlled on a daily basis with slope staking and progress surveys. Armor section layer thickness and grade were controlled on a daily basis with slope staking and progress surveys. Top soil layer thickness and grade were controlled on a daily basis with slope staking and progress surveys. In addition, visual monitoring included checks of slope grades with a hand level, verification of material layer thicknesses with a tape measure, verification of general material characteristics of each fill type, and qualitative confirmation of compaction using a hand probe.

8.4.2.3 Cap Import Material Met Defined Chemical Goals and Physical Characteristics

Attainment of this performance standard was achieved through comparison of the chemical and physical characteristics of the proposed borrow materials (i.e., base cap material and cap armor material) to the chemical and physical characteristics identified in Table 2 of the RAWP (Anchor 2008b). To confirm that the imported material was environmentally acceptable, USEPA requested the design include the following text excerpted from the specifications established for the McCormick & Baxter Superfund capping project, "cap material to be used for construction of the sediment cap will be imported, clean, granular material free of roots, organic material, contaminants, and all other deleterious and objectionable material" (Ecology and the Environment 2003).

The soil materials imported for the armor section were select fill (3-1/2-inch-minus crushed gravel and sand) and Type 3 Armor (Class 100 armor; approximately 3-inch to 10-inch rock). Based on visual observation, the armor met the project specifications. The select fill was tested for grain size and chemical quality (see Appendix P). Results are listed in Appendix B2. Based on the grain size results, the select fill was slightly deficient of sand-size particles, but the material was approved for use on the project provided filter fabric was placed between the subgrade and the

KMB00006663

select fill (RFI #12; see Section 5.6). The select fill met the chemical quality criteria in the project specifications.

The habitat cover consisted of a well-graded mix of sand and rounded gravel with no silt and a maximum particle size of 2 inches. The Habitat Cover was tested for grain size and chemical quality (see Appendix P). Results are listed in Appendix B2. Based on the results, the Habitat Cover met the grain size and chemical quality criteria in the project specifications.

Topsoil consisted of a 2:1 ratio (by volume) mix of sandy loam and compost. The topsoil was tested for grain size and chemical quality (see Appendix P). Topsoil chemical quality met all criteria in the project specifications except for butylbenzylphthalate: the detected concentration was 21 µg/kg versus the criterion of 20 µg/kg. USEPA approved use of this topsoil. The grain size results indicated that the soil portion of the topsoil did not meet specifications. Additional sand was needed to bring the results within specifications. Sand used in the Habitat Cover (already chemically tested and approved for use on the project) was added to the topsoil mix and a sample was tested for grain size (see Appendix P). The resulting material met project specifications and was approved for use. Results for approved materials are listed in Appendix B2.

8.4.2.4 Work Conducted was Consistent with the WQMP, WQMCCP, and Biological Opinion

The water quality monitoring program that was implemented during the Phase I Removal Action at T4 was developed based on the WQMP (Appendix H of the RAWP, Anchor 2008b) and the WQMCCP (USEPA 2008 and Appendix R). Visual water quality monitoring occurred throughout the duration of the shoreline stabilization activities as described in this report to confirm consistency with the WQMP and WQMCCP.

Before shoreline stabilization activities began, ACA and all construction monitoring personnel were given the Biological Opinion (NMFS 2008 and Appendix S) to review. As a result, ACA adjusted their implementation plans, as necessary, to

KMB00006664

comply with all the terms and conditions described in the Biological Opinion. Additionally, all monitoring personnel were aware of the specific terms and conditions detailed in the Biological Opinion and were directed to notify the Construction Manager if a construction activity was identified that did not comply, so that action could be taken to bring the activity back into compliance.

Specific details related to activities implemented to comply with the WQMCCP (USEPA 2008 and Appendix R) and the Biological Opinion (NMFS 2008 and Appendix S) are provided in Section 7.

KMB00006665

9 FIELD MONITORING QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

The following sections provide a summary of the field monitoring QA/QC activities conducted during the construction activities to ensure the collection of high quality data.

9.1 Bathymetry Surveys

The HME surveyor (Northwest Hydro [NH]) and the Port's surveyor (DEA) utilized state-of-the-art automated hydrographic survey systems onboard their survey vessels. Both survey systems were comparable and were comprised of the computer-based data acquisition software system Hypack (v6.2b) and a Trimble DGPS. However, NH utilized a single-beam acoustical echosounder and DEA used a multi-beam echosounder. Calibration and verification of the survey system was completed prior to each day's survey work. The horizontal positioning system was verified with known control points established from existing project survey control. The depth sounding equipment was verified through a combination of bar-checks and velocity casts with a digital velocity meter. All of the quality control steps were completed prior to any survey work being initiated to verify that all soundings would exceed the accuracy standards required by the project specification.

The bathymetry survey throughout the RAA was conducted on a 15-foot line spacing interval. The Hypack hydrographic survey software confirmed this line spacing facilitated complete coverage of the survey area. Quality control check-lines were also surveyed, orientated perpendicular to the main survey lines to verify proper calibration of the hydrographic survey system and to provide additional survey coverage to verify dredging performance.

NH installed a tide staff (affixed to a fender pile) at T4 prior to initiation of the project. The elevations on the tide board were marked in 0.2-foot increments and were surveyed to a known benchmark. These data were recorded in a hand-written logbook approximately every half-hour during the survey. DEA used the same tide staff with similar recording intervals to maintain consistency between the two datasets.

KMB00006666

9.2 Water Quality Monitoring

QA/QC procedures were followed during the collection of both field and laboratory parameters according to procedures described in the WQMP and Quality Assurance Project Plan (QAPP; Appendices H and J of the RAWP, respectively, Anchor 2008b). For field parameters, monitoring equipment was calibrated prior to its use following the manufacturer's instructions. Calibrations for the water quality meters were conducted once per day at the beginning of each sampling day and were noted in the meter's calibration tracking notebook. In addition, calibration checks were performed on the turbidity probes at the end of each day and as necessary throughout the day and logged in the calibration tracking notebook.

For laboratory parameters, duplicate samples were collected at a single depth during the dredging and capping activities to assess the heterogeneity of the chemical analytical results at a single station and depth. Duplicates were conducted once for every 20 samples collected. In addition, matrix spike and matrix spike duplicate (MS/MSD) samples were collected at the background station each day laboratory samples were collected.

9.3 Transloading Facility Soil Monitoring

QA/QC procedures consistent with the QAPP (Appendix J of the RAWP, Anchor 2008b) were followed during the collection of transloading facility soil samples. The results of a field duplicate sample collected at Location S-06 on September 2, 2008 (the second round of soil sampling) were somewhat different from the primary sample. Eight of the 19 PAHs (i.e., benz(a)anthracene, benzo(a)pyrene, benzo(b&k)fluoranthene [total], benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene) were detected in both the primary and duplicate samples. The other 11 PAHs were not detected in either of the samples. Oil-range TPH was also detected in both samples. The concentrations in the field duplicate were consistently higher than the concentrations in the primary sample (the relative percent difference [RPD] in PAH concentrations between the two samples ranges from approximately 30 to approximately 50 percent) for these few constituents. The concentrations of metals (cadmium, lead, and zinc) were essentially the same in the primary sample and the field duplicate. RPDs noted above between primary and field duplicate samples were not unexpected given the heterogeneity of soil on a roadside. Small deposits of automotive lubricants, partially burnt fuel, or bits of pavement

KMB00006667

mixed with soil can greatly affect the concentrations of these PAHs and TPH in a fraction of the sample collected.

9.4 Monitoring Laboratory Data Quality Assurance/Quality Control

9.4.1 Laboratory Quality Control Criteria

Results of the QC samples from each sample group were reviewed by the analyst immediately after a sample group was analyzed. The QC sample results were then evaluated to determine if control limits were exceeded. If control limits were exceeded in the sample group, the Project QA Manager was contacted immediately, and corrective action (e.g., method modifications followed by reprocessing the affected samples) was initiated prior to processing a subsequent group of samples.

All primary chemical standards and standard solutions used in this project were traceable to documented, reliable, commercial sources. Standards were validated to determine their accuracy by comparison with an independent standard. Any impurities found in the standard were documented.

Apex Laboratories, LLC (Apex), Analytical Resources Inc. (ARI), and Columbia Analytical Services (CAS) conducted initial and continuing calibrations, and prepared and analyzed laboratory duplicates, MS/MSDs, and method blanks in accordance with the QAPP (Appendix J of the RAWP, Anchor 2008b).

9.5 Data Validation

Laboratory data were validated by Laboratory Data Consultants, Inc. (LDC) of Carlsbad, California. The data validations were performed under the functional guidelines (USEPA 1999, 2004) and following criteria outlined in the WQMP and QAPP (Appendices H and J of the RAWP, respectively, Anchor 2008b). The data validation verified the analytical accuracy and precision of the chemical analyses performed during this monitoring effort. The data may have been qualified as estimated for a particular analysis based on method or technical criterion. Data qualified with a "J" indicates that the associated numerical value is the approximate concentration of the analyte. Data qualified with a "UJ" indicates the approximate reporting limit below which the analyte was not detected. Consequently, these

KMB00006668

data qualifications are not expected to alter the data quality objectives defined in the WQMP and the QAPP. Validation reports are provided in Appendix J.

Borrow source material samples were collected by ACA and HME and analyses of these samples were performed by CAS. Data validations were not conducted on these datasets.

KMB00006669

10 CERTIFICATIONS AND INSTITUTIONAL CONTROLS

10.1 Final USEPA Approval

Through USEPA's acceptance of the Draft RACR and subsequent revisions addressing comments on the draft document, USEPA has approved the contents of the Final RACR. Formal written documentation of this acceptance is expected after the Final RACR is submitted. It should be noted that USEPA approved the completion of the dredging, capping, and shoreline stabilization operations sufficient for equipment to be removed from the site.

10.2 Institutional Controls

Institutional controls for the site, which cover the period of time between the Phase I and Phase II actions, are described below. The overall protectiveness of the Phase I Removal Action will be further enhanced by implementation of institutional controls for areas where contaminated sediment is contained in place with caps. The primary objective for the institutional controls is protecting the integrity of the capped surfaces such that the underlying isolated sediment remains isolated.

To meet this objective, regulated navigation areas will be established in capped areas. These areas will also be identified on the Port-maintained T4 base-map that is used for construction/redevelopment activities. Notification to the Port's tenants alerting them to the location of the capped areas will also be implemented to protect the integrity of the capped surfaces. Finally, easements or restrictive covenants regarding the cap areas will be executed to ensure that future property owners are aware of the capped areas and long-term maintenance and monitoring requirements.

Regulated Navigation Areas – Regulated navigation area (RNA) requests for the head of Slip 3 cap and Wheeler Bay cap areas were submitted to USCG on March 31, 2009. A copy of the RNA request memorandum was also sent to USEPA for documentation purposes and is included as Appendix T. Specific activities that will be limited in each capped area are listed below:

- Head of Slip 3: anchoring, dragging, trawling, or other activities that may disrupt the function or affect the integrity of the cap, such as prop scour limitations.

KMB00006670

- Wheeler Bay: anchoring, dragging, trawling, or other activities that may disrupt the function or affect the integrity of the cap, such as prop scour and/or vessel transit limitations of capped areas at flood stage.

The coordinates for the boundaries of the capped areas were given to USCG in the RNA designation request, which will be placed onto their nautical maps and made available to boaters.

Update the Terminal 4 Base-map – The location of the capped area will be placed on the electronic T4 base-map to alert personnel conducting future construction activities of the capped area. Additionally, a statement requiring coordination with the Port's Marine Environmental department prior to conducting any construction activities within the footprint of the capped area will also be placed on the base-map. For any engineering design or construction work to be performed at a Port terminal, the design work would start from the base-map. The Port's CAD manager is responsible for maintaining the base-map or the official record of the Port's assets and situation at T4. As such, the base-map is the one appropriate place to secure geographic information that will be available and known for future construction activities.

Notification to Port Tenants – As appropriate, written notification will be given to the Port's tenants about the presence of the capped area, which will include the following:

- Instructions and maps that show areas where boat and ship traffic should be minimized and anchoring prohibited, including notice of the RNA
- Direction that all proposed work in the vicinity of a cap should be cleared with the Port prior to starting
- Direction that excavation and/or purposeful sediment disturbance shall not be conducted in the capped areas
- Direction that the Port shall be notified in the event of any possible damage to a capped area

Currently, there are no tenants who have leaseholds or rights of use in the cap areas; however, T4 tenants will be notified regarding the restrictions in the cap areas through the RNA notification process.

KMB00006671

Additionally, lease language protecting the integrity of the capped area will be provided for any new tenants that occupy Port property at T4 to the extent the lease permits use of areas on, over, or in the direct vicinity of the capped areas. Similar provisions will be implemented for existing tenants upon occurrence of lease expiration and renewal.

Easement or Covenant – An easement or restrictive covenant will be filed in the property record documenting the cap locations and the interim monitoring requirements as stated in the IMRP (Appendix C of the DAR, Anchor 2008a). The Port will file the restrictive covenant when the final cap area is known and complete and there are long-term monitoring and maintenance plan requirements to include with the filing. This will be completed as part of Phase II. All of the Slip 3 area is owned by the Port, and only a small portion of the Wheeler Bay bank is owned by DSL. The Port has an application pending with DSL to acquire this area at the time the full size Wheeler Bay cap is known, and DSL has no plans for this area. There is no risk that this area would be leased or sold prior to implementation of Phase II. However, if before Phase II there are any plans to lease or sell the areas where the caps are located, a restrictive covenant will be placed at that time.

KMB00006672

11 CONSTRUCTION COSTS

This section presents a summary of Phase I Removal Action implementation costs for dredging, disposal, capping, and shoreline stabilization work at T4. These costs also include project change orders, staging and access, construction management, construction monitoring, and projected interim monitoring. Costs for investigation, design, and permitting are not included. All costs are in 2008 dollars.

Contractor Costs – Wheeler Bay	$761,272	
Mob/demob		$44,488
Work plans		$5,832
Wheeler Bay Shoreline Stabilization		$495,148
Construction Debris Haul and Dispose		$6,577
Construction Management		$84,610
Construction change orders*		$124,618
Contractor Costs – HME Construction (Dredging and Capping)	$3,758,230	
Mob/demob		$570,000
Work plans		$62,000
Dredging (transportation & disposal incl)		$1,773,373
Sand layer		$58,450
Head of Slip 3 cap		$734,250
Unsuitable soil haul		$188,280
Incentive pay awarded for WQ		$50,000
Construction change orders^		$321,877
Survey—David Evans and Associates	$61,189	
Port Internal Costs	$693,503	
Landscaping		$24,285
Project Management		$166,519
Implementation		$345,266
Construction		$157,433
Anchor Costs	$850,882	
Project Planning and Pre-construction Preparation		$221,122
Dredging and Capping Construction Oversight and Engineering Support		$182,700
Construction Environmental Monitoring and Lab Fees		$234,862
Preparation of the Removal Action Completion Report		$58,300
Wheeler Bay Coordination		$7,105
Interim Monitoring and Reporting (Projected Costs)		$146,793

KMB00006673

Agency Oversight	
EPA Oversight	$216,286
DEQ Oversight	$14,964
Total	**$6,295,137**

*Construction Change Orders
#1 Utility Relocation
#2 Temporary Construction Fence
#3 Remove Fire Boat Structure
#4 Habitat Rock
#5 - #8 Additional Grading/Filling

^CC-s:
Batch discharge testing for sanitary sewer
Pile removal at head of Slip 3
Accelerated construction schedule
Turbidity curtain
Head of Slip 3 cap

KMB00006674

12 LESSONS LEARNED

This section provides a summary of lessons that were learned throughout the implementation of Phase I of the Removal Action that may be important to refer to during subsequent Phase II construction activities.

Design, Plans, and Specifications

- A more detailed pre-design survey of utilities and other features in the project area would have avoided schedule delays and the need for additional coordination with USEPA and NMFS when pre-existing site conditions were encountered during construction.
- More specific material specifications would aid the contractor in providing the correct material (i.e., habitat mix material).
- When it was identified that not all stations could be monitored in a 1-hour period, the Port and USEPA came up with a solution quickly that did not compromise the intent of the requirement. USEPA believes that better planning of implementation issues related to water quality sampling would have avoided the surprise that the requirements of the WQMCCP (USEPA 2008 and Appendix R) could not be implemented due to time constraints. The Port believes that having a WQMCCP that is flexible and able to be adjusted to accommodate actual field conditions while still efficiently and effectively meeting the intent of the requirement is equally important.
- Involving the primary and secondary analytical laboratories prior to the beginning of the construction activities and explaining the importance of meeting the specified turnaround times facilitated coordination efforts after samples were submitted and led to consistently reliable turnaround time results.
- Requiring the contractor to submit borrow source analytical results well in advance of planned capping activities would have avoided material approval delays due to issues with the outstanding analytical results.
- It was beneficial to allow flexibility in the plans and specifications to provide room for contractor input on construction means and methods. The contractor's use of a Spider-hoe to perform precision excavation and material placement work along the steep bank where the head of Slip 3 upland cap was constructed is an example of this flexibility.
- It is important to complete all permits, substantive requirements, and ESA consultations well in advance of the construction start date to avoid last-minute delays and expenses,

KMB00006675

to have adequate time to resolve any inconsistencies between Biological Opinion requirements and other substantive requirements, and to ensure that all requirements are incorporated into contractor specifications. Last-minute issues did arise related to the Biological Opinion that could have resulted in construction delay and significant unplanned expense. Since Phase II will have a considerably more aggressive schedule due to the work planned during a limited in-water work period, the Port feels some additional resolution will be necessary to mitigate this significant risk for future work.

- It was beneficial to consider "what ifs" to the extent practicable. The improvements to The Dalles transloading facility were an example of this, where despite the usually dry summer months during which this construction took place, USEPA made the recommendation that a contingency plan for rain events be practically applied at the facility. This was good because there were days with considerable rain during transloading.
- The background monitoring station should be placed in an area representative of the compliance locations. Midway through the project, the Port determined that the background station was too close to shore and in too shallow of water compared to the location and depth of the turbidity points of compliance. This determination was based on turbidity readings at the turbidity points of compliance that were not attributed to ongoing dredging operations. The Port recommended re-establishing the background station at a more representative location and USEPA agreed. Flexibility within future water quality monitoring plans with respect to re-establishing the background station and/or establishing multiple background stations representative of each construction activity subarea is recommended.
- Water quality monitoring points of compliance and early warning locations should be realistic to account for site configuration, operations, and material characteristics. Based on analysis of the dredging operation, site physical constraints, and water quality model predictions (Anchor 2008c), the compliance boundary for turbidity was set at 100 meters from the mouth of Slip 3. This point of compliance for turbidity was realistic and protective of the environment, as supported by a review of water quality field and laboratory analytical results for turbidity, TSS, and constituents of concern, as described in the next section.

KMB00006676

Water Quality

- A scatterplot of turbidity and TSS results indicates that a relatively weak relationship exists between these two parameters, as shown in Figure 11. Monitoring data with less than 15 mg/L TSS exhibits consistently low turbidity; however, monitoring data with greater than 15 mg/L TSS is associated with a wide range of turbidity values, resulting in a poorer correlation.
- A scatterplot of laboratory analytical results compared to turbidity indicates that little or no relationship exists between these parameters at the detected concentrations, as shown in Figure 12a. The majority of the analytical results were below detection limits, so this analysis was necessarily limited to comparisons with detected zinc and total PAH concentrations. The lack of a correlation indicates that dredging-induced turbidity and suspended solids were well controlled and did not cause appreciable increases in either zinc or total PAH concentrations in the water column.
- A scatterplot of dissolved zinc compared to TSS results indicates that little or no relationship exists between these parameters at the detected concentrations, as shown in Figure 12b. Given a TSS of 20 mg/L and a sediment total zinc concentration of 250 mg/kg, the expected water quality concentration would be 5.0 mg/L, which is below the values shown on the figure. Hence, any dredging impacts are obscured by the average background concentration, which is greater than the expected concentration.
- A scatterplot of total PAHs compared to TSS results indicates that a weak relationship exists between these parameters at the detected concentrations, as shown in Figure 12c. A best fit line was added in order to compare reported results to the expected concentration. Given a TSS of 20 mg/L and a sediment total PAH concentration of 50,000 µg/kg, the expected water quality concentration would be 1.0 µg/L. Comparison of the best fit line to the expected concentration line indicates that reported total PAH concentrations were less than expected, which supports the conclusion that dredging-induced suspended solids were well controlled.
- No exceedances of acute water quality criteria and/or ambient background concentrations were observed at the compliance monitoring stations regardless of which dredging bucket was used (i.e., clamshell or digging). Summary statistics of water quality monitoring data (minimum, median, and maximum concentrations, and percent detections) at background and compliance stations are presented in Table 18.

KMB00006677

- Water quality analytical results were compared to the model predicted concentrations presented in the DAR (Anchor 2008a). Compliance monitoring data for zinc were comparable to ambient background concentrations, and both the background and compliance data were well above model predictions, so the model predictions for zinc could not be reliably evaluated. Compliance monitoring data for PAHs are compared to model predicted concentrations in Table 19 for those infrequent cases when PAHs were detected. This table shows that detected PAH concentrations were usually within a factor of two of model predictions (i.e., less than 100 percent difference) in a majority of cases. However, the large majority of PAH data were undetected (i.e., PAHs were only detected 10 to 20 percent of the time) at detection limits similar to model-predicted concentrations. This comparison is consistent with the model results presented in the DAR.
- Batch water discharge results were compared to acute water quality standards and guidelines in Table 20 to assess the viability of discharging elutriate water directly to the river in future dredging events. PAH concentrations were well below their acute guidelines. All other organic parameters, including pesticides, PCBs, volatile and semivolatile organics, were undetected in the batch water. One lead value and four out of eight zinc values were above their acute criteria. Copper was above its acute criteria but below ambient background levels. All other metals were below their acute criteria. It should be noted, however, that metals analyses were performed on a total basis rather than a dissolved basis (per BES guidelines), whereas most of the acute criteria for metals are expressed in a dissolved basis. Additional settling time might further reduce metals concentrations in the elutriate water. Direct discharge of elutriate water may deserve further evaluation as an alternative to the sanitary sewer in future actions.

Dredging and Capping

Dredging Precision. The precision of the dredging operations was evaluated by calculating the total dredge volume, the volume between the neatline and allowable overdredge depth, and the volume between the allowable overdredge depth and below. Approximately 26 percent of the overall dredged volume was dredged from between the neatline and allowable paid overdredge depth. Approximately 8 percent of the total dredged volume was dredged from below the allowable paid overdredge depth. The contractor's target depth was the allowable

KMB00006678

paid overdredge depth. Hence, the contractor was able to meet the overdredge allowance at a frequency of 92 percent.

Turbidity Control. Effective methods for reducing turbidity levels resulted from a combination of the following operational BMPs that were implemented as a result of elevated turbidity levels during the project:

- The amount of material in each bucket load was reduced.
- The operator closed the bucket as slowly as possible on the bottom.
- The operator paused before hoisting the bucket off of the bottom to allow any overage to settle near the bottom.
- The operator hoisted the bucket through the water column more slowly.
- The operator made sure all the material had been placed into the barge from the bucket before returning the bucket to the water to take another bite of material.

Overwater bucket dewatering was used throughout the project. This activity caused no adverse impact to the receiving water because no exceedances of water quality standards or guidelines were observed (see Table 18).

Sediment Quality Verification. Per the DAR (Anchor 2008a), Section 2.3, Item 1, first bullet, the performance standard used to guide the design of the Phase I Removal Action construction and verification/monitoring activities with respect to sediment was to:

> "Remove contaminated sediments defined as those with surface sediments having a greater than 20 PEC exceedance ratio down to a specified elevation coinciding with PEC exceedance ratios of 10 or less as predetermined by sediment core data."

Post-construction analytical chemistry results from two of the 10 sample locations (06 and 09) in the Berth 411 "Plus" dredging area were above an exceedance ratio of 10 times PEC for several PAHs. In particular, elevated levels of benzo(a)anthracene in locations 06 and 09 caused the average concentration for the Berth 411 "Plus" dredge area to slightly exceed the 10 times PEC goal, by approximately 4 percent. Additionally, the analytical chemistry result for one of the 10 sample locations (09) in the Berth 411 "Plus" dredging area was above an exceedance ratio of 10 times PEC for lead.

KMB00006679

Given the exceedances noted above, the Phase I design process was assessed to determine whether these residual concentrations could have been improved if different design processes or decisions had been followed. In retrospect, the design process was appropriate for meeting the objectives of the abatement action. This conclusion is based on the following:

- There is always some degree of uncertainty in our understanding of contaminant distributions based on inherent physical/chemical variability in the environment. Dredge prism design must manage this uncertainty in a cost-effective manner.
- Additional overdredging beyond the specified 1-foot overdredge allowance could have been specified; however, this would have resulted in more unnecessary dredging of lower concentration materials that would not otherwise require action during Phase I.
- It was recognized during the design process that this was an interim action, and that there was going to be a follow-up phase of remediation (Phase II) to address remaining contamination at T4.
- Post-dredge bathymetric survey data show target dredge elevations were effectively achieved by the contractor.
- Dredging is an imperfect technology, and some amount of residual contamination is expected and nearly always observed (Bridges et al. 2008).
- Nevertheless, sediment verification goals were met 80 percent of the time on an individual sample basis, and nearly 100 percent of the time on an average concentration basis.

KMB00006680

13 PHASE I REMOVAL ACTION CONTACT INFORMATION

The Port of Portland Representatives

Nicole LaFranchise, Project Manager
121 NW Everett Street
Portland, OR 97218
(503) 944-7323

Krista Koehl, Assistant General Counsel
Port of Portland
121 NW Everett Street
Portland, OR 97209
(503) 944-7062

USEPA Project Manager

Sean Sheldrake
USEPA, Region 10
1200 6th Avenue, Suite 900
Seattle, WA 98101-3140
(206) 553-1220

Terminal 4 Project Manager

Tom Schadt
Anchor QEA, LLC
1423 3rd Avenue, Suite 300
Seattle, WA 98101
(206) 287-9130

KMB00006681

Terminal 4 Engineer and Construction Manager

John Verduin, Overall Terminal 4 Engineer, CQAO
Anchor QEA, LLC
1423 3rd Avenue, Suite 300
Seattle, WA 98101
(206) 287-9130

Transloading Facility Engineer and Construction Manager

Rick Schwarz, Transloading Facility Engineer, CQAO
Anchor QEA, LLC
6650 SW Redwood Lane, Suite 110
Portland, OR 97224
(503) 670-1108

Dredging and Capping Contractor

Greg Speyer, Project Superintendent
Hickey Marine Enterprises, Inc.
6801 NW Old Lower River Road
Vancouver, WA 98660
(360) 695-4553

Darrell Jamieson, Site Superintendent
Hickey Marine Enterprises, Inc.
6801 NW Old Lower River Road
Vancouver, WA 98660
(360) 695-4553

Wheeler Bay Shoreline Stabilization Contractor/Subcontractor

Herb Clough, Project Manager
Ash Creek Associates, Inc.
9615 SW Allen Boulevard, Suite 106
Beaverton, OR 97005-4814
(503) 924-4704

KMB00006682

Skip Simpson, Project Superintendent
Envirocon, Inc.
3330 NW Yeon Ave, Suite 240
Portland, OR 97210
(503) 285-6164

Analytical Laboratories

Darwin Thomas, Laboratory Project Manager
Apex Laboratories, LLC
12232 SW Garden Place
Tigard, OR 97223
(503) 718-2323

Lynda Huckestein, Laboratory Project Manager
Columbia Analytical Services
1317 S. 13th Avenue
Kelso, WA 98626
(360) 577-7222

Sue Dunnihoo, Laboratory Project Manager
Analytical Resources, Inc. (ARI)
4611 S. 134th Place
Tukwila, WA 98168-3240
(206) 695-6200

KMB00006683

14 REFERENCES

Anchor. 2006. Design Analysis Report (Prefinal 60 Percent Design Deliverables): Terminal 4 Early Action, Port of Portland, Portland, Oregon. Prepared for the Port of Portland by Anchor Environment, L.L.C. December 2006.

Anchor. 2007a. Abatement Measures Proposal: Terminal 4 Removal Action Project. Prepared for the Port of Portland, by Anchor Environmental, L.L.C. October 25, 2007.

Anchor. 2007b. Sampling and Analysis Plan for Additional Sediment Quality: Characterization for Phase I of the Removal Action, Port of Portland, Terminal 4, Removal Action and Maintenance Dredging T4 Slip 3. Prepared for the Port of Portland by Anchor Environmental, L.L.C. November 30, 2007.

Anchor. 2007c. Biological Assessment: Phase I of the Terminal 4 Removal Action. Prepared for the Port of Portland, by Anchor Environmental, L.L.C.. December 2007.

Anchor. 2008a. Final Design Analysis Report: Terminal 4 Phase I Removal Action. Prepared for the Port of Portland by Anchor Environmental, L.L.C. June 2008.

Anchor. 2008b. Final Removal Action Work Plan: Terminal 4 Phase I Removal Action. Prepared for the Port of Portland by Anchor Environmental, L.L.C. August 2008.

Anchor. 2008c. Memorandum re: Supplemental Analysis and Rationale for the Proposed Turbidity Point of Compliance (100 Meters from the Mouth of Slip 3), Port of Portland—Terminal 4 Phase I Removal Action. March 21, 2008.

Ash Creek/NewFields. 2007. Source Control Alternative Evaluation, Terminal 4 Slip 1 Upland Facility, Operable Unit 2. Port of Portland, Oregon. February 2007.

BBL. 2004. Characterization Report, Terminal 4 Early Action, Port of Portland, Oregon. Blasland, Bouck & Lee, Inc. September 17.

KMB00006684

BBL. 2005. Terminal 4 Early Action Engineering Evaluation/Cost Analysis, Port of Portland, Portland Oregon. Public Review Draft. Blasland, Bouck & Lee, Inc.

BBL et. al. 2005. Construction Completion Report – Bank Excavation and Backfill Remedial Action, Terminal 4 Slip 3 Upland Facility. Blasland, Bouck & Lee, Inc., Ash CreekAssociates, Inc., and Newfields. March 1, 2005.

Bridges, T.S., S. Ells, D. Hayes, D. Mount, S.C. Nadeau, M.R. Palermo, C. Patmont, and P. Schroeder. 2008. The Four Rs of Environmental Dredging: Resuspension, Release, Residual, and Risk. ERDC/EL TR-08-4. Final Report. U.S. Army Corps of Engineers, Engineer Research and Development Center, Washington, D.C.

DEQ. 2002. Default Background Concentrations for Metals, Memorandum dated October 28, 2002. Oregon Department of Environmental Quality.

Ecology and the Environment. 2003. Technical Plans and Specification—Sediment Cap McCormick & Baxter Creosoting Company, Portland, Oregon.

GeoSyntec. 2005. Erosion and Sediment Control Manual. Prepared for Oregon State Department of Environmental Quality by GeoSyntec Consultants. April 2005.

Hart Crowser. 2000. Remedial Investigation Report, Terminal 4, Slip 3 Sediment (Volume I with tables, figures, and Appendices A through E, Port of Portland, Portland, Oregon (available in hard copy and electronically). April 18, 2000.

NMFS. 2008. Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the U.S. Environmental Protection Agency and Port of Portland Terminal 4 Superfund Phase I of the Removal Action, Willamette River (HUC 17090012), Multnomah County, Oregon. National Marine Fisheries Service, No. 2007/08174. July 22, 2008.

Munn. 2008. Email from Nancy Munn, National Marine Fisheries Service, to Elizabeth Appy, Anchor Environmental, regarding dead fish found in Slip 3. September 17, 2008.

KMB00006685

USACE. 1999. Willamette River Sediment Data—1997 CRCD Project. U.S. Army Corps of Engineers.

USEPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Emergency Response. EPA 540/R-99/008. October.

USEPA. 2003a. Administrative Order on Consent for Removal Action in the Matter of Portland Harbor Superfund Site, Terminal 4, Removal Action Area, Portland, Oregon.

USEPA. 2003b. Procedures for Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures. U.S. Environmental Protection Agency, Office of Research and Development, USEPA-600-R-02-013.

USEPA. 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October.

USEPA. 2006. Action Memorandum for Removal Action at the Port of Portland Terminal 4 site within the Portland Harbor Superfund Site, Portland, Multnomah County, Oregon. U.S. Environmental Protection Agency. May 11, 2006.

USEPA. 2008. Water Quality Monitoring and Compliance Conditions Plan for Port of Portland Terminal 4 Non-Time Critical Removal Action Abatement Measures, Phase I. Prepared by Parametrix for the U.S. Environmental Protection Agency. July 2, 2008.

USGS. 2006. National Water Information System Online Database, Station No. 14211720, Willamette River at Portland Oregon, U.S. Geological Survey. http://waterdata.usgs.gov/nwis/sw

Weston. 1998. Portland Harbor Sediment Investigation Report, Multnomah County, Oregon. Roy F. Weston Inc.

KMB00006686

TABLES

Table 1
Summary of Major Events and Milestones – Phase I Removal Action

Event or Milestone	Date
Administrative Order on Consent Signed	October 2, 2003
Design Characterization Sampling	
Pre-Design Submittal	
Engineering Evaluation/Cost Assessment Submittal	February 23, 2004
Final Removal Action Design Submitted to EPA	June 30, 2008
Installation of Fish Diversion Net Complete	August 12, 2008
Dredge and Cap Mobilization and Site Preparation	August 12, 2008
Wheeler Bay Mobilization and Site Preparation	August 5 - August 13, 2008
Air Monitoring Station Installed	August 6, 2008
Dredge and Cap In-water Construction Begins	August 12, 2008
Wheeler Bay Shoreline Stabilization Begins	August 13, 2008
EPA Acceptance of Modified Wheeler Bay Fireboat Pier Removal Plan	August 13, 2008
Berth 414 Square Area Dredging	August 12, 2008 and September 10, 2008
Additional Dredging BMPs Instituted	August 13, 2008
Slip 3 Center Square Area Dredging	August 13 - August 14, 2008
Berth 411 "Plus" Area Dredging	August 18 - August 25, 2008
Berth 410 Area Dredging	August 26 - September 8, 2008
Transfer and Disposal of Dredge and Cap Material	August 18 - October 10, 2008
Head of Slip 3 Cap Placement	September 12 - October 1, 2008
Wheeler Bay Shoreline Stabilization	August 13 - October 14, 2008
EPA Acceptance of Final Dredge/Cap Elevations	
Dredging and Capping Demobilization	October 1, 2008
Wheeler Bay Demobilization	October 13 - October 20, 2008
Equipment Decontamination Activity Complete	October 22, 2008
Removal Action Complete	October 22, 2008
Year 0 sampling for Interim Monitoring	

Table 2
Dredging Design Sample Station Geographic Coordinates

Sampling Station	X-Coordinate	Y-Coordinate
Phase I Area		
T4-B414-01	7,619,646	712,872
T4-PI-01	7,620,427	713,374
T4-PI-02	7,620,431	713,286
T4-PI-03	7,620,288	713,361
T4-PI-03-2	7,620,379	713,391
T4-PI-04	7,620,315	713,395
T4-PI-04-2	7,620,385	713,332
T4-PI-07	7,620,195	713,407
T4-PI-08	7,620,002	713,186
T4-PI-09	7,619,690	712,894
T4-B411-02	7,620,179	713,442
T4-B411-03	7,620,278	713,432
T4-B411-04	7,620,364	713,415
T4-S3-04	7,620,195	713,383
T4-VC24	7,620,329	713,376
SD032	7,620,406	713,381
HC-S-01	7,620,434	713,396
HC-S-02	7,620,436	713,324
HC-S-03	7,620,451	713,237
HC-S-08	7,620,378	713,302
HC-S-09	7,620,394	713,392
HC-S-19	7,620,233	713,429
Berth 410 Maintenance Dredging Area		
T4-01-01	7,619,348	713,577
T4-01-02	7,619,602	713,532
T4-01-03	7,619,825	713,492
T4-B411-01	7,620,075	713,462
T4-MD-01	7,619,744	713,501
T4-MD-02	7,619,498	713,519
HC-S-30	7,619,828	713,461
HC-S-35	7,619,621	713,487
HC-S-37	7,619,426	713,527

Notes:

Coordinates in Oregon State Plane-North (International Feet)

KMB00006689

Table 3
Water Quality Triggers for Additional Environmental Controls

Parameter	Unit	Location	Trigger[a]	Action Triggered
Conventional Parameters				
Turbidity	Nephelometric Turbidity Units (NTU)	- Berth 414 activity: 100m from construction. - All other activity: 100m from mouth of Slip 3.	>5 NTU over background (where background <50 NT)[c] >10% over background (where background >50 NTU)[c] >50 NTU over background[c]	(1) Inspect construction and select an additional control(s) that focus on cause of exceedance. (2) If >50 NTU over background, also cease work and select additional controls
Total Suspended Solids	mg/L	All stations	No trigger.	No trigger.
Dissolved Oxygen	mg/L	100m from construction activity	<6.5 modify operations <6.0 cease operations	Inspect construction and select an additional control(s) that focus on cause of exceedance.
pH	Standard units	100m from construction activity	<6.5 or >8.5	Inspect construction and select an additional control(s) that focus on cause of exceedance.
Temperature	Degrees Centigrade	All Stations	No trigger.	No trigger.
Water Velocity	fps	100m from construction activity	1.0 fps	Stop operations and secure silt curtains and other containment barriers.
Visual Parameters				
Distressed or Dead Fish	Visual Observation	At or in vicinity of Site.	Any distressed, dying, or dead fish.	Stop all operations, collect fish, determine species, notify Services if listed species present, apply controls required by Biological Opinion and/or additional controls for non-listed species.
Turbidity plume	Visual Observation, NTU	At or in vicinity of Site.	(1) Plume attributed to construction activity. (2) Sufficient extent (Plume extends width of compliance zone) (3) Sufficient duration (1 hour or more) (4) Exceedance of turbidity trigger	(1) Inspect construction and select an additional control(s) that focus on cause of exceedance. (2) If >50 NTU over background, also cease work and select additional controls
Metals				
Cadmium	µg/L	100m from construction activity	Chronic: 0.09 Acute: 0.5	For chronic, confirm standard controls and increase monitoring to once per day (see text for exceedances of more than four consecutive days). For acute, inspect construction and select an additional control(s) that focus on cause of exceedance.
Lead	µg/L	100m from construction activity	Chronic: 0.54 Acute: 14	
Zinc	µg/L	100m from construction activity	Chronic: 36 Acute: 36	
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	µg/L	100m from construction activity	Chronic: 56 Acute: 233	For chronic, confirm standard controls and increase monitoring to once per day (see text for exceedances of more than four consecutive days). For acute, inspect construction and select an additional control(s) that focus on cause of exceedance.
Acenaphthylene	µg/L	100m from construction activity	Chronic: 307 Acute: 1277	
Anthracene	µg/L	100m from construction activity	Chronic: 21 Acute: 87	
Benzo(a)anthracene	µg/L	100m from construction activity	Chronic: 2.2 Acute: 9.2	
Benzo(a)pyrene	µg/L	100m from construction activity	Chronic: 0.96 Acute: 4.0	
Benzo(b)fluoranthene	µg/L	100m from construction activity	Chronic: 0.68 Acute: 2.8	
Benzo(g,h,i)perylene	µg/L	100m from construction activity	Chronic: 0.44 Acute: 1.8	
Benzo(k)fluoranthene	µg/L	100m from construction activity	Chronic: 0.64 Acute: 2.7	
Chrysene	µg/L	100m from construction activity	Chronic: 2.0 Acute: 8.3	For chronic, confirm standard controls and increase monitoring to once per day (see text for exceedances of more than four consecutive days). For acute, inspect construction and select an additional control(s) that focus on cause of exceedance.
Dibenzo(a,h)anthracene	µg/L	100m from construction activity	Chronic: 0.28 Acute: 1.2	
Fluoranthene	µg/L	100m from construction activity	Chronic: 7.1 Acute: 30	
Fluorene	µg/L	100m from construction activity	Chronic: 39 Acute: 162	
Ideno(1,2,3-cd)pyrene	µg/L	100m from construction activity	Chronic: 0.28 Acute: 1.2	
Naphthalene	µg/L	100m from construction activity	Chronic: 194 Acute: 807	
Pheneanthrene	µg/L	100m from construction activity	Chronic: 19 Acute: 79	
Pyrene	µg/L	100m from construction activity	Chronic: 10 Acute: 42	

Notes:

a If field parameter monitoring results exceed trigger, then the same field parameter will be measured within 30 minutes of the determination of the exceedance. If the exceedance continues, the additional controls discussed in Section 3 will be implemented.

b Sampling will occur at the specified distance from the edge of the primary (silt curtain) containment barrier. Although flow reversals due to tidal fluctuations are rare, if such reversals are observed, sampling will be conducted up current (background) and down current for field parameters, as appropriate.

c Trigger is exceeded where downstream conditions exceed the specified amounts relative to both the event-specific daily background and the daily updated preconstruction background survey 90th percentile value.

Table 4
Dredging and Capping CCs and RFIs – Phase I Removal Action

Contract Changes				
CO	**CC**	**Issue Encountered**	**Action Required**	**Directive Language**
	1	Accelerated Construction Schedule – In order to accommodate our Tenants, schedule monitoring surveys, and provide overall operational flexibility the schedule needs to be modified from what was originally proposed.	The schedule noted 6.24.08 shows double shifts working between 8.18.08 and 8.26.08.	Enclosed is the revised Hickey Marine Enterprises, Inc.'s (HME) schedule, dated June 24, 2008, which was included in the "Draft" Removal Action Work Plan and accepted by the Port. The schedule reflects shutdowns and double-shift work at Terminal 4, which were not originally anticipated in the original contract documents. HME's cost proposal shall address all cost changes associated with this revised schedule.
	2	Turbidity Curtain – NMFS required additional BMP's in order to dredge at T4	Provide Turbidity Curtain as directed. – Force Account -	
1	3	Costs Associated with Testing for the Sanitary Sewer Discharge – At the time of the bid it was unknown how much water was to be discharged into the City Sanitary Sewer.	Provide the labor and permit information including testing in order to discharge to the Sanitary Sewer at T4	Provide the additional permit testing and information required to discharge the contained dredging water into the sanitary sewer at Terminal 4.
2	4	Piling Removal at the Head of Slip 3 – Several (10) piling are in the general area of the slip 3 capping effort currently under way. In order to perform the capping, the pilings need to be removed.	Pull the piling as a complete unit if possible. If not, cut the piling off at the mud line. Dispose of the muddy side of the pile in an appropriate landfill. Provide tickets showing the tipping fees and that the material was properly disposed.	At the head of Slip 3 at Terminal 4, pull the existing piling (estimated at 10) in the general area of the capping work in order to perform the capping. Dispose of the muddy side of the pile in an appropriate landfill. Provide tickets showing the tipping fees, and that the material was properly disposed.
	5	Head of Slip 3 Organoclay Cap –		

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
1	Request for a Control Point at Terminal 4	Hickey Marine requests the installation and location of a fixed survey control point in the vicinity of Terminal 4 by the Port of Portland. Please identify elevation and Datum.	For information only. Port will establish control point for HME.	See the attached drawing. A 3" Brass Disk, Elevation 31.92 CRD is available at the head of slip 3 in the location shown. The Disk is stamped "T-4-2".	Concur with Port Engineering
2	Dredging grade plan converted from NGVD to CRD	RE: 25 June meeting with the Port. As a follow up to discussions @ the above referenced meeting, please provide a copy of the converted dredge grades from NGVD29 to CRD displayed at the meeting.	For information only. Port will provide HME with dredging grade plan conversion.	The plans for the project are in NGVD29 (Vert) and POP local projection (horizontal coordinates). Since on-going surveying will be done utilizing Columbia River Datum (elevations), by both HMI to control dredging (QC) and DEA to monitor and document bathymetry (QA) we are providing you (attached to this RFI) with a hard copy of the plans converted to CRD from NGVD29 for your use. Since when collecting the data, both DEA and HMI will both collect data in State Plane Coordinates (SPC), we will provide for you later this week, a AutoCAD drawing showing the plan view of slip 3 translated into SPC for use as a background when collecting and displaying spatial data related to dredging.	Concur with Port Engineering
3	RTK	Contract specs for the T-4 Removal Action Section 352023-3 N states the following: The contactor is required to use Real Time Kinematic (RTK) for survey control work. Will Hickey Marine be required to use RTK for the daily progress surveys?. Our subcontactors performing the daily progress surveys have stated that using a single beam echosounder for conducting surveys, DGPS is a more common method for survey control. Will the usage of DGPS be sufficient for our daily progress surveys?.	DGPS is sufficient for daily progress surveys.	I concur.	Refer to above responses.

Table 4
Dredging and Capping CCs and RFIs – Phase I Removal Action

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
4	Double SHFT/Kimber Morgan dock opening schedule	In the 25 June Port of Portland planning meeting, the Port declared a letter to request time and cost impacts associated with the above referenced project and revised approach to accommodate Kinder-Morgan ship loading windows (3 EA) would be forth coming. Hickey Marine has yet to receive the above referenced request for cost impact and time change letter from the Port. To perform the project as depicted on the above referenced schedule incorporated in the RAWP and submitted 25 June costs include but are not limited to: *Provide, mobilize and prepare the fourth material transport barge "Shasta". *Accelerate to double shift operation with supplemental oversight and personnel. *Demobilize and remobilize for the three Kinder Morgan ship loadout periods. Please provide this letter to facilitate finalization of costs associated with this subject to reach resolution. As stated in the 25 June meeting, HME will require a month to prepare the Shasta for usage on the project.	For information only. Port will prepare the requested letter.	Please contact John Durst with respect to the timing of the letter dealing with the accelerated schedule costs.	The Port has issued CC-1 (cost change request) to HME today (7/3/08) to address the schedule change cost impacts.
5	Addendum 1 for CHASP	Hickey Marine requests to change from TYVEK to a reusable cloth coverall as sufficient PPE. Attached is Addendum #1.	N/A	Overalls are acceptable as long as they are laundered regularly. A minimum of once a week would be sufficient. FYI, EPA staff have been consulted and concur with this answer.	Concur with Port Engineering
6	Atlas 10 yard clamshell	HME encountered a hard bottom 12 - 18 inches above neatline grade along the fender pile line and at the center cell at the head of slip 3 (cell #4) during dredging operations with the 20 yd Cable Arm. To achieve neatline grade we request the usage of our 10 yard HD roundnose clamshell as stated in the RAWP 2.6.1 Dredging Location Control and Appendix E Hickey Marine's Dredging Transportation and Disposal Plan pages 4-5.	As noted in the RAWP, the use of a digging bucket was anticipated for this project in some select locations if the cable arm bucket was not heavy enough. We will need to inform EPA and they may require that the water quality monitoring intensity increase.	The use of the Atlas 10 Clamshell is approved. When using the Atlas 10 Clamshell, please employ the following BMPs: -Move the bucket quicker to the barge once the bucket has surfaced. - Raise the bucket more slowly from through the water column. -Tier 1 monitoring would be needed.	Concur with Port Engineering and Consultant
7	Berth 410 Dredging	It is requested that HME is allowed to start dredging in Berth 410 upon completion of Berth 411 before the first scheduled shut down. Dredging would begin inshore and working out towards the mouth of the slip. We are anticipating that we will complete Berth 411 at end of shift Monday 8/25, if possible we would then set up to dredge Berth 410 until the DEA post dredge survey of Berth 411 in the afternoon on Tuesday 8/26. Dredging of Berth 410 could resume on Wednesday 8/26 while waiting for the post survey results of Berth 411.	Anchor recommends that this approach be accepted to give us more float at the end of the project. This will need to be approved by EPA before we can move forward with it.	This acceptable to the Port.	Concur with Port Engineering.
8	Head of slip 3 pile Removal	Hickey Marine Enterprises requests approval to remove the existing pile at the head of slip 3 capping area. The subject pile are deteriorated and are situated in the cap area, which could result in difficult placement of material. If not removed pile may be negatively impacted by capping activity.	Waiting on EPA approval. Nicole forwarded Anchor's attachment on a proposed approached for removal.	Please continue with the Pile removal as discussed. Several comments were made by EPA, I will reiterate them here: -Please remove the complete pile if possible -Utilize Tier 1 water quality monitoring during and for one hour after pile removal occurs -Ensure seep/sheen response measures are in pace and ready to employ -Coordinate removal with Andrew Somes to observe the removal Lastly, please provide ticket information associated with landfill disposal of piling and tipping fees.	Concur with Port Engineering and Consultant

KMB00006692

Table 4
Dredging and Capping CCs and RFIs – Phase I Removal Action

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
9	Berth 410 Dredging	Hickey Marine requests approval to continue dredging in berth 410 while ship is at berth during the time of August 29th thru September 3rd.	For information only to Anchor. Port needs to coordinate with Kinder Morgan as well as EPA for approval.	The Port approves this request and has concurrence from EPA.	Concur with Port Engineering and Consultant
10	Import Material Mix Design	For your information the attached document contains the Organoclay mix design criteria for type 2 and type 3 import materials for the T-4 project as provided via email by Ross Island Sand and Gravel. Please contact HME if you have any issues with this criteria.	It appears that they will be adding 9% organoclay by weight which is equivalent to 10 parts Type 2 material to 1 part organoclay by dry weight. See attached email for clarification. We need to review a grain size distribution plot of the Type 2 material to see if it meets the required gradation. This will need EPA review and approval as well.	I concur	Concur with Port Engineering and Consultant
11	Turbidity Curtain/Bucket Decanting	During cleanup dredging, if HME elects not to decant the digging bucket, resulting in bucket retrieval to the barge without stopping, can the turbidity curtain be eliminated.	This proposal is approved. EPA will also need to approve of this change.	EPA has responded. The proposal is approved.	Concur with Port Engineering and Consultant
12	Armor rock, Type 3 and Type 2 Sand above bulkhead	RE: Call out for Filter Fabric Plan Sheet C-6 not required As a follow up to the conference call with Nicole LaFranchise POP, John Verduin Anchor ENV and Greg Speyer & Mark Riem HME, the understanding is Armor rock (rip rap) placed above the sheet pile bulkhead at the head of Slip 3 will be placed on an 18" minimum thickness of Type 3 Cap material with the supplement of Type 2 Sand at the toe (bulkhead end) as needed. Filter Fabric is not a component of this section of armoring with the Type 3 Cap supplemented with Type 2 sand placed beneath.	After reviewing the drawings again, Anchor is recommending that a filter fabric be used as shown on the drawings. The specifications do not specify which material should be used. We recommend a polypropylene, needlepunched nonwoven geotextile such as Mirafi 160N or equivalent be used.	I concur.	Concur with Port Engineering and Consultant

KMB00006693

Table 5
Terminal 4 Removal Action Capping Material Placement Log Summary

Date	Material Barge	Material Wt in Tons (1)		Material Volume in CY (2)		Total Work Hours		Placement Area
		Day	Total	Day	Total	Day	Total	
12-Sep-08	RI 14	648	648	480	480	10.0	10.0	Sand Layer
13-Sep-08	RI 14	270	918	200	680			Sand Layer
	RI 15	147	1,065	109	789	8.0	18.0	Type 3 Cap material
15-Sep-08	RI 15	380	1,445	281	1,070	11.5	29.5	Type 3 Cap material
16-Sep-08	RI 14	230	1,675	170	1,240			Sand Layer
	Chetco	179	1,854	112	1,352	11.0	40.5	Type 3 Armor Placement
17-Sep-08	Chetco	1,000	2,854	625	1,977	11.0	51.5	Type 3 Armor Placement
18-Sep-08	Chetco	716	3,570	448	2,425	11.5	63.0	Type 3 Armor Placement
24-Sep-08	RI 15 (3)	324	3,894	240	2,665			Type 3 Cap material
	RI 15	257	4,150	190	2,855	8.0	71.0	Type 2 Sand
25-Sep-08	RI 15	149	4,299	110	2,965			Type 2 Sand
	#47	115	4,414	72	3,037	9.5	80.5	Removed slope riprap replaced on Type 2 Sand
30-Sep-08	Reedsport	450	4,864	281	3,318	9.5	90.0	Type 3 Armor Placement
1-Oct-08	Reedsport	360	5,224	225	3,543	9.0	99.0	Type 3 Armor Placement

Notes:

(1) Estimated from barge displacement and bucket counts

(2) Estimated assuming 1.35 tons/cy and barge displacement tonnage

(3) Type 3 Cap material placed 9/23 and 9/24.

Sand layer in tons	1,148
Type 3 cap quantity in tons	851
Type 3 armor quantity in tons	2,705
Type 2 cap quantity in tons	405
Reused riprap in tons	115

Table 6
Terminal 4 Removal Action Dredging Log Summary

Date	Scow	Sediment Wt in Tons (1)		Dredge Volume in CY (2)		Lash Barge Water in Gal (3)		Total Work Hours		Actual Dredge Hours		Daily Dredging Production Rate in cy/hr		Bucket (4)	Area Dredged
		Day	Total	Day	Total	Day	Total	Day	Total	Day	Total	Dredge Hours	Total Hrs		
12-Aug-08	Chetco	391	391	277	277	0	0	10.0	10.0	2.3	2.3	123	28	C	Berth 411 414 Square
13-Aug-08	Chetco	1,144	1,535	811	1,088	10,724	10,724	12.5	22.5	6.8	9.0	120	65	C	Berth 411 Slip 3 Square
14-Aug-08	Chetco	360	1,895	255	1,343	5,360	16,084	9.0	31.5	2.5	11.5	102	28	C	Berth 411 Slip 3 Square
18-Aug-08	Umpqua	849	2,744	602	1,945	10,724	26,808	16.0	47.5	6.8	18.3	89	38	C	Berth 411 Sta 12-24
19-Aug-08	Umpqua	984	3,728	698	2,643		26,808							C	
	Reedsport	565	4,293	372	3,015	5,362	32,170	16.0	63.5	9.2	27.4	117	67	C	Berth 411 Sta 10-40 outside; Sta 12-18 inside
20-Aug-08	Reedsport	760	5,053	539	3,554	26,811	58,981	16.0	79.5	12.3	39.7	44	34	C	Berth 411 Cell 1, 2, 3, 4, 5
21-Aug-08	Reedsport	624	5,677	442	3,996									C	
	Chetco	442	6,119	395	4,391	18,500	77,481	16.0	95.5	10.3	49.9	82	52	C	Berth 411 Cells 2, 3, 5, 6, and 9--grade pass
22-Aug-08	Chetco	1,270	7,389	875	5,266	16,087	93,568	16.0	111.5	13.0	62.9	67	55	C	Berth 411 Cells 7, 8, 9, 10
23-Aug-08	Chetco	675	8,064	465	5,731	32,710	126,278	16.0	127.5	10.8	73.7	43	29	C	Berth 411 Cells 1, 6, 10, 11 and side slopes
24-Aug-08	Umpqua	411	8,475	283	6,014	15,638	141,916	12.0	139.5	5.3	78.9	54	24	D	Berth 411 Cells 4, 2, and 3
25-Aug-08	Umpqua	500	8,975	344	6,358	29,493	171,409	12.0	151.5	6.8	85.7	51	29	D	Berth 411 Cells 2-7; Berth 410 Sta 41-51
26-Aug-08	Umpqua	611	9,586	421	6,779	24,130	195,539	9.5	161.0	5.0	90.7	84	44	D	Berth 410 Sta 42-68
27-Aug-08	Umpqua	466	10,052	323	7,102										
	Reedsport	570	10,622	393	7,495	8,847	204,386	12.0	173.0	9.0	99.7	80	60	C	Berth 410 Sta 68-82
28-Aug-08	Reedsport	766	11,388	543	8,038	12,869	217,255	12.5	185.5	5.8	105.4	94	43	C	Berth 410 Sta 82-90; Berth 411 Sta 42-32 CU
29-Aug-08	Reedsport	652	12,040	462	8,500	5,362	222,617	8.0	193.5	3.0	108.4	154	58	C	Berth 410 Sta 100-105
2-Sep-08	Chetco	920	12,960	635	9,135	2,681	225,298	12.0	205.5	6.3	114.7	102	53	C	Berth 410 Sta 115-125
3-Sep-08	Chetco	1,427	14,387	1,019	10,154	16,087	241,385	11.0	216.5	8.0	122.7	127	93	C	Berth 410 Sta 125-135
4-Sep-08	Umpqua	1,074	15,461	761	10,915	5,362	246,747	12.0	228.5	8.0	130.7	95	63	C	Berth 410 Sta 90-100 & 88-95
5-Sep-08	Umpqua	1,095		776											
	Reedsport	424	16,980	300	11,991	13,405	260,152	12.0	240.5	8.5	139.2	127	90	C	Berth 410 Sta 95-108 & 105-110
6-Sep-08	Reedsport	1,045	18,025	741	12,732	2,681	262,833	12.0	252.5	8.3	147.4	90	62	C	Berth 410 Sta 108-125
8-Sep-08	Reedsport	49	18,074	35	12,767	0	262,833	8.0	260.5	1.5	148.9	NA	NA	C	Berth 410 Cleanup (7 buckets)
10-Sep-08	Reedsport	73	18,147	52	12,819	0	262,833	3.0	263.5	0.3	149.3	156	17	C	Berth 414 Square Cleanup

Notes:

(1) Estimated from barge displacement

(2) Estimated assuming 1.41 tons/cy and barge displacement tonnage

(3) Estimated by stick

(4) C=cable arm; D=digging bucket

Running gallons effluent per cubic yard dredged	20.5	10.2%
Overall Running production rate (cy/total work hours)	49	
Overall Running production rate (cy/actual dredge hours)	86	
Cable Arm production rate (cy/total work hours)	50	
Digging bucket production rate (cy/total work hours)	31	
Running efficiency (dredge hours/total work hours)	57%	
Percent of B411 "Plus" net line volume removed	135%	
Percent of B410 net line volume removed	176%	

KMB00006695

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
1.	8/18	11:00	N/A	Chetco	12349	33.17		
2.	8/18	N/A	N/A	Chetco	12353	33.07		
3.	8/18	N/A	N/A	Chetco	12357	23.12		
4.	8/18	12:10	N/A	Chetco	12359	32.50		
5.	8/18	N/A	N/A	Chetco	12362	32.00		
6.	8/18	12:28	N/A	Chetco	12364	32.72		
7.	8/18	N/A	N/A	Chetco	12366	33.03		
8.	8/18	13:30	N/A	Chetco	12371	26.14		
9.	8/18	13:45	N/A	Chetco	12374	33.65		
10.	8/18	N/A	N/A	Chetco	12379	31.68		
11.	8/18	14:25	N/A	Chetco	12384	32.99		
12.	8/18	14:47	N/A	Chetco	12389	32.45		
13.	8/18	15:43	N/A	Chetco	12391	30.29		
14.	8/18	15:58	8508	Chetco	12392	34.00	**440.81**	
1.	8/19	6:43	51	Chetco	12400	31.53		
2.	8/19	6:58	41	Chetco	12402	34.07		
3.	8/19	7:08	20	Chetco	12403	32.39		
4.	8/19	7:21	10	Chetco	12407	34.22		
5.	8/19	7:35	19	Chetco	12408	36.22		
6.	8/19	7:48	46	Chetco	12409	33.55		
7.	8/19	8:27	51	Chetco	12413	32.32		
8.	8/19	8:53	41	Chetco	12420	33.26		
9.	8/19	9:05	20	Chetco	12421	32.70		
10.	8/19	9:40	10	Chetco	12425	37.34		
11.	8/19	9:57	19	Chetco	12430	32.56		
12.	8/19	10:15	51	Chetco	12432	34.10		
13.	8/19	10:44	41	Chetco	12436	32.61		
14.	8/19	10:58	46	Chetco	12439	32.58		
15.	8/19	11:12	20	Chetco	12441	32.80		
16.	8/19	11:29	10	Chetco	12444	27.86		
17.	8/19	11:45	19	Chetco	12448	33.18		
18.	8/19	12:49	41	Chetco	12461	34.89		
19.	8/19	13:03	20	Chetco	12463	32.24		
20.	8/19	13:28	10	Chetco	12465	29.46		
21.	8/19	13:41	51	Chetco	12466	32.83		
22.	8/19	13:56	19	Chetco	12469	32.60		
23.	8/19	14:11	46	Chetco	12470	33.20		
24.	8/19	14:31	41	Chetco	12475	31.42		
25.	8/19	14:55	20	Chetco	12479	32.27		
26.	8/19	15:13	10	Chetco	12483	33.33		
27.	8/19	15:28	51	Chetco	12485	35.32		
28.	8/19	15:42	19	Chetco	12488	33.15	**924.00**	
1.	8/20	6:28	51	Chetco	12494	33.23		
2.	8/20	6:45	46	Chetco	12497	32.13		
3.	8/20	6:58	41	Chetco	12498	32.87		
4.	8/20	7:15	20	Chetco	12504	32.31		
5.	8/20	7:31	10	Chetco	12506	22.86		
6.	8/20	8:05	51	Chetco	12509	33.03		
7.	8/20	8:48	41	Chetco	12517	32.48		
8.	8/20	9:00	20	Chetco	12522	32.97		
9.	8/20	9:17	10	Chetco	12541	32.70		
10.	8/20	9:37	46	Chetco	12540	32.31		
11.	8/20	10:22	41	Chetco	12545	32.64		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
12.	8/20	10:30	51	Chetco	12550	27.52		
13.	8/20	10:49	20	Chetco	12555	34.05		
14.	8/20	11:06	10	Chetco	12554	32.58		
15.	8/20	11:42	46	Chetco	12559	32.85		
16.	8/20	11:58	51	Chetco	12560	33.70		
17.	8/20	12:08	41	Chetco	12562	32.83		
18.	8/20	12:16	20	Chetco	12565	32.97		
19.	8/20	12:25	19	Chetco	12572	33.66		
20.	8/20	12:43	10	Chetco	12578	33.46		
21.	8/20	13:26	51	Chetco	12579	32.62		
22.	8/20	13:59	41	Chetco	12591	32.21		
23.	8/20	14:08	20	Chetco/Umpqua	12587	33.05		**2,105.84**
24.	8/20	14:26	46	Umpqua	12588	27.90		
25.	8/20	14:42	19	Umpqua	12590	34.56		
26.	8/20	14:54	10	Umpqua	12595	35.35		
27.	8/20	15:03	51	Umpqua	12597	33.63		
28.	8/20	15:38	41	Umpqua	12599	32.81		
29.	8/20	15:47	20	Umpqua	12602	34.86		
30.	8/20	16:17	19	Umpqua	12604	32.26		
31.	8/20	16:35	51	Umpqua	12603	31.35		
32.	8/20	16:50	46	Umpqua	12606	24.78		
33.	8/20	17:10	41	Umpqua	12605	32.82	**1,061.35**	
1.	8/21	6:13	46	Umpqua	12607	33.15		
2.	8/21	6:25	51	Umpqua	12611	34.88		
3.	8/21	6:40	41	Umpqua	12614	34.15		
4.	8/21	6:46	19	Umpqua	12615	31.75		
5.	8/21	7:05	20	Umpqua	12620	34.03		
6.	8/21	7:17	10	Umpqua	12621	31.38		
7.	8/21	7:40	46	Umpqua	12623	33.04		
8.	8/21	7:50	51	Umpqua	12624	34.82		
9.	8/21	8:14	41	Umpqua	12627	33.16		
10.	8/21	8:24	19	Umpqua	12629	31.85		
11.	8/21	8:58	10	Umpqua	12635	26.87		
12.	8/21	9:28	46	Umpqua	12637	33.31		
13.	8/21	9:36	51	Umpqua	12639	33.46		
14.	8/21	9:51	22	Umpqua	12644	33.41		
15.	8/21	10:00	20	Umpqua	12643	35.34		
16.	8/21	10:09	41	Umpqua	12646	34.80		
17.	8/21	10:33	19	Umpqua	12648	33.50		
18.	8/21	10:44	10	Umpqua	12651	32.77		
19.	8/21	10:53	46	Umpqua	12654	32.91		
20.	8/21	11:07	51	Umpqua	12659	33.17		
21.	8/21	11:24	20	Umpqua	12664	34.30		
22.	8/21	11:37	22	Umpqua	12670	32.96		
23.	8/21	11:53	41	Umpqua	12671	32.40		
24.	8/21	11:59	19	Umpqua	12674	24.97		
25.	8/21	12:26	10	Umpqua	12676	33.99		
26.	8/21	12:40	51	Umpqua	12681	34.12		
27.	8/21	13:16	20	Umpqua	12683	32.66		
28.	8/21	13:40	46	Umpqua	12685	33.64		
29.	8/21	14:05	22	Umpqua	12688	32.93		
30.	8/21	14:25	41	Umpqua	12689	33.26		
31.	8/21	14:38	19	Umpqua	12692	33.40		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
32.	8/21	14:53	51	Umpqua	12693	33.60		
33.	8/21	15:02	10	Umpqua	12695	32.05		
34.	8/21	15:25	20	Umpqua	12697	33.60		
35.	8/21	15:40	46	Umpqua	12703	34.71		
36.	8/21	16:03	22	Umpqua	12700	33.90	**1,188.24**	
1	8/22	6:15	46	Umpqua	12704	32.66		
2	8/22	6:31	51	Umpqua	12708	31.32		
3	8/22	6:42	41	Umpqua	12712	33.08		
4	8/22	7:05	22	Umpqua	12715	34.59		
5	8/22	7:12	20	Umpqua	12718	32.91		
6	8/22	7:22	10	Umpqua	12719	27.30		
7	8/22	8:10	51	Umpqua	12723	32.89		
8	8/22	8:18	46	Umpqua	12725	33.33		
9	8/22	8:47	41	Umpqua	12732	33.75		
10	8/22	9:02	20	Umpqua	12734	32.85		
11	8/22	9:26	26	Umpqua	12736	33.61		
12	8/22	9:35	10	Umpqua	12739	32.33		
13	8/22	9:49	51	Umpqua	12741	34.25		
14	8/22	9:56	46	Umpqua	12743	33.58		
15	8/22	10:24	41	Umpqua	12748	34.02		
16	8/22	10:35	20	Umpqua/Reedsport	12749	33.16		**2,034.19**
17	8/22	11:04	22	Reedsport	12755	35.41		
18	8/22	11:15	51	Reedsport	12757	33.95		
19	8/22	11:55	46	Reedsport	12765	32.97		
20	8/22	12:06	41	Reedsport	12770	32.52		
21	8/22	12:28	21	Reedsport	12773	33.06		
22	8/22	12:40	22	Reedsport	12780	35.54		
23	8/22	12:55	51	Reedsport	12785	35.10		
24	8/22	13:05	21	Reedsport	12786	32.47		
25	8/22	13:20	46	Reedsport	12789	32.44		
26	8/22	13:45	26	Reedsport	12793	32.67		
27	8/22	14:30	22	Reedsport	12804	37.11		
28	8/22	14:37	51	Reedsport	12805	33.31		
29	8/22	14:49	41	Reedsport	12808	33.08		
30	8/22	15:15	21	Reedsport	12822	32.80		
31	8/22	15:44	46	Reedsport	12829	32.16		
32	8/22	15:53	51	Reedsport	12830	33.77		
33	8/22	16:05	22	Reedsport	12831	36.32		
34.	8/22	16:22	41	Reedsport	12832	31.96	**1,132.27**	
1	8/23	6:10	46	Reedsport	12842	32.62		
2	8/23	6:21	51	Reedsport	12843	34.09		
3	8/23	6:43	41	Reedsport	12845	32.35		
4	8/23	6:57	22	Reedsport	12846	36.00		
5	8/23	7:34	46	Reedsport	12850	32.04		
6	8/23	7:46	51	Reedsport	12852	34.56		
7	8/23	8:13	41	Reedsport	12854	33.36		
8	8/23	9:05	51	Reedsport	12859	32.65		
9	8/23	9:30	46	Reedsport	12863	33.00		
10	8/23	9:57	41	Reedsport	12866	33.31		
11	8/23	10:19	51	Reedsport	12868	34.51		
12	8/23	10:30	22	Reedsport	12870	32.64		
13	8/23	10:47	46	Reedsport	12871	32.67		
14	8/23	11:27	41	Reedsport	12872	32.13		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
15	8/23	11:48	51	Reedsport	12874	34.87		
16	8/23	12:04	22	Reedsport	12875	32.49		
17	8/23	12:12	46	Reedsport	12876	33.21		
18	8/23	12:57	41	Reedsport	12881	33.43	**599.93**	
1	8/25	6:30	41	Reedsport	12891	35.66		
2	8/25	6:39	22	Reedsport	12894	38.09		
3	8/25	6:55	9519	Reedsport	12895	33.23		
4	8/25	7:03	20	Reedsport	12896	33.82		
5	8/25	7:24	46	Reedsport	12907	32.44		
6	8/25	8:04	41	Reedsport	12910	32.95		
7	8/25	8:26	22	Reedsport	12916	32.57		
8	8/25	8:37	20	Reedsport	12923	32.67		
9	8/25	8:47	9519	Reedsport	12927	32.23		
10	8/25	9:01	51	Reedsport	12930	34.13		
11	8/25	9:19	46	Reedsport	12931	28.78		
12	8/25	9:41	41	Reedsport	12933	32.46		
13	8/25	10:00	22	Reedsport	12937	32.72		
14	8/25	10:10	20	Reedsport	12939	33.89		
15	8/25	10:20	9519	Reedsport	12940	32.33		
16	8/25	10:35	51	Reedsport	12945	32.57		
17	8/25	11:10	46	Reedsport	12954	33.42		
18	8/25	11:27	41	Reedsport	12957	33.66		
19	8/25	11:34	22	Reedsport	12959	34.40		
20	8/25	11:43	20	Reedsport	12962	32.85		
21	8/25	11:55	9519	Reedsport	12965	29.75		
22	8/25	12:31	46	Reedsport	12971	28.49		
23	8/25	12:45	41	Reedsport	12972	33.26		
24	8/25	13:11	22	Reedsport	12977	36.17		
25	8/25	13:17	20	Reedsport	12978	32.21		
26	8/25	13:30	9519	Reedsport	12981	32.59	**857.34**	**2,063.91**
1	8/26	6:50	41	Chetco	13004	32.92		
2	8/26	7:15	46	Chetco	13011	33.98		
3	8/26	7:30	22	Chetco	13057	31.23		
4	8/26	7:36	9519	Chetco	13015	32.95		
5	8/26	7:42	20	Chetco	13019	33.79		
6	8/26	8:32	41	Chetco	13026	33.02		
7	8/26	8:40	51	Chetco	13028	32.22		
8	8/26	8:53	46	Chetco	13030	31.97		
9	8/26	9:04	22	Chetco	13033	32.93		
10	8/26	9:14	20	Chetco	13034	32.67		
11	8/26	9:24	9519	Chetco	13036	30.83		
12	8/26	10:03	41	Chetco	13048	32.93		
13	8/26	10:15	51	Chetco	13045	33.15		
14	8/26	10:23	46	Chetco	13051	31.05		
15	8/26	10:40	22	Chetco	13054	31.28		
16	8/26	10:46	20	Chetco	13056	33.04		
17	8/26	10:55	9519	Chetco	13058	31.85		
18	8/26	11:36	51	Chetco	13069	32.86		
19	8/26	11:50	41	Chetco	13071	32.09		
20	8/26	12:00	46	Chetco	13074	35.23		
21	8/26	12:10	22	Chetco	13077	33.34		
22	8/26	12:24	20	Chetco	13079	34.12		
23	8/26	12:42	9519	Chetco	13086	32.90		

KMB00006699

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total (tons)	Barge Total (tons)
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons		
24	8/26	13:08	51	Chetco	13096	33.23		
25	8/26	13:25	41	Chetco	13098	31.59		
26	8/26	13:47	22	Chetco	13099	33.81		
27	8/26	13:54	20	Chetco	13101	33.62		
28	8/26	14:16	46	Chetco	13106	33.73		
29	8/26	14:33	9519	Chetco	13112	33.82		
30	8/26	14:43	51	Chetco	13109	30.13		
31	8/26	15:10	41	Chetco	13117	33.56		
32	8/26	15:18	22	Chetco	13119	33.20		
33	8/26	15:26	20	Chetco	13120	34.05		
34	8/26	15:37	46	Chetco	13122	30.55		
35	8/26	15:58	9519	Chetco	13123	31.79		
36	8/26	16:37	41	Chetco	13124	32.68		
37	8/26	16:45	22	Chetco	13125	32.17		
38	8/26	16:51	20	Chetco	13126	32.26	**1,242.54**	
1	8/27	6:26	51	Chetco	13129	34.93		
2	8/27	6:33	41	Chetco	13131	34.00		
3	8/27	6:41	46	Chetco	13132	35.41		
4	8/27	6:46	22	Chetco	13135	29.75		
5	8/27	6:53	20	Chetco	13137	32.19		
6	8/27	7:02	9519	Chetco	13138	31.30		
7	8/27	7:53	51	Chetco	13145	31.91		
8	8/27	8:00	41	Chetco	13146	34.81		
9	8/27	8:10	22	Chetco	13149	31.89		
10	8/27	8:18	20	Chetco	13151	33.37		
11	8/27	8:25	46	Chetco	13153	33.17		
12	8/27	8:32	9519	Chetco	13155	30.24		
13	8/27	9:02	51	Chetco	13158	33.35		
14	8/27	9:23	41	Chetco	13161	33.74		
15	8/27	9:37	13	Chetco	13165	33.32		
16	8/27	9:45	22	Chetco	13170	29.59		
17	8/27	9:49	20	Chetco	13171	32.85		
18	8/27	10:00	46	Chetco	13174	34.37		
19	8/27	10:13	9519	Chetco	13178	31.41		
20	8/27	10:28	51	Chetco	13180	34.07		
21	8/27	10:50	41	Chetco	13182	33.22		
22	8/27	10:57	13	Chetco	13185	34.59		
23	8/27	11:08	22	Chetco	13186	31.64		
24	8/27	11:16	20	Chetco	13187	33.13		
25	8/27	11:26	46	Chetco	13189	33.85		
26	8/27	11:42	9519	Chetco	13192	30.22		
27	8/27	11:55	51	Chetco	13194	32.47		
28	8/27	12:16	41	Chetco	13203	32.89		
29	8/27	12:25	13	Chetco	13206	34.37		
30	8/27	12:34	22	Chetco	13207	32.74		
31	8/27	12:40	20	Chetco	13208	33.91		
32	8/27	12:47	46	Chetco	13211	33.25		
33	8/27	13:27	9519	Chetco	13218	32.66		
34	8/27	13:35	51	Chetco	13219	33.00		
35	8/27	14:02	22	Chetco	13225	34.87		
36	8/27	14:10	20	Chetco	13227	33.22		
37	8/27	14:25	41	Chetco	13231	33.55		
38	8/27	14:43	46	Chetco	13234	33.09		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
39	8/27	14:52	51	Chetco	13239	33.33		
40	8/27	15:01	9519	Chetco	13241	32.83	**1,318.50**	**2,561.04**
1	8/28	6:45	51	Umpqua	13255	33.46		
2	8/28	6:57	41	Umpqua	13259	33.30		
3	8/28	7:20	46	Umpqua	13264	33.28		
4	8/28	7:26	20	Umpqua	13268	34.06		
5	8/28	7:44	22	Umpqua	13277	34.15		
6	8/28	8:12	51	Umpqua	13278	33.05		
7	8/28	8:23	9519	Umpqua	13281	34.29		
8	8/28	8:39	41	Umpqua	13285	32.94		
9	8/28	8:56	46	Umpqua	13289	32.76		
10	8/28	9:10	20	Umpqua	13292	33.20		
11	8/28	9:19	22	Umpqua	13297	30.23		
12	8/28	9:50	9519	Umpqua	13300	33.13		
13	8/28	10:15	41	Umpqua	13301	33.09		
14	8/28	10:25	46	Umpqua	13304	33.44		
15	8/28	10:33	20	Umpqua	13306	32.97		
16	8/28	10:40	51	Umpqua	13308	30.08		
17	8/28	10:52	22	Umpqua	13315	31.96		
18	8/28	11:00	13	Umpqua	13318	32.38		
19	8/28	11:30	9519	Umpqua	13321	32.76		
20	8/28	11:46	46	Umpqua	13323	32.44		
21	8/28	11:53	20	Umpqua	13326	34.57		
22	8/28	12:06	41	Umpqua	13329	32.14		
23	8/28	12:14	51	Umpqua	13333	31.25		
24	8/28	12:25	22	Umpqua	13336	32.94		
25	8/28	12:33	13	Umpqua	13340	32.71		
26	8/28	13:20	46	Umpqua	13356	32.01		
27	8/28	13:29	9519	Umpqua	13359	33.96		
28	8/28	13:54	20	Umpqua	13361	33.87		
29	8/28	14:03	41	Umpqua	13363	33.37		
30	8/28	14:15	51	Umpqua	13365	35.61		
31	8/28	14:24	22	Umpqua	13366	33.73		
32	8/28	14:34	13	Umpqua	13368	29.91		
33	8/28	15:00	9159	Umpqua	13373	31.76		
34	8/28	15:15	46	Umpqua	13374	35.56		
35	8/28	15:22	20	Umpqua	13378	34.05		
36	8/28	15:39	41	Umpqua	13379	33.63		
37	8/28	15:55	22	Umpqua	13381	35.32		
38	8/28	16:28	46	Umpqua	13382	33.89	**1,257.25**	
1	8/29	6:19	51	Umpqua	13390	33.89		
2	8/29	6:31	41	Umpqua	13391	34.19		
3	8/29	6:40	46	Umpqua	13394	32.57		
4	8/29	6:50	22	Umpqua	13395	32.13		
5	8/29	6:56	9519	Umpqua	13397	31.26		
6	8/29	7:04	20	Umpqua	13398	33.61		
7	8/29	7:46	51	Umpqua	13403	36.79		
8	8/29	8:05	41	Umpqua	13406	32.92		
9	8/29	8:16	46	Umpqua	13408	33.43		
10	8/29	8:24	22	Umpqua	13410	33.62		
11	8/29	8:32	9519	Umpqua	13412	30.73		
12	8/29	8:43	20	Umpqua	13413	33.60		
13	8/29	9:13	51	Umpqua	13421	33.93		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
14	8/29	9:22	13	Umpqua	13426	32.89		
15	8/29	9:37	41	Umpqua	13427	33.83		
16	8/29	9:48	46	Umpqua	13430	32.36		
17	8/29	10:03	22	Umpqua	13435	36.61		
18	8/29	10:10	9519	Umpqua	13436	32.97		
19	8/29	10:22	20	Umpqua	13438	33.32		
20	8/29	10:35	51	Umpqua	13440	33.70		
21	8/29	10:40	13	Umpqua	13444	32.60		
22	8/29	11:08	41	Umpqua	13451	33.18		
23	8/29	11:18	46	Umpqua	13448	31.76		
24	8/29	11:34	22	Umpqua	13454	36.31		
25	8/29	11:43	9519	Umpqua	13456	31.79		
26	8/29	11:51	20	Umpqua	13457	32.93		
27	8/29	12:09	51	Umpqua	13461	33.94	**900.86**	
1	9/2	6:38	41	Umpqua	13555	31.69		
2	9/2	6:45	22	Umpqua	13560	29.80		**2,219.60**
3	9/2	7:09	9519	Reedsport	13565	32.51		
4	9/2	7:37	20	Reedsport	13570	33.98		
5	9/2	8:31	9519	Reedsport	13573	32.40		
6	9/2	8:47	41	Reedsport	13577	33.71		
7	9/2	8:57	13	Reedsport	13579	33.51		
8	9/2	9:12	46	Reedsport	13582	33.03		
9	9/2	9:20	20	Reedsport	13584	32.12		
10	9/2	9:56	51	Reedsport	13587	33.17		
11	9/2	10:11	9519	Reedsport	13589	32.62		
12	9/2	10:32	41	Reedsport	13594	32.92		
13	9/2	10:40	13	Reedsport	13596	32.69		
14	9/2	10:56	46	Reedsport	13597	32.82		
15	9/2	11:07	20	Reedsport	13599	32.22		
16	9/2	11:25	51	Reedsport	13601	33.92		
17	9/2	11:43	9519	Reedsport	13608	32.73		
18	9/2	12:15	41	Reedsport	13612	34.19		
19	9/2	12:25	13	Reedsport	13613	33.33		
20	9/2	12:44	46	Reedsport	13616	32.99		
21	9/2	13:01	20	Reedsport	13618	32.84		
22	9/2	13:09	51	Reedsport	13619	35.78		
23	9/2	13:22	9519	Reedsport	13620	31.10		
24	9/2	13:50	41	Reedsport	13626	32.15		
25	9/2	13:59	13	Reedsport	13634	32.68		
26	9/2	14:17	46	Reedsport	13637	33.16		
27	9/2	14:29	20	Reedsport	13638	33.34		
28	9/2	14:48	51	Reedsport	13640	33.63		
29	9/2	15:04	9519	Reedsport	13641	32.03		
30	9/2	15:39	41	Reedsport	13645	32.75		
31	9/2	15:56	46	Reedsport	13648	31.85		
32	9/2	16:12	20	Reedsport	13649	34.28	**1,051.94**	
1	9/3	6:25	51	Reedsport	13652	34.60		
2	9/3	6:35	41	Reedsport	13653	32.99		
3	9/3	6:47	46	Reedsport	13655	33.48		
4	9/3	6:58	9519	Reedsport	13659	28.98		
5	9/3	7:08	22	Reedsport	13660	35.00		
6	9/3	7:15	20	Reedsport	13661	33.62		
7	9/3	8:05	51	Reedsport	13670	33.87		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
8	9/3	8:21	46	Reedsport	13672	34.21		
9	9/3	8:30	41	Reedsport	13674	34.34		
10	9/3	8:40	9519	Reedsport	13675	31.99		
11	9/3	8:52	22	Reedsport	13677	33.78		
12	9/3	8:58	20	Reedsport	13679	32.88		
13	9/3	9:14	13	Reedsport	13680	35.72		
14	9/3	9:28	51	Reedsport	13684	34.78		
15	9/3	9:48	46	Reedsport	13687	34.09		
16	9/3	10:15	41	Reedsport	13693	33.67		
17	9/3	10:30	9519	Reedsport	13699	30.54		
18	9/3	10:40	22	Reedsport	13700	34.68		
19	9/3	10:50	20	Reedsport	13701	32.95		
20	9/3	11:08	13	Reedsport	13703	34.63		
21	9/3	11:18	51	Reedsport	13705	35.26		
22	9/3	11:26	46	Reedsport	13708	32.57		
23	9/3	12:00	41	Reedsport	13715	33.92		
24	9/3	12:23	22	Reedsport	13719	36.46		
25	9/3	12:32	9519	Reedsport	13723	29.77		
26	9/3	12:45	20	Reedsport	13726	33.68		
27	9/3	13:05	51	Reedsport	13729	33.24		
28	9/3	13:15	8	Reedsport	13731	33.33		
29	9/3	13:30	46	Reedsport	13733	33.77		
30	9/3	13:42	41	Reedsport	13738	32.58		
31	9/3	13:56	22	Reedsport	13741	33.53		
32	9/3	14:15	20	Reedsport	13745	32.61		
33	9/3	14:32	9519	Reedsport	13749	29.84		
34	9/3	14:40	51	Reedsport	13750	34.20		
35	9/3	15:05	46	Reedsport	13756	30.95	**1,166.51**	
1	9/4	6:54	51	Reedsport	13771	33.44		
2	9/4	7:04	41	Reedsport	13769	33.23		
3	9/4	7:25	46	Reedsport/Chetco	13776	33.44		**2,257.07**
4	9/4	7:40	22	Chetco	13781	35.21		
5	9/4	7:51	9519	Chetco	13783	27.92		
6	9/4	8:00	20	Chetco	13785	33.99		
7	9/4	8:35	41	Chetco	13788	33.18		
8	9/4	9:20	46	Chetco	13794	33.60		
9	9/4	9:31	22	Chetco	13801	32.67		
10	9/4	9:42	51	Chetco	13802	34.40		
11	9/4	9:52	9519	Chetco	13803	33.25		
12	9/4	10:03	20	Chetco	13806	34.14		
13	9/4	10:30	41	Chetco	13810	33.30		
14	9/4	10:52	46	Chetco	13814	32.81		
15	9/4	11:10	22	Chetco	13816	35.24		
16	9/4	11:17	51	Chetco	13817	35.01		
17	9/4	11:45	20	Chetco	13823	33.91		
18	9/4	11:55	9519	Chetco	13827	31.10		
19	9/4	12:25	41	Chetco	13829	34.44		
20	9/4	12:36	46	Chetco	13834	34.47		
21	9/4	13:08	22	Chetco	13841	34.63		
22	9/4	13:22	51	Chetco	13846	33.67		
23	9/4	13:36	20	Chetco	13847	33.65		
24	9/4	13:49	9519	Chetco	13849	31.78		
25	9/4	14:08	41	Chetco	13852	33.90		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
26	9/4	14:22	46	Chetco	13853	32.66		
27	9/4	14:50	22	Chetco	13856	34.56		
28	9/4	15:00	51	Chetco	13857	32.64		
29	9/4	15:20	19	Chetco	13861	32.80		
30	9/4	15:30	20	Chetco	13862	34.24		
31	9/4	15:40	9519	Chetco	13863	30.49		
32	9/4	15:58	41	Chetco	13867	33.47		
33	9/4	16:15	22	Chetco	13868	33.28		
34	9/4	16:25	51	Chetco	13869	34.41	**1,134.93**	
1	9/5	6:16	51	Chetco	13873	33.27		
2	9/5	6:36	41	Chetco	13876	34.96		
3	9/5	7:02	19	Chetco	13877	32.88		
4	9/5	7:07	22	Chetco	13880	34.33		
5	9/5	7:35	9519	Chetco	13887	31.07		
6	9/5	7:50	20	Chetco	13890	33.74		
7	9/5	8:05	51	Chetco	13894	35.62		
8	9/5	8:22	41	Chetco	13898	34.38		
9	9/5	8:45	19	Chetco	13901	33.12		
10	9/5	9:00	22	Chetco	13904	31.83		
11	9/5	9:14	9519	Chetco	13906	31.98		
12	9/5	9:30	20	Chetco	13909	33.34		
13	9/5	9:42	51	Chetco	13912	33.62		
14	9/5	10:05	41	Chetco	13915	34.12		
15	9/5	10:20	19	Chetco	13917	32.45		
16	9/5	10:32	46	Chetco	13919	32.56		
17	9/5	10:45	22	Chetco	13923	33.63		
18	9/5	10:53	9519	Chetco	13925	30.90		
19	9/5	11:05	20	Chetco	13927	33.39		
20	9/5	11:25	51	Chetco	13939	33.45		
21	9/5	12:00	41	Chetco	13943	32.45		
22	9/5	12:15	19	Chetco	13945	33.49		
23	9/5	12:25	46	Chetco	13950	34.18		
24	9/5	12:45	22	Chetco	13958	34.44		
25	9/5	13:00	9519	Chetco	13961	34.33		
26	9/5	13:10	20	Chetco	13964	33.61		
27	9/5	13:21	51	Chetco	13967	33.27		
28	9/5	13:44	41	Chetco	13970	31.28		
29	9/5	14:05	19	Chetco	13973	33.55		
30	9/5	14:20	46	Chetco	13975	30.12		
31	9/5	14:31	22	Chetco	13976	32.96		
32	9/5	14:45	9519	Chetco	13979	34.22		
33	9/5	14:55	20	Chetco	13982	33.11		
34	9/5	15:10	51	Chetco	13983	32.47		
35	9/5	15:25	41	Chetco	13986	33.95		
36	9/5	15:46	19	Chetco	139885	32.18		
37	9/5	16:00	46	Chetco	13987	32.16	**1,226.41**	
1	9/8	6:57	22	Chetco	14019	33.38		
2	9/8	7:03	9519	Chetco	14020	30.38		
3	9/8	7:23	41	Chetco	14024	34.04		
4	9/8	7:31	20	Chetco	14025	33.24		**2,392.27**
5	9/8	8:15	19	Umpqua	14033	32.72		
6	9/8	8:32	22	Umpqua	14036	34.95		
7	9/8	8:42	9519	Umpqua	14039	30.90		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
8	9/8	9:02	20	Umpqua	14040	33.79		
9	9/8	9:15	41	Umpqua	14043	34.05		
10	9/8	9:26	46	Umpqua	14045	32.17		
11	9/8	9:54	19	Umpqua	14050	32.93		
12	9/8	10:24	9519	Umpqua	14057	31.54		
13	9/8	10:34	22	Umpqua	14058	33.88		
14	9/8	10:51	20	Umpqua	14062	33.67		
15	9/8	10:59	41	Umpqua	14064	34.09		
16	9/8	11:20	46	Umpqua	14065	33.53		
17	9/8	11:32	25	Umpqua	14067	30.47		
18	9/8	11:42	19	Umpqua	14070	36.00		
19	9/8	12:08	9519	Umpqua	14074	30.75		
20	9/8	12:21	22	Umpqua	14075	35.29		
21	9/8	12:40	20	Umpqua	14077	33.86		
22	9/8	12:52	41	Umpqua	14080	33.72		
23	9/8	13:07	46	Umpqua	14084	32.11		
24	9/8	13:26	25	Umpqua	14088	31.87		
25	9/8	13:43	19	Umpqua	14091	33.53		
26	9/8	13:52	9519	Umpqua	14093	30.21		
27	9/8	14:03	22	Umpqua	14095	34.19		
28	9/8	14:20	20	Umpqua	14099	34.35		
29	9/8	14:30	41	Umpqua	14102	33.85		
30	9/8	14:39	46	Umpqua	14104	32.02		
31	9/8	14:58	25	Umpqua	14108	36.32		
32	9/8	15:15	19	Umpqua	14110	32.84		
33	9/8	15:24	9519	Umpqua	14112	33.83		
34	9/8	15:41	22	Umpqua	14114	29.27	**1,123.74**	
1	9/9	6:21	46	Umpqua	14123	32.30		
2	9/9	6:31	41	Umpqua	14124	32.59		
3	9/9	6:40	19	Umpqua	14126	31.60		
4	9/9	6:48	22	Umpqua	14127	33.41		
5	9/9	7:06	9519	Umpqua	14130	30.56		
6	9/9	7:15	20	Umpqua	14132	33.86		
7	9/9	7:30	25	Umpqua	14133	28.91		
8	9/9	7:57	46	Umpqua	14137	31.80		
9	9/9	8:12	41	Umpqua	14140	33.42		
10	9/9	8:32	19	Umpqua	14143	35.69		
11	9/9	8:43	22	Umpqua	14145	31.82		
12	9/9	8:59	9519	Umpqua	14148	31.57		
13	9/9	9:07	20	Umpqua	14149	33.54		
14	9/9	9:16	25	Umpqua	14153	27.59		
15	9/9	9:26	46	Umpqua	14154	33.20		
16	9/9	9:44	41	Umpqua	14155	34.83		
17	9/9	10:03	19	Umpqua	14161	32.69		
18	9/9	10:15	22	Umpqua	14163	32.06		
19	9/9	10:31	9519	Umpqua	14164	32.84		
20	9/9	10:39	20	Umpqua	14168	33.50		
21	9/9	10:51	25	Umpqua	14173	32.49		
22	9/9	11:02	46	Umpqua	14175	32.88		
23	9/9	11:51	41	Umpqua	14185	33.80		
24	9/9	12:02	22	Umpqua	14186	32.60		
25	9/9	12:16	19	Umpqua	14190	32.64		
26	9/9	12:29	9519	Umpqua	14194	30.17		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
27	9/9	12:37	20	Umpqua	14198	33.23		
28	9/9	12:46	25	Umpqua	14199	30.47		
29	9/9	13:02	46	Umpqua	14204	33.57		
30	9/9	13:23	41	Umpqua	14209	33.08		
31	9/9	13:39	22	Umpqua	14216	34.56		
32	9/9	14:16	9519	Umpqua	14219	29.33		
33	9/9	14:24	20	Umpqua	14220	33.68		
34	9/9	14:41	46	Umpqua	14227	34.06		
35	9/9	15:03	41	Umpqua	14228	33.07		
36	9/9	15:20	22	Umpqua	14230	35.51	**1,172.92**	
1	9/10	6:18	46	Umpqua	14240	32.35		
2	9/10	6:28	41	Umpqua	14241	33.51		
3	9/10	6:40	19	Umpqua	14242	33.02		
4	9/10	6:51	9519	Umpqua	14244	31.43		
5	9/10	7:03	22	Umpqua	14247	33.64		
6	9/10	7:58	46	Umpqua	14257	33.65		
7	9/10	8:54	41	Umpqua	14267	33.10		
8	9/10	9:04	22	Umpqua	14269	32.62		
9	9/10	9:18	19	Umpqua	14274	32.97		
10	9/10	9:36	9519	Umpqua	14278	31.30		
11	9/10	9:51	46	Umpqua	14279	32.99		
12	9/10	10:26	41	Umpqua	14281	33.61		
13	9/10	10:40	22	Umpqua	14284	32.84	**427.03**	**2,592.65**
1	9/11	7:15	46	Reedsport	14342	32.20		
2	9/11	7:38	19	Reedsport	14347	32.92		
3	9/11	7:54	9519	Reedsport	14349	30.25		
4	9/11	8:04	22	Reedsport	14350	32.14		
5	9/11	8:29	41	Reedsport	14354	34.04		
6	9/11	8:41	46	Reedsport	14355	33.24		
7	9/11	9:05	19	Reedsport	14361	32.47		
8	9/11	9:19	9519	Reedsport	14366	35.21		
9	9/11	9:34	22	Reedsport	14369	31.08		
10	9/11	10:00	41	Reedsport	14374	33.25		
11	9/11	10:14	51	Reedsport	14377	31.32		
12	9/11	10:21	13	Reedsport	14378	33.22		
13	9/11	10:33	46	Reedsport	14380	33.21		
14	9/11	10:49	19	Reedsport	14383	32.52		
15	9/11	11:00	9519	Reedsport	14385	30.13		
16	9/11	11:30	22	Reedsport	14387	32.92		
17	9/11	11:42	41	Reedsport	14390	34.30		
18	9/11	11:52	51	Reedsport	14395	32.96		
19	9/11	12:01	13	Reedsport	14397	31.45		
20	9/11	12:14	46	Reedsport	14401	33.24		
21	9/11	12:25	19	Reedsport	14407	32.30		
22	9/11	12:39	9519	Reedsport	14409	29.86		
23	9/11	13:00	22	Reedsport	14413	33.00	**747.23**	
1	9/12	6:11	46	Reedsport	14434	33.13		
2	9/12	6:27	13	Reedsport	14435	32.58		
3	9/12	6:40	41	Reedsport	14445	32.30		
4	9/12	6:52	19	Reedsport	14448	33.14		
5	9/12	7:01	9519	Reedsport	14449	32.17		
6	9/12	7:12	22	Reedsport	14452	34.47		
7	9/12	7:31	46	Reedsport	14456	32.92		

Table 7
Summary of Truckloads of Material Transported from Transloading Facility to Landfill

Recorded at Transfer Station					Recorded at Landfill		Daily Total	Barge Total
Load	Date	Time Out	Truck No.	Barge	TICKET #	Tons	(tons)	(tons)
8	9/12	7:49	51	Reedsport	14459	33.99		
9	9/12	8:12	13	Reedsport	14465	31.82		
10	9/12	8:22	41	Reedsport	14467	33.38		
11	9/12	8:38	19	Reedsport	14472	31.36		
12	9/12	8:50	9519	Reedsport	14544	31.21		
13	9/12	9:01	22	Reedsport	14473	34.35		
14	9/12	9:09	46	Reedsport	14474	33.14		
15	9/12	9:22	51	Reedsport	14478	33.90		
16	9/12	9:35	13	Reedsport	14483	36.21		
17	9/12	10:05	41	Reedsport	14485	37.75		
18	9/12	10:18	19	Reedsport	14486	33.59		
19	9/12	10:27	22	Reedsport	14489	34.05		
20	9/12	10:42	9519	Reedsport	14493	30.99		
21	9/12	10:53	46	Reedsport	14494	32.42		
22	9/12	11:08	51	Reedsport	14496	35.24		
23	9/12	11:20	13	Reedsport	14508	29.91		
24	9/12	11:51	41	Reedsport	14499	31.02		
25	9/12	12:02	19	Reedsport	14510	32.79		
26	9/12	12:12	22	Reedsport	14519	31.10		
27	9/12	12:21	9519	Reedsport	14521	33.33		
28	9/12	12:30	9503	Reedsport	14514	33.01		
29	9/12	12:40	46	Reedsport	14520	33.96		
30	9/12	12:55	51	Reedsport	14524	33.75		
31	9/12	13:30	41	Reedsport	14532	34.55		
32	9/12	13:45	19	Reedsport	14539	33.05		
33	9/12	16:15	46	Reedsport	14553	35.95	**1,096.53**	**1,843.76**
1	10/10	7:32	13	47	16623	32.21		
2	10/10	7:53	20	47	16621	32.61		
3	10/10	8:02	9517	47	16626	31.84		
4	10/10	8:11	9519	47	16628	32.99		
5	10/10	8:21	9713	47	16635	32.20		
6	10/10	8:30	3	47	16638	33.72		
7	10/10	9:02	20	47	16641	32.97		
8	10/10	9:20	9519	47	16643	32.51		
9	10/10	9:38	9517	47	16646	22.80		
10	10/10	9:47	9713	47	16648	32.60		
11	10/10	9:58	3	47	16650	34.35		
12	10/10	10:10	20	47	16652	25.76		
13	10/10	15:07	13	47	16695	27.64	**404.20**	**404.20**
PROJECT TOTALS						**20,474.53**	**20,474.53**	**20,474.53**

KMB00006707

Table 8
Summary Truckloads of Water Taken from Transloading Facility to Landfill

Recorded at Transfer Station			Recorded at Landfill		Daily Total (Tons)
Load	Date	Type	TICKET #	Tons	
1	8/20/08	Liq	12570	7.24	
2	8/20/08	Liq	12584	8.13	
3	8/20/08	Liq	12596	8.58	23.95
1	8/22/08	Liq	12737	8.68	
2	8/22/08	Liq	12752	8.47	
3	8/22/08	Liq	12771	8.87	26.02
1	8/26/08	Liq	13024	8.81	
2	8/26/08	Liq	13038	9.05	
3	8/26/08	Liq	13087	9.1	26.96
1	8/27/08	Liq	13154	8.89	
2	8/27/08	Liq	13166	8.8	
3	8/27/08	Liq	13184	9	
4	8/27/08	Liq	13201	8.92	
5	8/27/08	Liq	13226	3.83	39.44
1	8/29/08	Liq	13425	9.02	
2	8/29/08	Liq	13441	9.09	18.11
1	9/2/08	Liq	13625	11.84	
2	9/2/08	Liq	13642	11.85	23.69
1	9/5/08	Liq	13928	10.52	
2	9/5/08	Liq	13946	10.17	20.69
1	9/9/08	Liq	14166	8.01	
2	9/9/08	Liq	14183	8.28	
3	9/9/08	Liq	14202	8.37	
4	9/9/08	Liq	14217	8.26	32.92
			Total Tons:	**211.78**	

KMB00006708

Table 9
Wheeler Bay Shoreline Stabilization CCs and RFIs – Phase I Removal Action

Contract Changes				
CO	**CC**	**Issue Encountered**	**Action Required**	**Directive Language**
1	1.1	Miscellaneous Utility Relocations – Pick different location to move Mini Power Zone/Irrigation Controller Backboard so that it is out of the way for work on the bank.	Extend existing duct bank to new backboard location as shown on drawing and as call out in revised note #8. Install new conduit to Trap Wire Warning Lights and install conductors and detailed in revised note #9. Also provide new cable between new PB-5 and utility tunnel as required in revised note #3.	Revise CC-01 as follows: Extend existing duct bank to new backboard location as shown on drawing and as call out in revised note #8. Install new conduit to Trap Wire Warning Lights, and install conductors as detailed in revised note #9. Also, provide new cable between new PB-5 and utility tunnel, as required in revised note #3. Enclosure: Revised Drawings E-1(7/28/08)
1	1.2	Retain Storm Drain Manhole – After excavating the top of bank near station 7+36, it appears that the manhole near that location can stay in place.	Test the Manhole for a watertight seal using the ODOT method: 0.3 gallons per hour per foot of head under ODOT Section 00470.71 (a) Hydrostatic Testing applies to all manhole diameters. Provide a credit to CC 1.	Revise CC-01.1 as follows. Delete the removal/demolition of the existing manhole near Station 7+36 and the installation of a cleanout. Instead, test the existing manhole for a watertight seal using the ODOT method: 0.3 gallons per hour per foot of head under ODOT Section 00470.71 (a). Hydrostatic Testing applies to all manhole diameters. Provide a cost for the testing and a credit for the deleted work. In addition, please provide a credit for the use of the aggregate trench fill in lieu of CDF.
2	2	Temporary Construction Fence – A physical barrier is needed between Longshore labor and other tenants on the terminal as indicated by the use of an exclusion zone noted in the Contractor's Health and Safety Plan.	Install a temporary chain link construction fence around the area to be excavated as directed in the field.	This is to confirm the Port's previous direction to install a temporary chain link construction fence at the top of the bank around the area to be excavated.
2	3	Remove Fireboat Pier – The existing pier, pilings and structure of the Fireboat access structure is weak and in jeopardy of falling down. The Contractor has indicted it is a safety hazard to excavation equipment and Contractor staff	Remove the piling by pulling them out below the mud line. Remove a additional section of concrete walkway and piling as per the sketch provided via RFI#7.	At the existing Fireboat access structure, remove the four piling above Elevation 10 and all of the walkways, in accordance with the enclosed Fireboat Pier Sketch. The piling shall be removed by pulling them out below the mud line. Dispose of the piling and walkway materials at a landfill approved for such materials. Removal equipment shall remain on dry ground. Reference RFI 7. Enclosure: Fireboat Pier Sketch
3	4	Habitat Cover – The specified material for habitat cover was noted in gradation, but a physical description of the rock was not included in the specifications. Crushed aggregate will not meet the expectations of NMFS or EPA. Round rock will be required for this habitat cover over the rip rap.	Utilize the remainder of the 1 1/2" crushed rock product as select fill. Find a source for round rock and use this for the habitat cover called out in section 3 of sheet C-3 of the plan set.	Round rock will be required for the habitat cover over the riprap instead of the 1-1/2" crushed rock provided at the jobsite. Utilize the remainder of the 1-1/2" crushed rock product, previously purchased for habitat cover, as select fill. Find a source for round rock and use this for the habitat cover called out in Section 3 of Sheet C-3 of the plan set. The habit round rock shall meet the contract specified gradation.
4	5	Top of Bank Transition Between Stations 7+00 to 7+36 – The Existing Rip Rap veneer on the top of the bank above the Kinder Morgan Outfall, near stations 7+00 to 7+36, is very thin or non-existent on the top 3rd of the slope. The existing grade is steeper than 2:1. This area will be prone to slide unless treated with some armoring or cut back.	As shown on the drawings, the rip rap in the transition area should be up to at least elevation 25 feet NGVD and tie into the 3H:1V rip rap section. Where rip rap is placed on soil (i.e., not placed on top of existing rip rap) the subgrade should be prepared as shown on detail 3 of sheet C-3: geotextile under 18 inches of select fill under Armor Type 3. This is necessary to prevent piping of the finer grained existing sediments through the riprap. For the area above the new rip rap the slope should be graded to no steeper than 2H:1V and 1 foot of topsoil under jute mat should be placed as shown on detail 3 of sheet C-3. The area will then need to be hydroseeded	As shown on the drawings, the riprap in the transition area should be up to at least elevation 25 feet NGVD and tie into the 3H:1V rip rap section. Where rip rap is placed on soil (i.e., not placed on top of existing rip rap) the subgrade should be prepared as shown on Detail 3 of Sheet C-3: geotextile, under 18 inches of select fill, under Armor Type 3. This is necessary to prevent piping of the finer grained existing sediments through the riprap. For the area above the new riprap, the slope should be graded to no steeper than 2H:1V, and 1 foot of topsoil under jute mat should be placed as shown on Detail 3 of Sheet C-3. The area will then need to be hydroseeded.
5	7	Place Port-Supplied Topsoil – The plan was to have Port landscape staff place the topsoil after the work performed by our Contractor, below the top of bank was competed. As we finish up the work it makes sense to have the Contractor place this material, and finish up the grading	Place the topsoils stockpiled by the Port.	Place the Port supplied topsoil at the top of the slope approximately 1.0 ft deep and 20.0 ft wide in accordance with Port direction. (This draft copy is to confirm the Port's verbal direction at the construction meeting on September 24, 2008.
6	8	Additional Grading at Top of Bank – The area bordering the 31' contour line has a 2 foot deep depression. This forms a pond about 50' wide and 300' long during rainy weather. This ponding can then fill and find a way over the top of bank. The erosion cut into the top of the bank is significant when this happens. After filling, riser rings for the electrical Manhole will be needed to match the topsoil grade.	Add material to the top of the facility catching at the RR fill, see sketch. Use the excess habitat rock as a clean fill material. Install riser rings on the Manhole as needed to match grade.	This is to confirm the Port's directions to add material to the top of the facility catching at the Railroad fill, see sketch. Use the excess habitat rock as a clean fill material. Install riser rings on the Manhole, as needed, to match grade. Enclosure: Two Sketches labeled CC#8 Additional Grading @ Top of Bank

Table 9
Wheeler Bay Shoreline Stabilization CCs and RFIs – Phase I Removal Action

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
1	Existing power pole in project grading area	A power pole is present within the project grading area between Sta 6+00 and 7+00 and is not shown on the drawings. Please identify the grading details in the vicinity of this power pole (e.g., setbacks, subgrade, filling, etc.).	The contractor will need to preserve and protect the power pole. Once the field stakes are placed the design team can evaluate the power pole.	I concur.	Concur with Port Engineering and Consultant.
2	Storm manhole in project grading area	A storm sewer crosses beneath the project grading area between Sta 7+00 and 7+36, as shown on the drawings. Not shown on the drawings is a manhole located approximately at Sta 7+30. Please identify the grading details in the vicinity of this manhole (e.g., setbacks, subgrade, filling, etc.).	The contractor will need to preserve and protect the manhole. Once the field stakes are placed in the field the design team can evaluate the manhole.	I concur.	Concur with Port Engineering and Consultant
3	Locate Port's temporary nursery	Landscaping is present along the top of bank at Wheeler Bay. We understand the Port will remove the landscaping and irrigation system prior to the start of our work, and the plants will be placed in a temporary nursery. The temporary nursery will be in the area identified on the drawings as a contractor laydown area for the Wheeler Bay stabilization, and we further understand that this area will not be available for us. Please identify the location that will be used for the temporary nursery.	Port needs to respond.	The plants have been relocated. The existing topsoil and irrigation system will be salvaged by Port staff as well. We will mark the area in the field for your review. Please contact Port Inspection staff to arrange a field visit.	Concur with Port Engineering
4	Irrigation electric line	Landscaping is present along the top of bank at Wheeler Bay. We understand the Port will remove the landscaping and irrigation system prior to the start of our work. The irrigation controller power is supplied by an underground electrical line that runs from the power pole between Sta 6+00 and 7+00. Will the Port remove the electrical line, and if not, how does the Port want the line addressed and what is its construction?	Port needs to respond.	The electrical line along the top of the bank will be modeled better and a plan for relocation developed in the next week. There are several power lines in play. I have attached the record drawing from the T4 Railyard project for consideration. More to come on the utility issues on the top of the bank.	Concur with Port Engineering
5	Electrical Line Relocate	Because we are so close to beginning work when the electrical line relocate was added to the project, we will not be able to install the new line prior to removing the old line. The installation could be near the end of the project. Therefore, the power for the line to be relocated could be off beginning August 5 for up to 8 weeks. Is this acceptable?	The Port will respond to this RFI	This would have the yard lighting control from Kinder-Morgan non-functional and the power down to warehouse #4. Eight weeks is probably two long for this condition to exist. It would be best to do the electrical first so that it is out of the way for the bank work.	It is the Port's understanding the new line could be installed first without removing the old line with a short power outage to cut the power over to the new line.
6	Habitat Log Anchors	The design calls for the habitat logs to be anchored with chains to concrete blocks. The subcontractor is preparing to order the anchors/chains. Are the anchors and chains still required?	N/A	We are checking with NMFS and EPA on the habitat logs. If they can be anchored, we will proceed. If they cannot, we will omit them from the design. We expect to have an answer early this week.	The habitat logs can be anchored with chains to concrete blocks in accordance with the contract documents.
7	Former Fire Boat Pier	Upon removal of the first section of the pier we discovered the remainder of the pier to be unstable and an overhead hazard. How should the hazard be addressed?	Please see the attached sketch for removal guidance. Piling shall be removed to the existing subgrade or at least 1 foot below the proposed subgrade, whichever is deeper. Work shall be completed with shore based equipment.	I concur. If possible, please remove the piling by pulling the entire piling, rather than cutting them off. A change will be initiated and a price proposal will be requested to perform the work.	Concur with Port Engineering and Consultant. The Port has issued a change request (CC-3) with a revised sketch. The attached sketch in this RFI is incorrect.
8	Construction Debris Haul and Dispose	Information only: We would like to give notification that the amount of concrete/asphalt to be hauled to Porter Yett has increased by approximately 100 TN, for a new total of 400 TN. During the clearing and grubbing portion of we found more than the estimated amount of concrete within our scope of work.	Noted. We assume truck tickets have been supplied to the Port.	I concur. Please proceed.	Concur with Port Engineering and Consultant. Disposal tickets will be required and must be submitted to Port Construction.
9	Construction Debris Haul and Dispose	Information only: We would like to give notification that the amount of concrete/asphalt to be hauled to Porter Yett has increased by approximately 100 TN, for a new total of 400 TN. During the clearing and grubbing portion of we found more than the estimated amount of concrete within our scope of work.	Noted. We assume contractor will supply truck scale tickets.	I concur. Please proceed.	Reference RFI No. 8
10	Clean concrete/asphalt recycler	We would like to request that the concrete recycler be changed from Porter Yett to the Construction Materials Exchange, located in downtown Portland, south side of the memorial coliseum. They are willing to accept the larger pieces of concrete that we are encountering at the site.	Port will respond to this RFI.	This is acceptable. Please provide information as per section 017419 of the project specifications.	Concur with Port Engineering.

Table 9
Wheeler Bay Shoreline Stabilization CCs and RFIs – Phase I Removal Action

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
11	Chemical Testing of Import	It is our understanding that because of the small quantity, no additional chemical testing of import material will be required beyond the first round of tests. Please confirm.	Correct. However, visual inspection of import material still needs to occur. If there appears to be visual indications of different materials additional chemical testing will be required.	Please see the Anchor response above.	Proceed per direction above.
12	Sieve Test Results for Select Fill and Habitat Material	Sieve test results for Select Fill (3-1/2-inch) and Habitat Material (1-1/2-inch) are attached. These do not quite meet the specification (short on sand size material). Will these materials be suitable for use?	Sample A (1.5" - 0") is sufficient for habitat material. Sample B (3.5" - 0") can be used as select fill provided that a non-woven separation geotextile is placed where ever the select fill is on native sediments. The purpose of the geotextile is to minimize piping of finer grained material into the select fill. ACA indicated that they will provide the separation geotextile at no additional cost to the Port. Will need to get EPA approval for material as well.	I concur. Please see answer by Anchor Environmental above.	Proceed per direction above.
13	Transition to Existing at Station 0+00	The drawings do not detail the transition from finish grade at sta 0+00 to existing grade. Please provide desired transition. Proposed Answer: We propose the following: Cut Areas: slope at 2H:1V or flatter and hydroseed. Fill Areas: Connect constant elevation (e.g., El. 15 finish grade and El. 15 existing grade) such that the maximum resulting slope on the transition is 2H:1V. The surface finish will match the typical section for finish grade at the corresponding elevation (e.g., El. 10 to 15 will be habitat material over rip rap or select fill).	The western edge of the grading plan on shhet C-1 (just west of 0+00) was designed with a 2H:1V tie in to existing grade. The upper portion of the slope is typically a cut up to existing grade. The lower portion of the slope is fill down to existing grade. It appears that ACA's proposed solution is in general agreement with the design intent. The construction will need to carry the design sections full thickness to the tie in. Also recommend that either Phillip B. and/or Anchor field representative look at the area after it is graded.	I concur.	Concur with Port Engineering and Consultant
14	Habitat Fill	The EPA has requested that the habitat material be rounded rock. The specifications did not identify rounded rock so the material initially placed was angular. About 150 feet of the toe has been constructed with the angular rock. Please identify what rock should be used, what should be done with the rock already placed, and what should be done with the approximately 500 tons of angular rock stockpiled on-site. Proposed Answer: We understand the following to be implemented: 1) Rock meeting the current spec but rounded should be used for Habitat Fill. 2) Angular rock already placed should be removed. It can either be removed and reused or simply bladed onto existing rip rap (into the spaces in the rip rap). One foot of rounded rock will be placed on the rip rap/angular rock as originally designed. 3) The existing stockpile of angular rock will be used as Select Fill.	The recommended solution appears correct. We recommend that the angular habitat rock not be removed, but rather bladed onto the existing rip rap.	I concur. Please submit the round rock gradation via the submittal process when it is available.	Concur with Port Engineering and Consultant

KMB00006711

Table 9
Wheeler Bay Shoreline Stabilization CCs and RFIs – Phase I Removal Action

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
15	Transition 3:1 Slope to 2:1 Slope at approx Sta 7+36	Can the transition be moved so that it begins at approx Sta 7+00 (3:1) and ends at approx 7+36? This will allow the MH at Sta 7+30 to remain. Also, the existing slope in the area of Sta 7+50 to 8+00 is steeper than 2:1 near the top (the portion that was planned to remain above the new rip rap), and the lower portion to get rip rap does not have existing rip rap. How should these areas be addressed?	Based on field observations, the relocation of the transition as described above appears appropriate. As shown on the drawings, the rip rap in the transition area should be up to at least elevation 25 feet NGVD and tie into the 3H:1V rip rap section. Where rip rap is placed on soil (i.e., not placed on top of existing rip rap) the subgrade should be prepared as shown on detail 3 of sheet C-3: geotextile under 18 inches of select fill under Armor Type 3. This is necessary to prevent piping of the finer grained existing sediments through the riprap. For the area above the new rip rap the slope should be graded to no steeper than 2H:1V and 1 foot of topsoil under jute mat should be placed as shown on detail 3 of sheet C-3. The area will then need to be hydroseeded.	I concur.	Refer to response above.
16	Chemical Analysis of Import Habitat Material	The new Habitat Fill (round rock) sample is in the lab for chemical analysis. All results will be back by the end of the day 9/5/08 except for the following: cis-Nonachlor Oxychlordane trans-Nonachlor Analysis for these three chemicals will require 1 week minimum and possibly 2 weeks. This will delay the project from 0.5 to 1.5 weeks. Can these three chemicals be dropped from the required list of chemicals?	For information only. Port will make decision with EPA.	The following was EPA's response: EPA will allow placement of habitat fill prior to receipt of import test results for: -cis-Nonachlor -trans-Nonachlor Oxychlordane we would like results for before placement as it is an organochlorine compound that is the most persistent metabolite of Chlordane. It is bioaccumulative and is one of the most toxic of the chlordane compounds. Since it is a metabolite, its concentration can not be correlated with the heptachlor, a- or g- chlordane. However, placement of the material without test results is at the Port's risk. If the material is confirmed to have contaminant concentrations above the levels in Table 1 of the specifications, then, at a minimum, the material may need to be removed. Other actions may also be required to correct the problems. Let me know if you have any questions. Thank you. S Removal of unsuitable material is a unacceptable risk to the Port. The Port therefore denies your request to drop these chemicals from the list. Please forward the results at your earliest convenience. Please be prepared to discuss your new schedule and plan for completing the work after testing has been submitted and approved.	Concur with Port Engineering
17	Installation of Jute Matting	Drawings (Detail 5 on Sheet L-2) shows Jute matting overlapping 12 inches and held in place with 12 staples. Specifications (329119(3.5)) says Jute matting shall be overlapped 4 inches and held in place with wooden stakes. Which is to be followed (or can either approach be used)?	Please use Detail 5 on Sheet L-2 for jute mat construction.	I concur	Concur with Port Engineering and Consultant

Table 9
Wheeler Bay Shoreline Stabilization CCs and RFIs – Phase I Removal Action

Requests for Information					
RFI	**Subject**	**Contractor Question**	**Anchor**	**Port Engineer**	**Port Construction**
18	Demarcation Layer Below Plants	The specifications (329300(3.2)(C)) call for cutting an "X" in the demarcation layer below each plant. Is cutting an "X" required? Proposed Answer: The "X" cut is not required with the demarcation layer being used. We understand this requirement is typical when an underlying layer of fabric is used beneath plants. The cut in the fabric allows the roots to penetrate the underlying soil. However, the demarcation layer being used is plastic fencing material with greater than 50% open space that will allow roots to easily penetrate to the underlying soil. This requirement was discussed with the on-site inspector from Parametrix who relayed a verbal concurrence from EPA that an "X" cut would not be required.	Given the physical nature of the demarcation fabric, we feel that an "X" does not need to be cut.	I concur.	Concur with Port Engineering and Consultant
19	Port supplied topsoil	Regarding Change Order No. 7, Place Port Supplied Topsoil, we have estimated the topsoil stockpile quantity to be lacking approximately 200 LF worth of material given the 1.0' depth and 20.0' wide placement criteria. We would like clarification as to which portion of the top of bank topsoil should be placed. A possible alternative for finishing the entire top of bank would be to purchase the topsoil that has been approved for the Project. This would be for a purchase quantity of 200 CY at $27.90/CY. Including the 15% Envirocon material markup and 8% Ash Creek markup this would total to $6,863.40.	For information only. Port will respond.	Please place the available topsoil material over the entire 20' strip, measured from the top of bank. No additional topsoil is required to bring the fill to a consistant depth of 12". Please space the topsoil over the entire area and avoid walking over the area with heavy equipment and compacting the topsoil material. Areas that have been well compacted by heavy wheel loads and tracked vehicles, may need to be tilled, since we plan to follow closely on your work with planting the area with new landscaping, and installing above ground irrigation.	Concur with Port Engineer
20	Railroad Crossings	Shall the gravel railroad crossings be removed or left in place?	For information only. Port needs to respond.	Please remove the temporary at-grade RR Xings. Restore the walkway aggregate and track ballast. Please take reasonable care when working around the track. Damage can easily done to the track with heavy equipment, and RR track repair is very specialized and expensive. Thank you.	Concur with Port Engineer. Do not damage the rail or ties. The temporary crossings must be removed beyond the walkway, but the remainder may remain. Please coordinate with Philip Bales.
21	Telephone MH Riser	Per field conversation on 10/10/08 between Roger Anderson and Envirocon, the Port requested that a 12" riser be added to the telephone manhole in the area being filled with Port-supplied topsoil. Is this to be purchased and installed by Ash Creek/Envirocon?	For information only. Port to respond.	Risers are needed to accommodate the topsoil depth. Please continue with the purchase and installation as needed.	Concur with Port Engineering. The Port will issue a change request.
22	Potential Ponding Near Kinder Morgan	No real question, just FYI - After placing Port supplied topsoil, it appears that some ponding of surface runoff could occur over near Kinder Morgan (~Sta 7+50). It appears that this occurred historically based on the small erosional feature at the top of bank near Sta 7+80.	Noted. I believe the erosional feature was armored.	See CC8 sketch.	Concur with Port Engineering
23	Plant Irrigation	Envirocon will be completing work today and demobing today/tomorrow. We understand that the Port will begin installing irrigation and planting tomorrow. Will the Port take over responsibility for irrigation of trees beginning tomorrow?	For information only. Port will respond.	We will take responsibility of the trees at substantial completion.	Concur with Port Engineering
24	Leftover Trees	Approximately 100 trees (primarily willow, but including cottonwood and Oregon ash) in containers remain at the site (located near top of slope at Sta 0+00). The trees will be left for the Port.	For information only.	Please contact Phillip Bales to handoff the leftover materials.	Concur with Port Engineering
25	Silt Fence	The silt fence will be left in place as requested by the EPA. Who will be responsble for removing the silt fence?	N/A	ESPC measures installed by the contractor during construction shall be removed when construction and site disturbance activities are complete and permantent soil stabilization is in place, in accordance with Section 015713, 3.2N. This is anticipated to be appoximately in two months prior to the water level exceeding the elevation of the silt fence. Contact the Port (Philip Bales) prior to removal.	Concur with Port Engineering. Ash Creek/Envirocon should monitor the river level and notify the Port Inspector of their intent to remove the silt fence prior to the water exceeding silt fence elevation.

KMB00006713

Table 10
Summary of Wheeler Bay Import Material Quantities

Material (units)	Date	Ticket No.	Quantity Delivered	Quantity Required - Design Neat Section
Select Fill (tons)				
3.5-inch-minus	8/15/2008	5037654	31.03	
3.5-inch-minus	8/15/2008	5037626	31.70	
3.5-inch-minus	8/15/2008	5037606	31.56	
3.5-inch-minus	8/15/2008	5037582	32.16	
3.5-inch-minus	8/27/2008	5039322	31.72	
3.5-inch-minus	8/27/2008	5038333	32.18	
3.5-inch-minus	8/27/2008	5038340	32.11	
3.5-inch-minus	8/27/2008	5038353	31.06	
3.5-inch-minus	8/27/2008	5038366	31.66	
1.5-inch-minus	8/27/2008	5038381	30.10	
1.5-inch-minus	8/27/2008	5038392	31.30	
1.5-inch-minus	8/27/2008	5038400	31.33	
1.5-inch-minus	8/27/2008	5038394	32.33	
1.5-inch-minus	8/28/2008	5038545	25.33	
1.5-inch-minus	8/28/2008	5038524	24.60	
1.5-inch-minus	8/28/2008	5038500	24.06	
1.5-inch-minus	8/28/2008	5038482	25.19	
1.5-inch-minus	8/28/2008	5038465	24.58	
1.5-inch-minus	8/28/2008	5038451	24.60	
1.5-inch-minus	8/28/2008	5038441	24.67	
1.5-inch-minus	8/28/2008	5038430	25.26	
1.5-inch-minus	8/28/2008	5038560	25.14	
1.5-inch-minus	8/28/2008	5038433	25.27	
1.5-inch-minus	8/28/2008	5038434	24.15	
1.5-inch-minus	8/28/2008	5038446	24.76	
1.5-inch-minus	8/28/2008	5038453	24.94	
1.5-inch-minus	8/28/2008	5038470	25.07	
1.5-inch-minus	8/28/2008	5038488	25.06	
1.5-inch-minus	8/28/2008	5038503	24.07	
1.5-inch-minus	8/28/2008	5038529	25.45	
3.5-inch-minus	8/29/2008	5038608	29.84	
3.5-inch-minus	8/29/2008	5038637	29.77	
3.5-inch-minus	8/29/2008	5038667	30.37	
3.5-inch-minus	8/29/2008	5038693	30.52	
3.5-inch-minus	8/29/2008	5038707	31.13	
3.5-inch-minus	8/29/2008	5038704	24.27	
3.5-inch-minus	8/29/2008	5038694	24.72	
3.5-inch-minus	8/29/2008	5038680	24.59	
3.5-inch-minus	8/29/2008	5038664	24.75	
1.5-inch-minus	8/29/2008	5038567	29.49	
1.5-inch-minus	8/29/2008	5038586	29.06	
3.5-inch-minus	9/19/2008	5040014	30.56	
3.5-inch-minus	9/19/2008	5040009	32.12	
		TOTAL:	**1,204**	**1,000**

Table 10
Summary of Wheeler Bay Import Material Quantities

Material (units)	Date	Ticket No.	Quantity Delivered	Quantity Required - Design Neat Section
Armor Rock (tons)				
Salvaged	8/6/2008	--	320	
	8/21/2008	3171989	13.86	
	8/27/2008	3172183	14.44	
	8/27/2008	3172197	15.29	
	8/27/2008	3172149	14.63	
	8/27/2008	3172216	15.15	
	8/27/2008	3172166	15.01	
	8/28/2008	3172309	14.63	
	8/28/2008	3172291	14.99	
	8/28/2008	3172272	13.87	
	8/28/2008	3172252	13.84	
	8/28/2008	3172232	14.11	
	8/28/2008	3172233	15.01	
	8/28/2008	3172253	12.56	
	8/28/2008	3172273	14.35	
	8/28/2008	3172290	15.06	
	8/28/2008	3172308	14.74	
	8/28/2008	3172307	15.23	
	8/28/2008	3172289	15.29	
	8/28/2008	3172271	12.37	
	8/28/2008	3172251	14.66	
	8/28/2008	3172231	15.37	
	8/29/2008	3172328	14.32	
	8/29/2008	3172361	14.59	
	8/29/2008	3172351	14.59	
	8/29/2008	3172375	14.55	
	9/2/2008	3172469	14.67	
	9/2/2008	3172423	14.44	
	9/2/2008	3172399	15.07	
	9/2/2008	3172444	15.02	
	9/2/2008	3172498	15.18	
	9/3/2008	3172590	14.64	
	9/3/2008	3172556	14.54	
	9/3/2008	3172533	14.39	
	9/3/2008	3172515	14.94	
	9/3/2008	3172573	14.41	
	9/4/2008	3172696	14.79	
	9/4/2008	3172652	15.24	
	9/4/2008	3172630	14.49	
	9/4/2008	3172673	14.89	
	9/8/2008	3172913	15.16	
	9/8/2008	3172898	14.74	
	9/8/2008	3172885	14.68	
	9/8/2008	3172873	15.68	
	9/8/2008	3172861	15.18	
	9/10/2008	3173030	15.16	
	9/10/2008	3173017	15.00	
	9/10/2008	3173004	15.04	
	9/10/2008	3172991	15.37	

Table 10
Summary of Wheeler Bay Import Material Quantities

Material (units)	Date	Ticket No.	Quantity Delivered	Quantity Required - Design Neat Section
Armor Rock (tons) - continued				
	9/10/2008	3172979	15.48	
	9/11/2008	3173096	15.14	
	9/11/2008	3173081	14.21	
	9/11/2008	3173071	14.33	
	9/11/2008	3173063	14.95	
	9/11/2008	3173057	15.47	
	9/12/2008	3173148	14.93	
	9/12/2008	3173135	15.23	
	9/12/2008	3173121	14.97	
	9/12/2008	3173109	15.13	
	9/15/2008	3173217	15.34	
	9/15/2008	3173213	14.63	
	9/15/2008	3173200	15.52	
	9/15/2008	3173190	14.98	
	9/15/2008	3173176	14.79	
		TOTAL:	**1,250**	**1,240**
Habitat Cover (tons)				
	9/30/2008	97924	14.91	
	9/30/2008	97925	15.18	
	9/30/2008	97927	16.12	
	9/30/2008	97929	15.42	
	9/30/2008	97930	15.72	
	9/30/2008	97931	15.64	
	9/30/2008	97934	15.42	
	9/30/2008	97935	15.22	
	9/30/2008	97936	16.14	
	9/30/2008	97937	15.21	
	9/30/2008	97938	16.06	
	9/30/2008	97939	15.46	
	9/30/2008	97941	15.62	
	9/30/2008	97942	15.71	
	9/30/2008	97943	15.81	
	9/30/2008	97944	15.38	
	9/30/2008	97945	16.14	
	9/30/2008	97946	15.69	
	9/30/2008	97948	16.33	
	9/30/2008	97949	15.08	
	9/30/2008	97950	16.07	
	9/30/2008	97952	14.91	
	9/30/2008	97953	15.74	
	9/30/2008	97954	15.64	
	9/30/2008	97955	16.58	
	9/30/2008	97957	15.58	
	9/30/2008	97958	16.42	
	9/30/2008	97959	15.48	
	9/30/2008	97961	16.09	
	9/30/2008	97962	15.83	
	9/30/2008	97964	15.62	
	9/30/2008	97965	15.33	
	9/30/2008	97967	16.20	

Table 10
Summary of Wheeler Bay Import Material Quantities

Material (units)	Date	Ticket No.	Quantity Delivered	Quantity Required - Design Neat Section
Habitat Cover (tons) - continued				
	9/30/2008	97968	15.08	
	9/30/2008	97969	16.01	
	9/30/2008	97970	15.41	
	9/30/2008	97971	16.44	
	9/30/2008	97972	16.25	
	9/30/2008	97974	15.74	
	9/30/2008	97975	15.49	
	9/30/2008	97976	15.47	
	9/30/2008	97978	16.36	
	9/30/2008	97979	16.41	
	10/1/2008	97981	14.70	
	10/1/2008	97982	14.90	
	10/1/2008	97984	16.88	
	10/1/2008	97986	14.81	
	10/1/2008	97987	15.33	
	10/1/2008	97988	16.02	
	10/1/2008	97990	14.64	
	10/1/2008	97992	14.86	
	10/1/2008	97995	14.81	
	10/1/2008	97997	15.21	
	10/1/2008	97999	14.63	
	10/1/2008	98001	15.50	
	10/1/2008	98002	14.79	
	10/1/2008	98003	15.22	
	10/1/2008	98006	14.50	
	10/1/2008	98008	15.13	
	10/1/2008	98009	15.65	
	10/1/2008	98011	14.77	
	10/1/2008	98013	15.49	
	10/1/2008	98016	15.40	
	10/1/2008	98018	18.85	
	10/1/2008	98020	15.99	
	10/1/2008	98022	15.65	
	10/1/2008	98024	15.43	
	10/6/2008	98111	16.48	
	10/6/2008	98108	16.11	
	10/6/2008	98107	16.08	
	10/6/2008	98105	15.99	
	10/6/2008	98099	16.26	
	10/6/2008	98095	16.01	
	10/6/2008	98091	15.40	
	10/6/2008	98089	15.58	
	10/6/2008	98086	15.98	
	10/6/2008	98082	15.77	
	10/6/2008	98081	16.25	
	10/6/2008	98085	16.03	
	10/6/2008	98088	16.35	
	10/6/2008	98090	15.82	
	10/6/2008	98106	16.45	
	10/6/2008	98108	15.80	
	10/6/2008	98110	16.08	

Table 10
Summary of Wheeler Bay Import Material Quantities

Material (units)	Date	Ticket No.	Quantity Delivered	Quantity Required - Design Neat Section
Habitat Cover (tons) - continued				
	10/7/2008	98127	16.29	
	10/7/2008	98129	16.26	
	10/7/2008	98132	15.81	
	10/7/2008	98134	15.96	
	10/7/2008	98136	15.83	
	10/7/2008	98138	15.78	
	10/7/2008	98133	15.97	
	10/7/2008	98130	15.46	
	10/7/2008	98140	16.32	
	10/7/2008	98142	15.67	
	10/7/2008	98144	15.12	
	10/7/2008	98146	16.30	
	10/7/2008	98148	16.07	
	10/7/2008	98150	16.30	
	10/7/2008	98152	16.72	
	10/7/2008	98151	16.28	
	10/7/2008	98149	15.70	
	10/7/2008	98147	16.21	
	10/7/2008	98153	16.04	
	10/8/2008	98202	17.09	
	10/8/2008	98177	15.23	
	10/8/2008	98182	15.20	
	10/8/2008	98187	14.65	
	10/8/2008	98191	14.87	
	10/8/2008	98194	15.60	
	10/8/2008	98199	14.75	
	10/8/2008	98157	16.28	
	10/8/2008	98160	15.54	
	10/8/2008	98163	15.88	
	10/8/2008	98168	15.54	
	10/8/2008	99171	15.30	
	10/8/2008	98174	15.41	
	10/8/2008	98198	16.44	
	10/8/2008	98195	16.23	
	10/8/2008	98190	15.40	
	10/8/2008	98186	15.91	
	10/8/2008	98183	15.95	
	10/8/2008	98178	15.63	
	10/8/2008	98200	15.88	
	10/8/2008	98196	15.21	
	10/8/2008	98192	15.88	
	10/8/2008	98188	15.87	
	10/8/2008	98184	15.75	
	10/8/2008	98179	14.92	
	10/8/2008	98176	15.42	
	10/8/2008	98172	15.37	
	10/8/2008	98169	15.79	
	10/8/2008	98158	16.57	
		TOTAL:	**2,076**	**630**

KMB00006718

Table 10
Summary of Wheeler Bay Import Material Quantities

Material (units)	Date	Ticket No.	Quantity Delivered	Quantity Required - Design Neat Section
Topsoil (cubic yards)				
	9/22/2008	2811	22	
	9/22/2008	2813	44	
	9/23/2008	2123	66	
	9/24/2008	2127	88	
	9/24/2008	2112	44	
	9/25/2008	3459	66	
	9/25/2008	2128	88	
	9/25/2008	2115	88	
	9/26/2008	2116	88	
	9/26/2008	3460	66	
	9/26/2008	2129	66	
	9/26/2008	2816	22	
	9/27/2008	2117	88	
	9/27/2008	3462	110	
	9/27/2008	2130	110	
	9/29/2008	2118	110	
	9/30/2008	2120	66	
	10/1/2008	2121	110	
	10/2/2008	2139	44	
	10/6/2008	2145	44	
	10/6/2008	2698	110	
	10/7/2008	2699	110	
	10/7/2008	2147	22	
	10/8/2008	2700	44	
	10/8/2008	2150	22	
		TOTAL:	**1,738**	**1,600**
Bark Mulch (cubic yards)				
	10/8/2008	2154	45	
	10/9/2008	2702	124	
		TOTAL:	**169**	**130 to 190**

Table 11
Summary of Truckloads of Material Transported from Wheeler Bay to Recycler

Date	Ticket No.	Off-Site Recycling (tons)
8/14/2008	14385	29.00
8/14/2008	14386	29.00
8/14/2008	14386	29.00
8/14/2008	14387	29.00
8/14/2008	14387	29.00
8/14/2008	14387	29.00
8/14/2008	14388	29.00
8/14/2008	14388	29.00
8/14/2008	14388	29.00
8/14/2008	14389	29.00
8/14/2008	14390	29.00
9/8/2008	17594	29.00
9/8/2008	17594	29.00
9/8/2008	17594	29.00
	TOTAL:	**406.00**

Notes:

1. Concrete was delivered to the Construction Materials Exchange for recycling.
2. Recycled concrete weight estimated based on truck volume of 22 cubic yards and an assumed unit weight for concrete rubble of 1.32 ton/truck cubic yard.

Table 12
Summary of Truckloads of Material Transported from Wheeler Bay to Landfill

Date	Ticket No.	Off-Site Disposal (tons)
8/14/2008	12134	31.62
8/14/2008	12133	32.21
8/14/2008	12141	32.96
8/14/2008	12209	33.44
8/14/2008	12196	30.84
8/14/2008	12152	30.69
8/14/2008	12204	32.26
8/14/2008	12154	33.96
8/14/2008	12205	33.76
8/14/2008	12208	31.70
8/14/2008	12139	33.23
8/14/2008	12197	28.56
8/14/2008	12145	31.97
8/14/2008	12198	27.23
8/14/2008	12147	31.95
8/14/2008	12199	31.29
8/14/2008	12137	32.10
8/14/2008	12194	32.74
8/14/2008	12143	31.85
8/14/2008	12203	31.80
8/14/2008	12149	31.57
8/15/2008	12215	32.17
8/15/2008	12214	31.85
8/15/2008	12238	32.90
8/15/2008	12213	31.88
8/15/2008	12250	31.89
8/15/2008	12223	30.80
8/15/2008	12258	31.48
8/15/2008	12252	29.09
8/15/2008	12233	32.50
8/19/2008	12429	26.82
8/20/2008	12493	28.59
8/20/2008	12568	31.85
9/15/2008	14601	27.45
9/19/2008	62216	32.09
9/19/2008	67995	32.87
9/19/2008	68265	32.63
9/19/2008	14941	32.90
	TOTAL:	**1,197**

Table 13
Background Water Quality Results - T4 Site

	Location ID:	BG-1			BG-2			BG-HL			BG-S3			
	Sample ID:	BG-1-C-080626	BG-1-C-080630	BG-1-C-080702	BG-2-C-080626	BG-2-C-080630	BG-2-C-080702	BG-HL-C-080626	BG-HL-C-080630	BG-HL-C-080702	BG-S3-A-080626	BG-S3-A-080626B	BG-S3-A-080702	BG-S3-C-080630
	Sample Date:	6/26/08	6/30/08	7/2/08	6/26/08	6/30/08	7/2/08	6/26/08	6/30/08	7/2/08	6/26/08	6/26/08	7/2/08	6/30/08
Laboratory Parameters	**Fraction**													
Polycyclic Aromatic Hydrocarbons (µg/L)														
1-Methylnaphthalene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Methylnaphthalene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthylene	N	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Anthracene	N	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(a)anthracene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	N	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(k)fluoranthene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chrysene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibenzo(a,h)anthracene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluorene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-c,d)pyrene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Phenanthrene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Pyrene	N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Conventional Parameters (mg/L)														
Total suspended solids	N	**3.5**	**4.7**	**7.2**	**6.6**	**6.5**	**4.5**	**3.8**	**4.5**	**9.2**	**5.5**	**5.1**	**3**	**5.8**
Metals (µg/L)														
Cadmium	T	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Lead	T	1 U	1 U	1 U	**3**	1 U	1 U	1 U	1 U	1 U	**1**	**1**	1 U	1 U
Zinc	T	4 U	4 U	4 U	**47**	4 U	4 U	4 U	4 U	4 U	**10**	**7**	4 U	**12**

Table 13
Background Water Quality Results - T4 Site

	Location ID:	BG-1			BG-2			BG-HL			BG-S3			
	Sample ID:	BG-1-C-080626	BG-1-C-080630	BG-1-C-080702	BG-2-C-080626	BG-2-C-080630	BG-2-C-080702	BG-HL-C-080626	BG-HL-C-080630	BG-HL-C-080702	BG-S3-A-080626	BG-S3-A-080626B	BG-S3-A-080702	BG-S3-C-080630
	Sample Date:	6/26/08	6/30/08	7/2/08	6/26/08	6/30/08	7/2/08	6/26/08	6/30/08	7/2/08	6/26/08	6/26/08	7/2/08	6/30/08
Field Parameters	**Depth**													
Dissolved Oxygen (mg/L)	A	**10.94**	**10.53**	**8.51**	**10.84**	**10.64**	**8.30**	**10.96**	**10.86**	**8.23**	**10.83**	**10.94**	**9.05**	--
	B	**10.72**	**9.81**	**8.15**	**10.67**	**9.90**	**8.28**	**10.67**	**70.03**	**8.13**	**10.63**	**10.29**	**8.54**	--
	C	**10.52**	**8.61**	**8.04**	**10.48**	**9.68**	**8.22**	**10.46**	**9.60**	**7.92**	**10.45**	**10.04**	**8.12**	--
Temperature (°C)	A	**15.52**	**17.84**	**18.68**	**15.77**	**18.33**	**18.73**	**15.75**	**18.28**	**17.96**	**15.72**	**18.23**	**18.47**	--
	B	**15.39**	**16.73**	**18.03**	**15.44**	**16.78**	**18.14**	**15.40**	**16.82**	**17.71**	**15.60**	**18.65**	**17.84**	--
	C	**15.26**	**16.40**	**17.84**	**15.32**	**16.18**	**18.03**	**15.19**	**16.00**	**17.31**	**15.45**	**16.49**	**17.32**	--
Turbidity (NTU)	A	**0.8**	**1.4**	**1.2**	**2.6**	**1.2**	**1.5**	**3.1**	**0.5**	**5.4**	**4.0**	**2.5**	**5.0**	--
	B	**0.6**	**1.8**	**1.9**	**1.6**	**2.6**	**2.4**	**2.5**	**2.4**	**3.8**	**3.0**	**2.5**	**1.3**	--
	C	**1.5**	**1.8**	**2.7**	**3.2**	**3.3**	**3.5**	**4.7**	**3.0**	**6.0**	**3.3**	**3.0**	**1.6**	--
pH (Standard Units)	A	**7.48**	**7.68**	**7.57**	**7.43**	**7.76**	**7.57**	**7.47**	**7.99**	**7.45**	**7.45**	**8.60**	**7.74**	--
	B	**7.35**	**7.55**	**7.37**	**7.35**	**7.54**	**7.43**	**7.39**	**7.53**	**7.32**	**7.40**	**7.81**	**7.38**	--
	C	**7.34**	**7.47**	**7.39**	**7.35**	**7.46**	**7.40**	**7.33**	**7.43**	**7.34**	**7.30**	**7.54**	**7.35**	--

Notes:

Bold = Detected result

U = Compound analyzed, but not detected above detection limit

UJ = Compound analyzed, but not detected above estimated detection limit

Table 14
Background Water Quality 90th Percentile Values - T4 Site

Parameters	Preconstruction Monitoring		USGS Historical			
	--	N	10 Year	N	1 Year	N
Polycyclic Aromatic Hydrocarbons (PAHs; µg/L)						
Acenaphthene	U, <.1	*12*				
Acenaphthylene	U, <.1	*12*				
Anthracene	U, <.1	*12*				
Benzo(a)anthracene	U, <.1	*12*				
Benzo(a)pyrene	U, <.1	*12*				
Benzo(b)fluoranthene	U, <.1	*12*				
Benzo(g,h,i)perylene	U, <.1	*12*				
Benzo(k)fluoranthene	U, <.1	*12*				
Chrysene	U, <.1	*12*				
Dibenzo(a,h)anthracene	U, <.1	*12*				
Fluoranthene	U, <.1	*12*				
Fluorene	U, <.1	*12*				
Indeno(1,2,3-c,d)pyrene	U, <.1	*12*				
Naphthalene	U, <.1	*12*				
Phenanthrene	U, <.1	*12*				
Pyrene	U, <.1	*12*				
Conventional Parameters (mg/L)						
Total suspended solids	**8.6**	*12*	**39.4**	*141*	**48.3**	*20*
Metals (µg/L)						
Cadmium	U, <.2	*12*				
Lead	IN	*12*	*u*	--		
Zinc	**24.9**	*12*	**6.0**	*71*		
Field Parameters						
pH (standard units)	**7.76**	*36*	**7.50**	*36*	**7.49**	*36*
Temperature (°C)	**18.33**	*36*	**22.06**	*36*	**22.28**	*36*
Turbidity (NTU	**4.7**	*36*	**32.0**	*36*	**38.0**	*36*

Notes:

Bold = Detected Result

IN = Statistical calculation not possible: insufficient samples with detectable analyte levels.

U = Compound analyzed, but not detected above detection limit

u = Historical detected levels below current project lab dection limit

= Data Not Available

KMB00006724

Table 15
Water Quality Sampling Station Location Descriptions

Sample Station ID	Location Description
BG-01	Daily background station from 8/12 to 8/21 located 300m upstream of Slip 3 and 10m channel ward of the Toyota pier.
BG-01R	Daily background station from 8/22 to 10/1 located 300m upstream of slip 3 and 100m channel ward of Toyota pier and harbor line.
414-E	50m early warning station located 50m from center of Berth 414 construction activity. Berth 414 located upstream of mouth of Slip 3.
414-N 414-M 414-S	100m compliance stations located in a 100m radius arc of Berth 414 construction activity.
410-E	50m early warning station located 50m from center of Berth 410 maintanence dredging within Slip 3.
410-S 410-M 410-N	100m compliance stations located in a 100m radius arc of Berth 410 maintanence dredging activity.
S3C-E	50m early warning station located 50m from S3C dredging and capping activity within center of Slip 3.
S3C-S S3C-M S3C-N	100m compliance stations located in a 100m radius arc of S3C dredging and capping activity.
S3A-E	50m early warning station located 50m from center of S3A dredging and capping activity and North head of Slip 3.
S3A-S S3A-M S3A-N	100m compliance stations located in a 100m radius arc of S3A dredging and capping activity.
S3B-E	50m early warning station located 50m from S3B dredging and capping activity at South head of Slip 3.
S3B-S S3B-M S3B-N	100m compliance stations located in a 100m radius arc of S3B dredging and capping activity.
S3M-E	50m early turbidity compliance warning station located 50m channel-ward of Slip 3 harbor line.
S3M-S S3M-M S3M-N	100m turbidity compliance stations located channel-ward of harbor line and 100m from mouth of Slip 3.

Table 16
Transloading Facility Soil Sample Analytical Results

	Station ID	T4-PI-S-01				T4-PI-S-02				T4-PI-S-03				T4-PI-S-04				T4-PI-S-05				T4-PI-S-06				
	Round	Round 1	Round 2	Round 3	Round 4	Round 1	Round 2	Round 3	Round 4	Round 1	Round 2	Round 3	Round 4	Round 1	Round 2	Round 3	Round 4	Round 1	Round 2	Round 3	Round 4	Round 1	Round 2	Round 2 Dup	Round 3	Round 4
	Sample ID	T4-PI-S-01-080818	T4-PI-S-01-080902	T4-PI-S-01-080908	T4-PI-S-01-080912	T4-PI-S-02-080818	T4-PI-S-02-080902	T4-PI-S-02-080908	T4-PI-S-02-080912	T4-PI-S-03-080818	T4-PI-S-03-080902	T4-PI-S-03-080908	T4-PI-S-03-080912	T4-PI-S-04-080818	T4-PI-S-04-080902	T4-PI-S-04-080908	T4-PI-S-04-080912	T4-PI-S-05-080818	T4-PI-S-05-080902	T4-PI-S-05-080908	T4-PI-S-05-080912	T4-PI-S-06-080818	T4-PI-S-06-080902	T4-PI-S-06-080902-FD	T4-PI-S-06-080908	T4-PI-S-06-080912
Chemical Parameter																										
Metals (mg/kg)																										
Cadmium		0.621	0.558	0.681	0.506	ND>0.126	0.0907	0.0701	0.101	ND>0.121	0.0914	0.11	0.0811	0.783	0.806	0.994	0.878	0.458	0.4	0.639	0.429	0.664	0.545	0.486	0.562	0.730
Lead		23	17.9	44.7	21.9	2.7	2.63	2.35	2.46	2.46	2.36	4.14	2.56	39.9	20.6	17.3	16.9	36.2	41.7	53.2	82.3	82.8	69.6	69.6	58.9	114.0
Zinc		110	103	170	118	34.6	36.6	35.1	34.7	32.6	35.6	33.8	35	100	101	105	99.6	111	112	147	121	172	179	179	159	264
Semivolatile Organic Compounds (µg/kg)																										
PAHs (µg/kg)																										
Naphthalene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	ND>133	ND>350	ND>411	ND>421	ND>66.1	ND>328
Acenaphthylene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	ND>133	ND>350	ND>411	ND>421	ND>66.1	ND>328
Acenaphthene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	ND>133	ND>350	ND>411	ND>421	ND>66.1	ND>328
Fluorene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	ND>133	ND>350	ND>411	ND>421	ND>66.1	ND>328
Phenanthrene		ND>248	257	317	100	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	200	ND>186	161	123	1650	1660	1040	861	ND>350	ND>411	ND>421	132	ND>328
Anthracene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	187	ND>350	ND>411	ND>421	ND>66.1	ND>328
2-Methylnaphthalene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	9.51	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	ND>133	ND>350	ND>411	ND>421	ND>66.1	ND>328
1-Methylnaphthalene		ND>248	ND>253	ND>171	ND>67.9	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	ND>41.8	ND>186	ND>134	ND>67.0	ND>363	ND>367	ND>337	ND>133	ND>350	ND>411	ND>421	ND>66.1	ND>328
Fluoranthene		766	880	1170	389	ND>6.77	ND>8.77	13.3	6.75	ND>8.41	ND>7.95	ND>6.54	ND>6.68	744	623	666	482	4690	3970	2580	2380	949	741	1070	516	ND>328
Pyrene		755	892	1070	390	ND>6.77	ND>8.77	9.56	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	681	584	597	453	4010	3350	2160	2000	853	680	1000	454	ND>328
Benzo(a)anthracene		432	508	661	211	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	404	347	357	251	2190	1790	1290	1080	528	489	663	289	ND>328
Chrysene		678	753	850	328	ND>6.77	ND>8.77	12.9	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	523	464	480	341	2710	2080	1380	1260	711	468	801	368	ND>328
Benzo(b+k)fluoranthene		1570	1950	1980	897	ND>6.77	ND>8.77		ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	1160	1010	1020	790	5040	3900	2720	2550	1380	1070	1720	804	ND>328
Benzo(b)fluoranthene								8.15																		
Benzo(k)fluoranthene								ND>6.69																		
Benzo(a)pyrene		759	802	895	334	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	590	507	476	381	2670	2070	1390	1280	798	532	884	349	ND>328
Indeno(1,2,3-cd)pyrene		544	712	784	354	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	358	408	424	327	1910	1410	987	949	558	432	665	244	ND>328
Dibenz(a,h)anthracene		ND>248	ND>253	ND>171	69.4	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	88.1	ND>186	ND>134	ND>67.0	557	ND>367	ND>337	201	ND>350	ND>411		ND>66.1	ND>328
Benzo(g,h,i)perylene		507	778	508	423	ND>6.77	ND>8.77	ND>6.69	ND>6.74	ND>8.41	ND>7.95	ND>6.54	ND>6.68	305	451	337	419	1710	1400	603	1100	532	438	667	172	ND>328
Phthalates (µg/kg)																										
Dimethyl phthalate		ND>739	ND>754	ND>511	ND>203	ND>20.2	ND>26.2	ND>20.0	ND>20.1	ND>25.1	ND>23.7	ND>19.5	ND>20.0	ND>125	ND>556	562 (B)	ND>200	ND>1080	ND>1090	ND>1000	ND>397	ND>1040	ND>1230	ND>1260	ND>197	ND>981
Diethyl phthalate		ND>739	ND>754	ND>511	ND>203	ND>20.2	ND>26.2	ND>20.0	ND>20.1	ND>25.1	ND>23.7	ND>19.5	ND>20.0	ND>125	ND>556	ND>400	ND>200	ND>1080	ND>1090	ND>1000	ND>397	ND>1040	ND>1230	ND>1260	ND>197	ND>981
Di-n-butyl phthalate		ND>739	ND>754	ND>511	ND>203	ND>20.2	ND>26.2	20.7 (B)	22.1 (B)	ND>25.1	ND>23.7	25.0 (B)	26.9 (B)	ND>125	ND>556	ND>400	ND>200	ND>1080	ND>1090	ND>1000(B)	ND>397	ND>1040	ND>1230	ND>1260	ND>197 (B)	ND>981
Butyl benzyl phthalate		ND>739	ND>754	ND>511	ND>203	ND>20.2	39.1	24.8 (B)	ND>20.1	ND>25.1	29.1	25.5 (B)	ND>20.0	ND>125	ND>556	ND>400 (B)	ND>200	ND>1080	ND>1090	ND>1000(B)	ND>397	ND>1040	ND>1230	ND>1260	ND>197 (B)	ND>981
Bis(2-ethylhexyl)phthalate		ND>739	ND>754	ND>511	ND>203	21.5	194	ND>20.0	60.9 (B)	ND>25.1	41.7	20.1 (B)	52.7 (B)	211	ND>556	ND>400	ND>200	ND>1080	ND>1090	ND>1000(B)	ND>397	ND>1040	ND>1230	ND>1260	480 (B)	ND>981
Di-n-octyl phthalate		ND>739	ND>754	ND>511	ND>203	ND>20.2	ND>26.2	ND>20.0	ND>20.1	ND>25.1	ND>23.7	ND>19.5	ND>20.0	ND>125	ND>556	ND>400	ND>200	ND>1080	ND>1090	ND>1000	ND>397	ND>1040	ND>1230	ND>1260	ND>197	ND>981
TPH (mg/kg)																										
Diesel-range petroleum hydrocarbons		24.9	32	59.3	ND>20.0	ND>4.09	ND>4.35	ND>4.02	ND>3.96	ND>4.01	ND>4.90	ND>3.99	ND>3.93	13.4	28.5	43.9	ND>19.7	30.3	ND>42.3	ND>20.2	ND>40.2	ND>44.7	ND>43.2	ND>54.3	ND>39.9	ND>39.4
Heavy oil-range petroleum hydrocarbons		200	338	463	101	ND>8.19	ND>8.70	ND>8.05	ND>7.93	ND>8.01	ND>9.79	ND>7.99	ND>7.85	151	370	379	186	265	697	363	201	506	679	743	913	547

KMB00006726

Table 17
Batch Discharge Water Sample Results Compared to Discharge Criteria

Parameter	City Discharge Limit (mg/L)	Screening Values (mg/L)	Prohibited Discharge (> MDL)[1]		Lash Barge Hold #							
					1		2		3		4	
				Sample Date	9/8/2008	9/6/2008	9/3/2008	9/2/2008	9/8/2008	9/6/2008	9/3/2008	9/2/2008
				Organization	BES	HME	BES	HME	BES	HME	BES	HME
				TSS Trigger[2]								
Conventionals (mg/L)												
Ammonia-Nitrogen				--	**3.49**	**2.1**	**5.82**	**3.5**	**4.24**	**3.36**	**3.20**	**5.6**
Sulfide (total)				--	--	**0.146**	--	**0.104**	--	**0.0785**	--	**0.102**
Total suspended solids				350	**18**	**349**	**55**	**253**	**30**	**308**	**78**	**270**
Total Metals (mg/L)												
Arsenic	0.2				**0.00122**	**0.00216**	0.020 U	**0.00283**	**0.00136**	**0.00147**	0.020 U	**0.00194**
Cadmium	0.7				0.0001 U	0.001 U	0.010 U	0.001 U	0.0001 U	0.001 U	0.010 U	0.001 U
Chromium	5.0				**0.00205**	**0.00362**	0.010 U	**0.00197**	**0.00293**	0.001 U	0.010 U	**0.00242**
Copper	3.7				**0.00330**	**0.00586**	0.010 U	**0.00864**	**0.00430**	0.005 U	0.010 U	**0.00779**
Lead	0.7				**0.00271**	**0.00451**	0.010 U	**0.00667**	**0.00234**	**0.00356**	**0.011**	**0.0166**
Mercury	0.010				0.000025 U	0.0001 U	0.0001 U	0.0001 U	0.000025 U	0.0001 U	**0.000011**	0.0001 U
Molybdenum	1.4				**0.00784**	**0.00766**	0.010 U	**0.00803**	**0.00541**	**0.00607**	0.010 U	**0.00601**
Nickel	2.8				**0.00297**	**0.00398**	0.010 U	**0.00314**	**0.00320**	**0.00251**	0.010 U	**0.00342**
Selenium	0.6				0.00050 U	--	0.020 U	--	0.00050 U	--	0.020 U	--
Silver	0.4				0.00010 U	0.002 U	0.010 U	0.002 U	0.00010 U	0.002 U	0.010 U	0.002 U
Zinc	3.7				**0.040**	**0.0359**	**0.023**	**0.106 J**	**0.014**	**0.0205**	**0.064**	**0.206 J**
PCBs (mg/L)												
Aroclor 1016			0.001		0.0005 U	0.001 U	0.000481 U	0.001 U	0.0005 U	0.001 U	0.000481 U	0.001 U
Aroclor 1221			0.001		0.001 U	0.001 U	0.000962 U	0.001 U	0.001 U	0.001 U	0.000962 U	0.001 U
Aroclor 1232			0.001		0.0005 U	0.001 U	0.000481 U	0.001 U	0.0005 U	0.001 U	0.000481 U	0.001 U
Aroclor 1242			0.001		0.0005 U	0.001 U	0.000481 U	0.001 U	0.0005 U	0.001 U	0.000481 U	0.001 U
Aroclor 1248			0.001		0.0005 U	0.001 U	0.000481 U	0.001 U	0.0005 U	0.001 U	0.000481 U	0.001 U
Aroclor 1254			0.001		0.0005 U	0.001 U	0.000481 U	0.001 U	0.0005 U	0.001 U	0.000481 U	0.001 U
Aroclor 1260			0.001		0.0005 U	0.001 U	0.000481 U	0.001 U	0.0005 U	0.001 U	0.000481 U	0.001 U
Organochloride Pesticides (mg/L)												
4,4'-DDD			0.001		0.0001 U	--	0.0000962 U	--	0.0001 U	--	0.0000962 U	--
4,4'-DDE			0.001		0.0001 U	--	0.0000962 U	--	0.0001 U	--	0.0000962 U	--
4,4'-DDT			0.001		0.0001 U	--	0.0000962 U	--	0.0001 U	--	0.0000962 U	--
Aldrin		0.40			0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Alpha-BHC			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Alpha-Chlordane	0.03				0.0001 U	--	0.0000962 U	--	0.0001 U	--	0.0000962 U	--
Beta-BHC			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Chlordane(tech)	0.03				0.005 U	--	0.00481 U	--	0.005 U	--	0.00481 U	--
Chlordane	0.03				--	0.0005 U	--	0.0005 U	--	0.0005 U	--	0.0005 U
Delta-BHC			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Dieldrin			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Endosulfan I			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Endosulfan II			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Endosulfan Sulfate			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Endrin			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Endrin Aldehyde			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Gamma-BHC(Lindane)			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Gamma-Chlordane	0.03				0.0001 U	--	0.0000962 U	--	0.0001 U	--	0.0000962 U	--
Heptachlor			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Heptachlor Epoxide			0.001		0.0001 U	0.00005 U	0.0000962 U	0.00005 U	0.0001 U	0.00005 U	0.0000962 U	0.00005 U
Methoxychlor					0.0001 U	--	0.0000962 U	--	0.0001 U	--	0.0000962 U	--
Toxaphene			0.001		0.005 U	--	0.00481 U	--	0.005 U	--	0.00481 U	--

Table 17
Batch Discharge Water Sample Results Compared to Discharge Criteria

Parameter	City Discharge Limit (mg/L)	Screening Values (mg/L)	Prohibited Discharge (> MDL)[1]		Lash Barge Hold #							
					1		2		3		4	
				Sample Date	9/8/2008	9/6/2008	9/3/2008	9/2/2008	9/8/2008	9/6/2008	9/3/2008	9/2/2008
				Organization	BES	HME	BES	HME	BES	HME	BES	HME
				TSS Trigger[2]								
VOCs (mg/L)												
1,1,1,2- Tetrachloroethane			0.01		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,1,1-Trichloroethane		1.6			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,1,2,2-Tetrachloroethane		0.40			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,1,2-Trichloroethane			0.005		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,2,4-Trichlorobenzene			0.005			0.005 U		0.005 U		0.005 U		0.005 U
1,1-Dichloroethane		2.3			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,1-Dichloroethene			0.005		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,2-Dichlorobenzene			0.005		0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U
1,2-Dichloroethane	0.50				0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,2-Dichloropropane		3.60			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
1,3-Dichlorobenzene			0.005		0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U
1,4-Dichlorobenzene			0.005		0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U
2-Chloroethylvinyl ether					0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Acrolein			0.1		0.01 U	--	0.01 U	--	0.01 U	--	0.01 U	--
Acrylonitrile			1		0.01 U	--	0.01 U	--	0.01 U	--	0.01 U	--
Benzene		0.14			0.0025 U	0.00025 U	0.0025 U	0.00025 U	0.0025 U	0.00025 U	0.0025 U	0.00025 U
Bromodichloromethane			0.005		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Bromoform			0.005		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Bromomethane			0.01		0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Carbon tetrachloride		0.03			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Chlorobenzene	0.2				0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Chloroethane			0.05		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Chloroform	0.2				0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Chloromethane			0.005		0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
cis-1,3-Dichloropropene					0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Dibromochloromethane			0.005		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Ethylbenzene		1.6			0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U
Hexachlorobutadiene			0.005			0.005 UJ		0.005 U		0.005 U		0.005 U
m,p- Xylene					0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Methylene Chloride		2.10			0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Naphthalene		2.70				0.005 UJ		0.005 UJ		0.005 UJ		0.005 UJ
o- Xylene					0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Tetrachloroethene		0.30			0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U
Toluene		1.40			0.0025 U	0.001 U	0.0025 U	0.001 U	0.0025 U	0.001 U	0.0025 U	0.001 U
Trans-1,2-Dichloroethene		0.30			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Trans-1,3-Dichloropropene		0.10			0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Trichloroethene	0.20				0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U	0.0025 U	0.0005 U
Trichlorofluoromethane					0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--
Vinyl chloride			0.05		0.0025 U	--	0.0025 U	--	0.0025 U	--	0.0025 U	--

Table 17
Batch Discharge Water Sample Results Compared to Discharge Criteria

Parameter	City Discharge Limit (mg/L)	Screening Values (mg/L)	Prohibited Discharge (> MDL)[1]		Lash Barge Hold #							
					1		2		3		4	
				Sample Date	9/8/2008	9/6/2008	9/3/2008	9/2/2008	9/8/2008	9/6/2008	9/3/2008	9/2/2008
				Organization	BES	HME	BES	HME	BES	HME	BES	HME
				TSS Trigger[2]								
SVOCs (mg/L)												
1,2,4-Trichlorobenzene			0.005		0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
1,2-Dichlorobenzene			0.005		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
1,3-Dichlorobenzene			0.005		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
1,4-Dichlorobenzene			0.005		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
2,4,6- Trichlorophenol		0.60			0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
2,4- Dichlorophenol					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
2,4- Dimethylphenol					0.010 U	--	0.00962 U	--	0.010 U	--	0.0098 U	--
2,4- Dinitrophenol					0.025 U	--	0.0240 U	--	0.025 U	--	0.0245 U	--
2,4- Dinitrotoluene			0.13		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
2,6-Dinitrotoluene			0.005		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
2-Chloronaphthalene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
2-Chlorophenol					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
2- Nitrophenol					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
3,3'- Dichlorobenzidine					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
4,6- Dinitro-2-methylphenol		3.50			0.010 U	--	0.00481 U	--	0.010 U	--	0.0098 U	--
4- Bromophenylphenyl ether			0.005		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
4- Chloro-3-methylphenol					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
4- Nitrophenol					0.025 U	--	0.0240 U	--	0.025 U	--	0.0245 U	--
2-Methylnaphthalene					0.005 U	--	--	--	0.005 U	--	--	--
Acenaphthene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Acenaphthylene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Anthracene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Azobenzene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Benzidine					0.060 U	--	0.0577 U	--	0.060 U	--	0.0588 U	--
Benzo(a)anthracene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Benzo(a)pyrene		10			0.005 U	0.0000440 U	0.00481 U	**0.0000728 J**	0.005 U	0.0000400 U	0.0049 U	0.0000444 U
Benzo(b)fluoranthene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Benzo(g,h,i)perylene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Benzo(k)fluoranthene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Benzyl butyl phthalate					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Bis(2-chloroethoxy) methane			0.01		0.010 U	0.005 U	0.00962 U	0.005 U	0.010 U	0.005 U	0.0098 U	0.005 U
Bis(2-chloroethyl) ether					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Bis(2-chloroisopropyl) ether			0.01		0.010 U	0.005 U	0.00962 U	0.005 U	0.010 U	0.005 U	0.0098 U	0.005 U
Bis(2-Ethylhexyl)phthalate					0.010 U	--	0.00962 U	--	0.010 U	--	0.0098 U	--
Butylbenzylphthalate					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Chrysene		4.7			0.005 U	0.0000440 U	0.00481 U	**0.0000886**	0.005 U	0.0000400 U	0.0049 U	**0.0000550 J**
Dibenzo(a,h)anthracene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Diethylphthalate					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Dimethylphthalate					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Di-n-butylphthalate					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Di-n-octylphthalate					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Fluoranthene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Fluorene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Hexachlorobenzene			0.005		0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
Hexachlorobutadiene			0.005		0.010 U	0.005 U	0.00962 U	0.005 U	0.010 U	0.005 U	0.0098 U	0.005 U
Hexachlorocyclopentadiene			0.005		0.010 U	0.005 U	0.00962 U	0.005 U	0.010 U	0.005 U	0.0098 U	0.005 U
Hexachloroethane		0.10			0.010 U	0.005 U	0.00962 U	0.005 U	0.010 U	0.005 U	0.0098 U	0.005 U
Indeno(1,2,3-cd)pyrene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Isophorone					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--

Table 17
Batch Discharge Water Sample Results Compared to Discharge Criteria

Parameter	City Discharge Limit (mg/L)	Screening Values (mg/L)	Prohibited Discharge (> MDL)[1]		Lash Barge Hold #							
					1		2		3		4	
				Sample Date	9/8/2008	9/6/2008	9/3/2008	9/2/2008	9/8/2008	9/6/2008	9/3/2008	9/2/2008
				Organization	BES	HME	BES	HME	BES	HME	BES	HME
				TSS Trigger[2]								
Naphthalene		2.70			0.005 U	0.0000440 U	0.00481 U	0.0000444 U	0.005 U	0.0000400 U	0.0049 U	0.0000444 U
Nitrobenzene	2.00				0.005 U	0.005 U	0.00481 U	0.005 U	0.005 U	0.005 U	0.0049 U	0.005 U
N-Nitrosodimethylamine					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
N-Nitroso-di-n-propylamine			0.005		0.010 U	0.005 U	0.00962 U	0.005 U	0.010 U	0.005 U	0.0098 U	0.005 U
N-Nitrosodiphenylamine					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Pentachlorophenol	0.04				0.010 U	0.025 U	0.00962 U	0.025 U	0.010 U	0.025 U	0.0098 U	0.025 U
Phenanthrene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Phenol					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--
Pyrene					0.005 U	--	0.00481 U	--	0.005 U	--	0.0049 U	--

Notes:

Bold = Detected result

--indicates compound not analyzed
J = Estimated value
U = Compound analyzed, but not detected above detection limit
UJ = Compound analyzed, but not detected above estimated detection limit
1 Values assumed to be mg/L.
2 If exceeded, value at which discharge costs are incurred.
Reporting limit exceeds screening level however, screening level based on MDL.

HME data validated, BES data unvalidated.

Table 18
Summary Statistics of Water Quality Monitoring Data at Background and Compliance Stations

	Back-ground	Acute WQC	Acute Guidance Value	Minimum	Median	Maximum	Count Detects	Count Results	Percent Detected
BACKGROUND STATION									
Dissolved Metals (µg/L)									
Cadmium	<1	0.5	--	0.1	0.1	0.5	0	17	0.0
Lead	13.3	14	--	0.5	0.5	0.5	0	17	0.0
Zinc	38	36	--	6.3	8.8	13.5	17	17	100.0
Total Aromatic Hydrocarbons (µg/L)									
Acenaphthene	--	--	233	0.019	0.019	0.020	0	18	0.0
Acenaphthylene	--	--	1,277	0.019	0.019	0.020	0	18	0.0
Anthracene	--	--	87	0.019	0.019	0.020	0	18	0.0
Benzo(a)anthracene	--	--	9.2	0.019	0.019	0.020	0	18	0.0
Benzo(a)pyrene	--	--	4.0	0.019	0.019	0.020	0	18	0.0
Benzo(b)fluoranthene	--	--	2.8	0.019	0.019	0.020	0	18	0.0
Benzo(g,h,i)perylene	--	--	1.8	0.019	0.019	0.020	0	18	0.0
Benzo(k)fluoranthene	--	--	2.7	0.019	0.019	0.020	0	18	0.0
Chrysene	--	--	8.3	0.019	0.019	0.020	0	18	0.0
Dibenzo(a,h)anthracene	--	--	1.2	0.019	0.019	0.020	0	18	0.0
Fluoranthene	--	--	30	0.019	0.019	0.020	0	18	0.0
Fluorene	--	--	162	0.019	0.019	0.020	0	18	0.0
Indeno(1,2,3-c,d)pyrene	--	--	1.2	0.019	0.019	0.020	0	18	0.0
Naphthalene	--	--	807	0.019	0.019	0.020	0	18	0.0
Phenanthrene	--	--	79	0.019	0.019	0.020	0	18	0.0
Pyrene	--	--	42	0.019	0.019	0.020	0	18	0.0
COMPLIANCE STATION									
Dissolved Metals (µg/L)									
Cadmium	<1	0.5	--	0.1	0.1	0.5	1	55	1.8
Lead	13.3	14	--	0.5	0.5	1.7	1	55	1.8
Zinc	38	36	--	5.4	8.4	13.2	55	55	100.0
Total Aromatic Hydrocarbons (µg/L)									
Acenaphthene	--	--	233	0.019	0.019	0.023	0	58	0.0
Acenaphthylene	--	--	1,277	0.019	0.019	0.023	0	58	0.0
Anthracene	--	--	87	0.019	0.019	0.023	0	58	0.0
Benzo(a)anthracene	--	--	9.2	0.019	0.019	0.114	5	58	8.6
Benzo(a)pyrene	--	--	4.0	0.019	0.019	0.152	5	58	8.6
Benzo(b)fluoranthene	--	--	2.8	0.019	0.019	0.250	5	58	8.6
Benzo(g,h,i)perylene	--	--	1.8	0.019	0.019	0.117	5	58	8.6
Benzo(k)fluoranthene	--	--	2.7	0.019	0.019	0.250	5	58	8.6
Chrysene	--	--	8.3	0.019	0.019	0.122	6	58	10.3
Dibenzo(a,h)anthracene	--	--	1.2	0.019	0.019	0.023	0	58	0.0
Fluoranthene	--	--	30	0.019	0.019	0.194	11	58	19.0
Fluorene	--	--	162	0.019	0.019	0.023	0	58	0.0
Indeno(1,2,3-c,d)pyrene	--	--	1.2	0.019	0.019	0.123	6	58	10.3
Naphthalene	--	--	807	0.019	0.019	0.023	0	58	0.0
Phenanthrene	--	--	79	0.019	0.019	0.084	4	58	6.9
Pyrene	--	--	42	0.019	0.019	0.180	12	58	20.7

Note:

Statistics are based on one-half reporting limit values for undetected results.

Table 19
Compliance Monitoring Data for PAHs Compared to Model Predicted Concentrations

Sample ID	Sample Date	Analyte	Background Value	Modeled Value	Detected Concentration	% Difference between Modeled and Detected Value
T4-S3A-MC-080818	8/18/08	Benzo(a)anthracene	<.1 U	0.035	0.061	75
T4-S3A-NC-WS-080820	8/20/08	Benzo(a)anthracene	<.1 U	0.035	0.049	39
T4-S3A-NB-WS-080821	8/21/08	Benzo(a)anthracene	<.1 U	0.035	0.056	61
T4-S3A-NC-WS-080821	8/21/08	Benzo(a)anthracene	<.1 U	0.035	0.114	226
T4-S3A-MC-080823	8/23/08	Benzo(a)anthracene	<.1 U	0.035	0.054	54
T4-S3A-MC-080818	8/18/08	Benzo(a)pyrene	<.1 U	0.038	0.070	84
T4-S3A-NC-WS-080820	8/20/08	Benzo(a)pyrene	<.1 U	0.038	0.053	40
T4-S3A-NB-WS-080821	8/21/08	Benzo(a)pyrene	<.1 U	0.038	0.065	71
T4-S3A-NC-WS-080821	8/21/08	Benzo(a)pyrene	<.1 U	0.038	0.152	300
T4-S3A-MC-080823	8/23/08	Benzo(a)pyrene	<.1 U	0.038	0.056	48
T4-S3A-MC-080818	8/18/08	Benzo(g,h,i)perylene	<.1 U	0.024	0.056	134
T4-S3A-NC-WS-080820	8/20/08	Benzo(g,h,i)perylene	<.1 U	0.024	0.042	76
T4-S3A-NB-WS-080821	8/21/08	Benzo(g,h,i)perylene	<.1 U	0.024	0.052	117
T4-S3A-NC-WS-080821	8/21/08	Benzo(g,h,i)perylene	<.1 U	0.024	0.117	388
T4-S3A-MC-080823	8/23/08	Benzo(g,h,i)perylene	<.1 U	0.024	0.042	75
T4-S3A-MC-080818	8/18/08	Chrysene	<.1 U	0.034	0.064	87
T4-S3A-N04C-080819	8/19/08	Chrysene	<.1 U	0.034	0.039	15
T4-S3A-NC-WS-080820	8/20/08	Chrysene	<.1 U	0.034	0.051	50
T4-S3A-NB-WS-080821	8/21/08	Chrysene	<.1 U	0.034	0.058	70
T4-S3A-NC-WS-080821	8/21/08	Chrysene	<.1 U	0.034	0.122	259
T4-S3A-MC-080823	8/23/08	Chrysene	<.1 U	0.034	0.050	47
T4-S3C-MC-080813	8/13/08	Fluoranthene	<.1 U	0.053	0.056	5
T4-S3A-MC-080818	8/18/08	Fluoranthene	<.1 U	0.053	0.107	102
T4-S3A-N04C-080819	8/19/08	Fluoranthene	<.1 U	0.053	0.069	30
T4-S3A-NC-WS-080820	8/20/08	Fluoranthene	<.1 U	0.053	0.091	72
T4-S3A-NB-WS-080821	8/21/08	Fluoranthene	<.1 U	0.053	0.098	84
T4-S3A-NC-WS-080821	8/21/08	Fluoranthene	<.1 U	0.053	0.194	266
T4-S3A-MC-080823	8/23/08	Fluoranthene	<.1 U	0.053	0.086	62
T4-S3A-MC-080818	8/18/08	Indeno(1,2,3-c,d)pyrene	<.1 U	0.038	0.066	73
T4-S3A-N04C-080819	8/19/08	Indeno(1,2,3-c,d)pyrene	<.1 U	0.038	0.041	8
T4-S3A-NC-WS-080820	8/20/08	Indeno(1,2,3-c,d)pyrene	<.1 U	0.038	0.053	39
T4-S3A-NB-WS-080821	8/21/08	Indeno(1,2,3-c,d)pyrene	<.1 U	0.038	0.062	63
T4-S3A-NC-WS-080821	8/21/08	Indeno(1,2,3-c,d)pyrene	<.1 U	0.038	0.123	224
T4-S3A-MC-080823	8/23/08	Indeno(1,2,3-c,d)pyrene	<.1 U	0.038	0.055	44
T4-S3A-MC-080818	8/18/08	Phenanthrene	<.1 U	0.026	0.050	90
T4-S3A-NC-WS-080820	8/20/08	Phenanthrene	<.1 U	0.026	0.044	68
T4-S3A-NB-WS-080821	8/21/08	Phenanthrene	<.1 U	0.026	0.043	66
T4-S3A-NC-WS-080821	8/21/08	Phenanthrene	<.1 U	0.026	0.084	222
T4-S3C-MC-080813	8/13/08	Pyrene	<.1 U	0.044	0.060	37
T4-S3C-MC-080813-D	8/13/08	Pyrene	<.1 U	0.044	0.047	8
T4-S3C-MC-080814	8/14/08	Pyrene	<.1 U	0.044	0.056	28
T4-S3A-MC-080818	8/18/08	Pyrene	<.1 U	0.044	0.103	134
T4-S3A-N04C-080819	8/19/08	Pyrene	<.1 U	0.044	0.068	55
T4-S3A-NB-WS-080820	8/20/08	Pyrene	<.1 U	0.044	0.045	2
T4-S3A-NC-WS-080820	8/20/08	Pyrene	<.1 U	0.044	0.086	95
T4-S3A-NA-WS-080821	8/21/08	Pyrene	<.1 U	0.044	0.047	7
T4-S3A-NB-WS-080821	8/21/08	Pyrene	<.1 U	0.044	0.094	115
T4-S3A-NC-WS-080821	8/21/08	Pyrene	<.1 U	0.044	0.180	309
T4-S3A-MC-080823	8/23/08	Pyrene	<.1 U	0.044	0.084	91

Table 20
Batch Water Discharge Sampling Results Compared to Acute Water Quality Standards

Parameter	Acute Water Quality Value	Background Water Quality Value for Metals	Lash Barge Hold #							
			1		2		3		4	
			9/8/2008	9/6/2008	9/3/2008	9/2/2008	9/8/2008	9/6/2008	9/3/2008	9/2/2008
			BES	HME	BES	HME	BES	HME	BES	HME
Conventionals (mg/L)										
Ammonia-Nitrogen			**3.49**	**2.1**	**5.82**	**3.5**	**4.24**	**3.36**	**3.20**	**5.6**
Sulfide (total)			--	**0.146**	--	**0.104**	--	**0.0785**	--	**0.102**
Total suspended solids			**18**	**349**	**55**	**253**	**30**	**308**	**78**	**270**
Total Metals (µg/L)										
Arsenic	340	2	**1.22**	**2.16**	20 U	**2.83**	**1.36**	**1.47**	20 U	**1.94**
Cadmium	0.5	<1	0.1 U	1 U	10 U	1 U	0.1 U	1 U	10 U	1 U
Chromium	183	1	**2.05**	**3.62**	10 U	**1.97**	**2.93**	1 U	10 U	**2.42**
Copper	3.6	9	**3.3**	**5.86**	10 U	**8.64**	**4.3**	5 U	10 U	**7.79**
Lead	14	13.3	**2.71**	**4.51**	10 U	**6.67**	**2.34**	**3.56**	**11**	**16.6**
Mercury	1.4	<0.1	0.025 U	0.1 U	0.1 U	0.1 U	0.025 U	0.1 U	**0.011**	0.1 U
Molybdenum			**7.84**	**7.66**	10 U	**8.03**	**5.41**	**6.07**	10 U	**6.01**
Nickel	145	5.5	**2.97**	**3.98**	10 U	**3.14**	**3.2**	**2.51**	10 U	**3.42**
Selenium		0.2	0.5 U	--	20 U	--	0.5 U	--	20 U	--
Silver	0.3	<1	0.1 U	2 U	10 U	2 U	0.1 U	2 U	10 U	2 U
Zinc	36	38	**40**	**35.9**	**23**	**106** J	**14.1**	**20.5**	**64**	**206** J
PCBs (µg/L)										
Aroclor 1016			0.5 U	1 U	0.481 U	1 U	0.5 U	1 U	0.481 U	1 U
Aroclor 1221			1 U	1 U	0.962 U	1 U	1 U	1 U	0.962 U	1 U
Aroclor 1232			0.5 U	1 U	0.481 U	1 U	0.5 U	1 U	0.481 U	1 U
Aroclor 1242			0.5 U	1 U	0.481 U	1 U	0.5 U	1 U	0.481 U	1 U
Aroclor 1248			0.5 U	1 U	0.481 U	1 U	0.5 U	1 U	0.481 U	1 U
Aroclor 1254			0.5 U	1 U	0.481 U	1 U	0.5 U	1 U	0.481 U	1 U
Aroclor 1260			0.5 U	1 U	0.481 U	1 U	0.5 U	1 U	0.481 U	1 U
Organochloride Pesticides (µg/L)										
4,4'-DDD			0.1 U	--	0.0962 U	--	0.1 U	--	0.0962 U	--
4,4'-DDE			0.1 U	--	0.0962 U	--	0.1 U	--	0.0962 U	--
4,4'-DDT	1.1		0.1 U	--	0.0962 U	--	0.1 U	--	0.0962 U	--
Aldrin	3		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Alpha-BHC			0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Alpha-Chlordane			0.1 U	--	0.0962 U	--	0.1 U	--	0.0962 U	--
Beta-BHC			0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Chlordane(tech)			5 U	--	4.81 U	--	5 U	--	4.81 U	--
Chlordane	2.4		--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U
Delta-BHC			0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Dieldrin	0.24		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Endosulfan I (alpha)	0.22		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Endosulfan II (beta)	0.22		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Endosulfan Sulfate			0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Endrin	0.086		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Endrin Aldehyde			0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Gamma-BHC(Lindane)	0.95		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Gamma-Chlordane			0.1 U	--	0.0962 U	--	0.1 U	--	0.0962 U	--
Heptachlor	0.52		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Heptachlor Epoxide	0.52		0.1 U	0.05 U	0.0962 U	0.05 U	0.1 U	0.05 U	0.0962 U	0.05 U
Methoxychlor			0.1 U	--	0.0962 U	--	0.1 U	--	0.0962 U	--
Toxaphene	0.73		5 U	--	4.81 U	--	5 U	--	4.81 U	--
VOCs (µg/L)										
1,1,1,2- Tetrachloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,1,1-Trichloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,1,2,2-Tetrachloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,1,2-Trichloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,2,4-Trichlorobenzene			0	5.00 U	0	5.00 U	0	5.00 U	0	5.00 U
1,1-Dichloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,1-Dichloroethene			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,2-Dichlorobenzene			2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U
1,2-Dichloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,2-Dichloropropane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,3-Dichlorobenzene			2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U
1,4-Dichlorobenzene			2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U
2-Chloroethylvinyl ether			25 U	--	25 U	--	25 U	--	25 U	--
Acrolein			10 U	--	10 U	--	10 U	--	10 U	--
Acrylonitrile			10 U	--	10 U	--	10 U	--	10 U	--
Benzene			2.5 U	0.25 U	2.5 U	0.25 U	2.5 U	0.25 U	2.5 U	0.25 U
Bromodichloromethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Bromoform			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Bromomethane			5 U	--	5 U	--	5 U	--	5 U	--
Carbon tetrachloride			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Chlorobenzene			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Chloroethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Chloroform			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Chloromethane			5 U	--	5 U	--	5 U	--	5 U	--
cis-1,3-Dichloropropene			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Dibromochloromethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Ethylbenzene			2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U
Hexachlorobutadiene			0	5 UJ	0	5 U	0	5 U	0	5 U
m,p- Xylene			5 U	--	5 U	--	5 U	--	5 U	--
Methylene Chloride			5 U	--	5 U	--	5 U	--	5 U	--
Naphthalene	807		0	5 UJ	0	5 UJ	0	5 UJ	0	5 UJ
o- Xylene			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Tetrachloroethene			2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U
Toluene			2.5 U	1 U	2.5 U	1 U	2.5 U	1 U	2.5 U	1 U
Trans-1,2-Dichloroethene			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Trans-1,3-Dichloropropene			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Trichloroethene			2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U	2.5 U	0.5 U
Trichlorofluoromethane			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Vinyl chloride			2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--

Table 20
Batch Water Discharge Sampling Results Compared to Acute Water Quality Standards

Parameter	Acute Water Quality Value	Background Water Quality Value for Metals	Lash Barge Hold #							
			1		2		3		4	
			9/8/2008	9/6/2008	9/3/2008	9/2/2008	9/8/2008	9/6/2008	9/3/2008	9/2/2008
			BES	HME	BES	HME	BES	HME	BES	HME
SVOCs (µg/L)										
1,2,4-Trichlorobenzene			5 U	--	4.81 U	--	5 U	--	4.9 U	--
1,2-Dichlorobenzene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
1,3-Dichlorobenzene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
1,4-Dichlorobenzene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
2,4,6- Trichlorophenol			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
2,4- Dichlorophenol			5 U	--	4.81 U	--	5 U	--	4.9 U	--
2,4- Dimethylphenol			10 U	--	9.62 U	--	10 U	--	9.8 U	--
2,4- Dinitrophenol			25 U	--	24 U	--	25 U	--	24.5 U	--
2,4- Dinitrotoluene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
2,6-Dinitrotoluene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
2-Chloronaphthalene			5 U	--	4.81 U	--	5 U	--	4.9 U	--
2-Chlorophenol			5 U	--	4.81 U	--	5 U	--	4.9 U	--
2- Nitrophenol			5 U	--	4.81 U	--	5 U	--	4.9 U	--
3,3'- Dichlorobenzidine			5 U	--	4.81 U	--	5 U	--	4.9 U	--
4,6- Dinitro-2-methylphenol			10 U	--	4.81 U	--	10 U	--	9.8 U	--
4- Bromophenylphenyl ether			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
4- Chloro-3-methylphenol			5 U	--	4.81 U	--	5 U	--	4.9 U	--
4- Nitrophenol			25 U	--	24 U	--	25 U	--	24.5 U	--
2-Methylnaphthalene	300		5 U	--	--	--	5 U	--	--	--
Acenaphthene	233		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Acenaphthylene	1,277		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Anthracene	87		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Azobenzene			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Benzidine			60 U	--	57.7 U	--	60 U	--	58.8 U	--
Benzo(a)anthracene	9.2		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Benzo(a)pyrene	4		5 U	0.044 U	4.81 U	**0.0728 J**	5 U	0.04 U	4.9 U	0.0444 U
Benzo(b)fluoranthene	2.8		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Benzo(g,h,i)perylene			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Benzo(k)fluoranthene	2.7		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Benzyl butyl phthalate			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Bis(2-chloroethoxy) methane			10 U	5 U	9.62 U	5 U	10 U	5 U	9.8 U	5 U
Bis(2-chloroethyl) ether			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Bis(2-chloroisopropyl) ether			10 U	5 U	9.62 U	5 U	10 U	5 U	9.8 U	5 U
Bis(2-Ethylhexyl)phthalate			10 U	--	9.62 U	--	10 U	--	9.8 U	--
Butylbenzylphthalate			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Chrysene	8.3		5 U	0.044 U	4.81 U	**0.0886**	5 U	0.04 U	4.9 U	**0.055 J**
Dibenzo(a,h)anthracene			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Diethylphthalate			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Dimethylphthalate			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Di-n-butylphthalate			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Di-n-octylphthalate			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Fluoranthene	30		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Fluorene	162		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Hexachlorobenzene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
Hexachlorobutadiene			10 U	5 U	9.62 U	5 U	10 U	5 U	9.8 U	5 U
Hexachlorocyclopentadiene			10 U	5 U	9.62 U	5 U	10 U	5 U	9.8 U	5 U
Hexachloroethane			10 U	5 U	9.62 U	5 U	10 U	5 U	9.8 U	5 U
Indeno(1,2,3-cd)pyrene			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Isophorone			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Naphthalene			5 U	0.044 U	4.81 U	0.0444 U	5 U	0.04 U	4.9 U	0.0444 U
Nitrobenzene			5 U	5 U	4.81 U	5 U	5 U	5 U	4.9 U	5 U
N-Nitrosodimethylamine			5 U	--	4.81 U	--	5 U	--	4.9 U	--
N-Nitroso-di-n-propylamine			10 U	5 U	9.62 U	5 U	10 U	5 U	9.8 U	5 U
N-Nitrosodiphenylamine			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Pentachlorophenol			10 U	25 U	9.62 U	25 U	10 U	25 U	9.8 U	25 U
Phenanthrene	79		5 U	--	4.81 U	--	5 U	--	4.9 U	--
Phenol			5 U	--	4.81 U	--	5 U	--	4.9 U	--
Pyrene	42		5 U	--	4.81 U	--	5 U	--	4.9 U	--

Notes:

Bold = Detected result

-- indicates compound not analyzed

J = Estimated value

U = Compound analyzed, but not detected above detection limit

UJ = Compound analyzed, but not detected above estimated detection limit

BES = Portland Bureau of Environmental Services

HME = Hickey Marine Enterprises

1 Acute Criteria for Pesticides obtained from USEPA National Recommended Water Quality Criteria for Freshwater CMCs at http://www.epa.gov/waterscience/criteria/wqctable/

2 Water quality criteria for cadmium, chromium, copper, lead, nickel, silver, and zinc are based on a hardness of 25 mg/L.

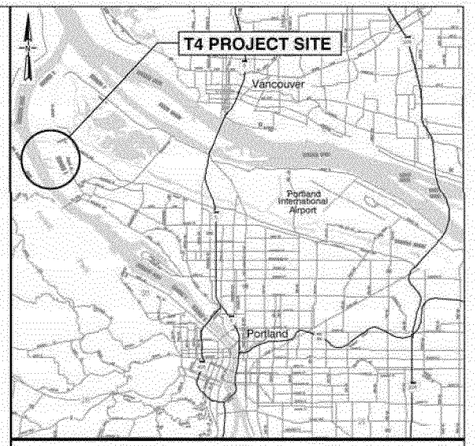
3 Acute water quality criteria for metals are based on dissolved metal concentrations, however reported results are based on a total metal concentrations.

Value exceeds acute water quality criteria

HME data validated, BES data unvalidated.

KMB00006734

FIGURES

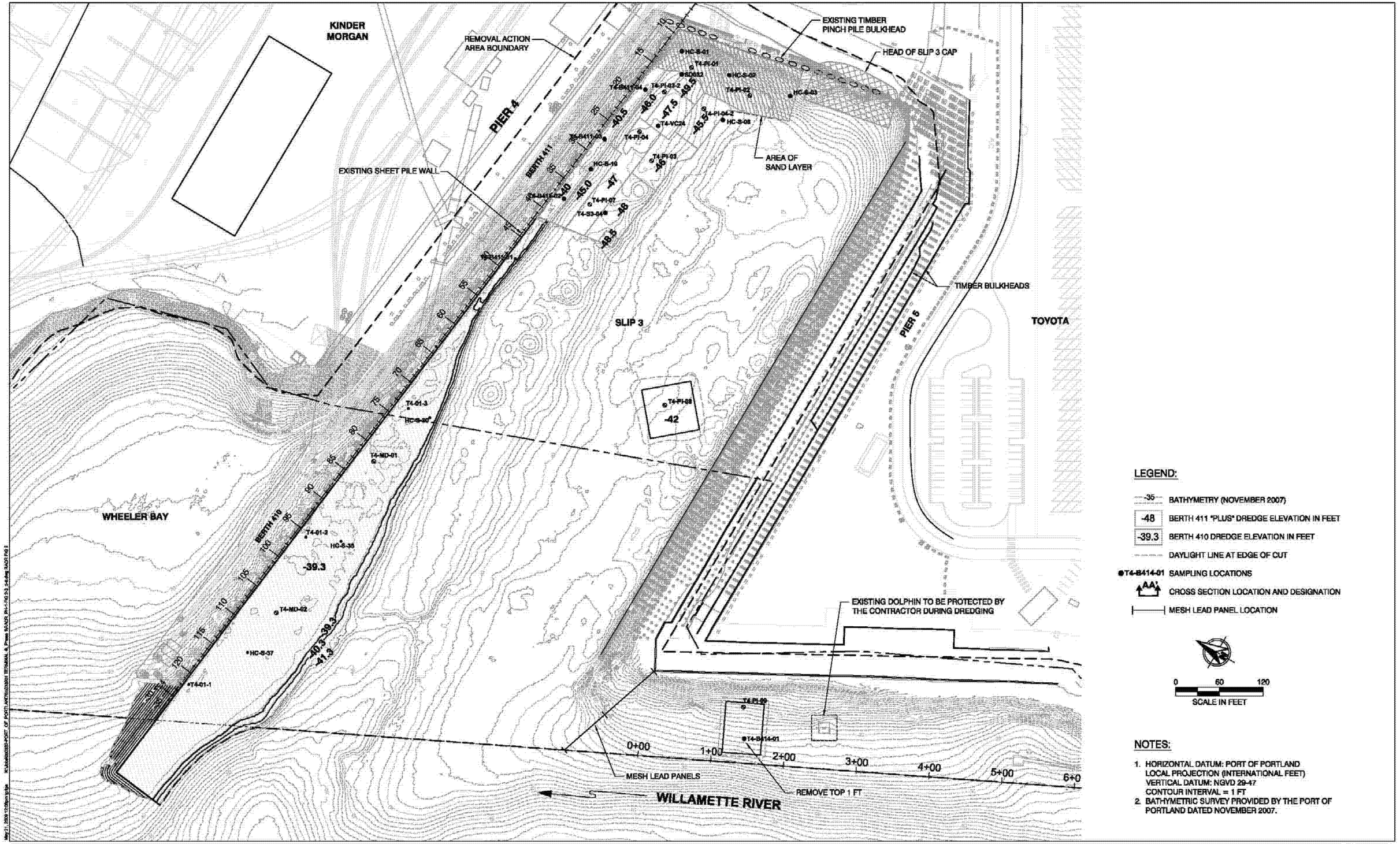


VICINITY MAP
SCALE: N.T.S.

0 300 300
SCALE IN FEET

Figure 1
Site Plan and Vicinity Map
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.



NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET)
   VERTICAL DATUM: NGVD 29-47
   CONTOUR INTERVAL = 1 FT
2. BATHYMETRIC SURVEY PROVIDED BY THE PORT OF PORTLAND DATED NOVEMBER 2007.

Figure 2
Summary of Sampling Locations Used in Phase I Dredge Area Design
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.

STEEL SHEETPILE BULKHEAD

LEGEND:

-35 PRE-SAND BATHYMETRY (9-08-2008)

-48 DESIGN DREDGE ELEVATION IN FEET

0 20 40
SCALE IN FEET

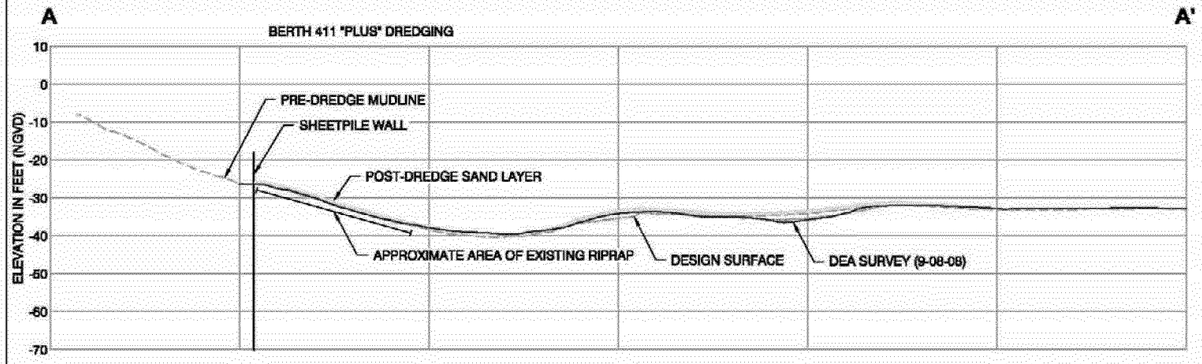
NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET)
   VERTICAL DATUM: NGVD 29-47
   CONTOUR INTERVAL = 1 FT
2. BATHYMETRIC SURVEY BY DAVID EVANS AND ASSOCIATES DATED SEPTEMPER 9, 2008

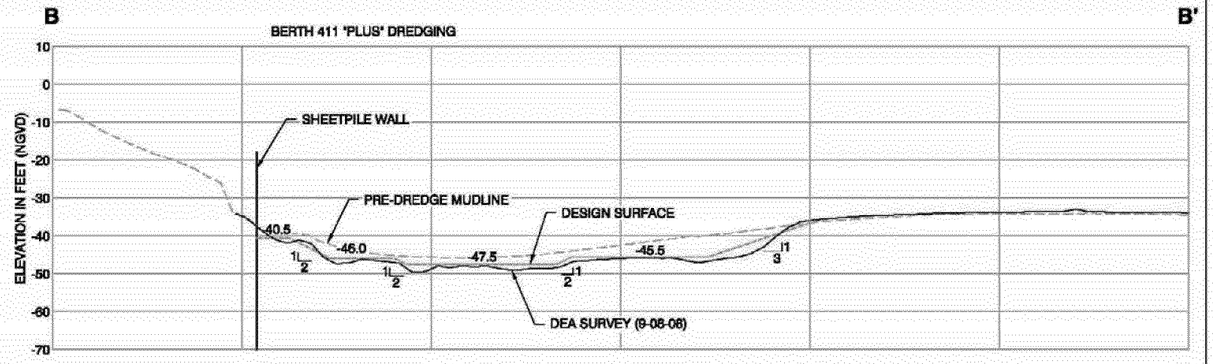
NOTE: ELEVATIONS ARE IN NGVD NOT CRD

Figure 3
Post Dredge (Pre-Sand Layer) Bathymetry
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

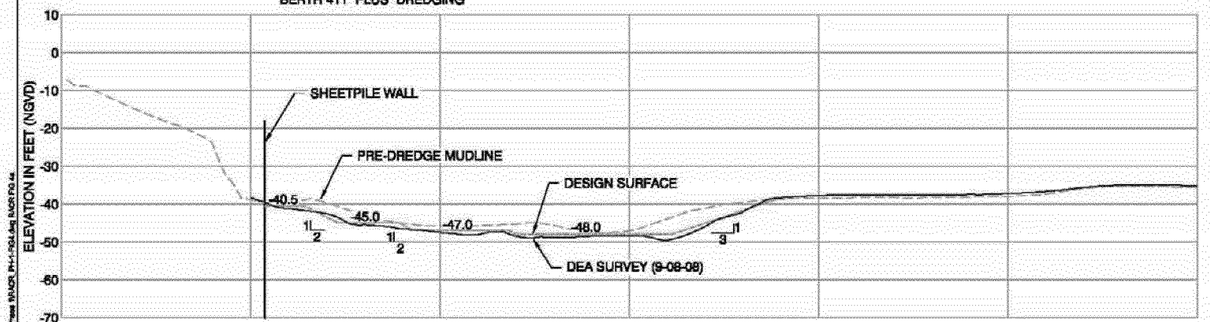
ANCHOR ENVIRONMENTAL, L.L.C.



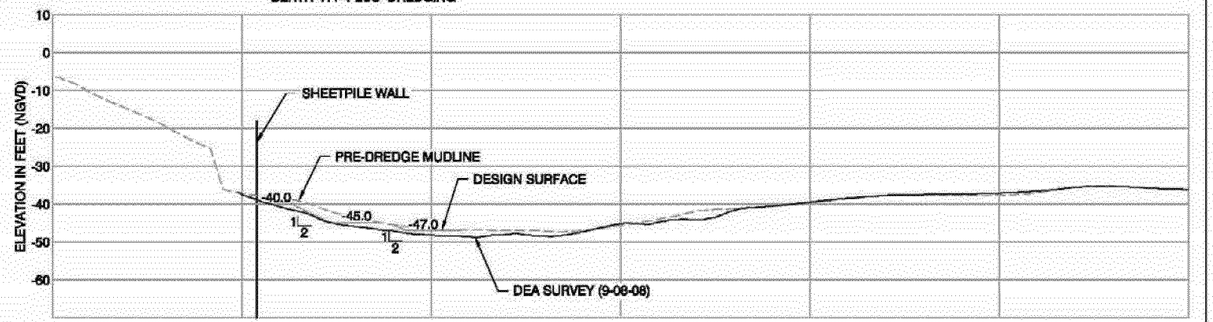
SLIP 3 - BENT 10 - A-A'
No Vert Exag



SLIP 3 - BENT 20 - B-B'
No Vert Exag



SLIP 3 - BENT 30 - C-C'
No Vert Exag



SLIP 3 - BENT 40 - D-D'
No Vert Exag

NOTES:

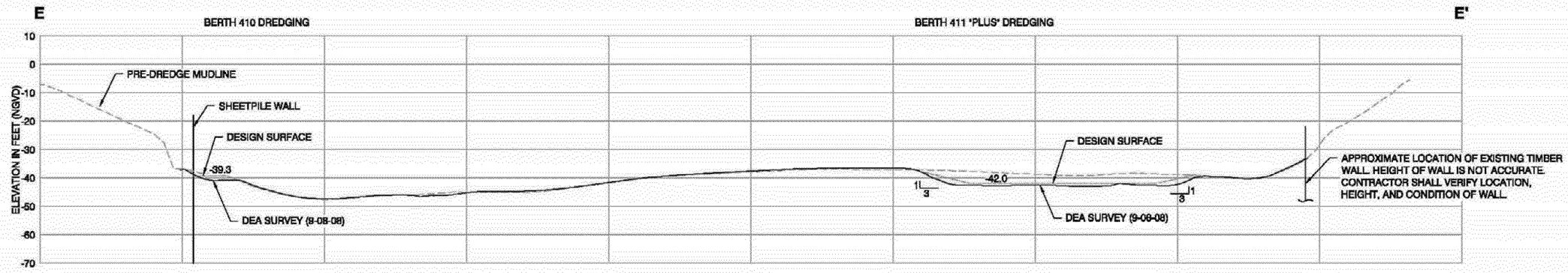
1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET) VERTICAL DATUM: NGVD 29-47 CONTOUR INTERVAL = 1 FT
2. POST-DREDGE BATHYMETRY CONTOURS CREATED FROM SURVEY PROVIDED BY DAVID EVANS AND ASSOCITATE, INC. DATED SEPTEMBER 09, 2008 AND AUGUST 28, 2008.

NOTE: ELEVATIONS ARE IN NGVD NOT CRD

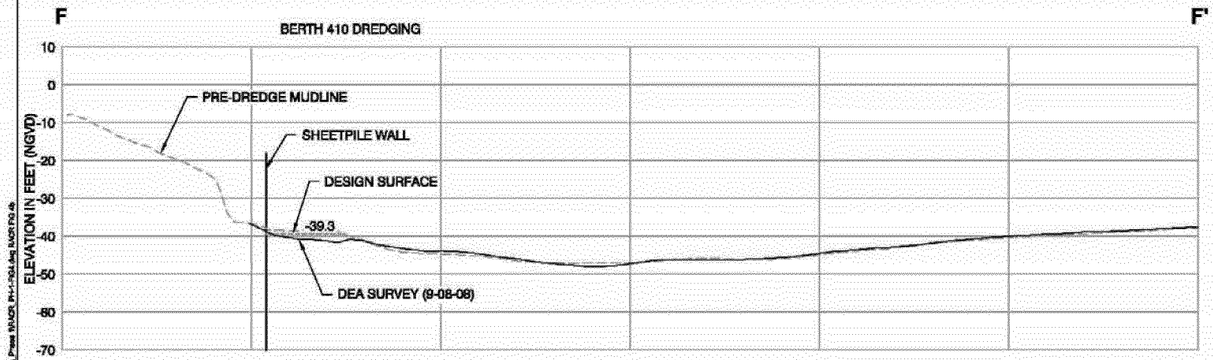
0 20 40
SCALE IN FEET
(HORIZ AND VERT)

Figure 4a
Post Dredge and Sand Layer Cross Sections
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

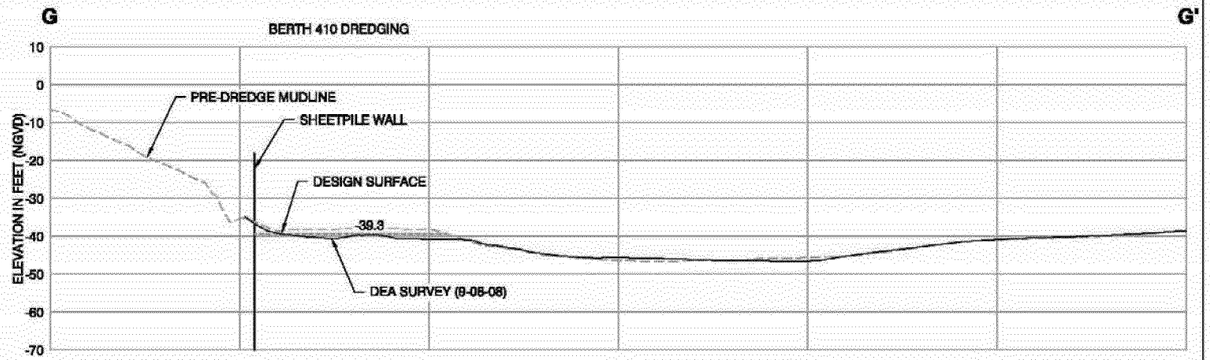
ANCHOR ENVIRONMENTAL, L.L.C.



SLIP 3 - BENT 50 - E-E'
No Vert Exag



SLIP 3 - BENT 60 - F-F'
No Vert Exag



SLIP 3 - BENT 70 - G-G'
No Vert Exag

NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET) VERTICAL DATUM: NGVD 29-47 CONTOUR INTERVAL = 1 FT
2. POST-DREDGE BATHYMETRY CONTOURS CREATED FROM SURVEY PROVIDED BY DAVID EVANS AND ASSOCITATE, INC. DATED SEPTEMBER 08, 2008 AND AUGUST 28, 2008.

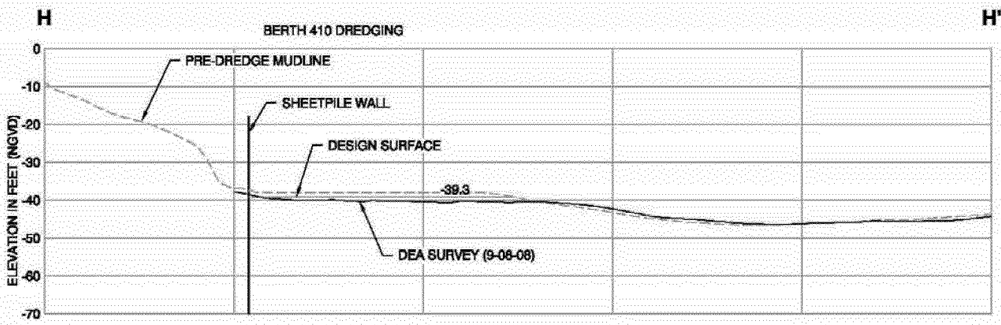
NOTE: ELEVATIONS ARE IN NGVD NOT CRD

0 20 40
SCALE IN FEET
(HORIZ AND VERT)

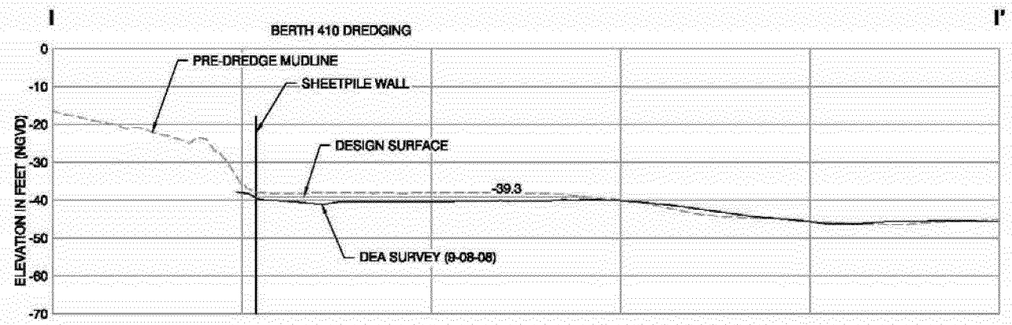
May 21, 2009 12:57pm tgilpin K:\Jobs\020032-PORT_OF_PORTLAND\Terminal 4_Phase II\MXD_Phase II\T4-FIG4.mxd

Figure 4b
Post Dredge and Sand Layer Cross Sections
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

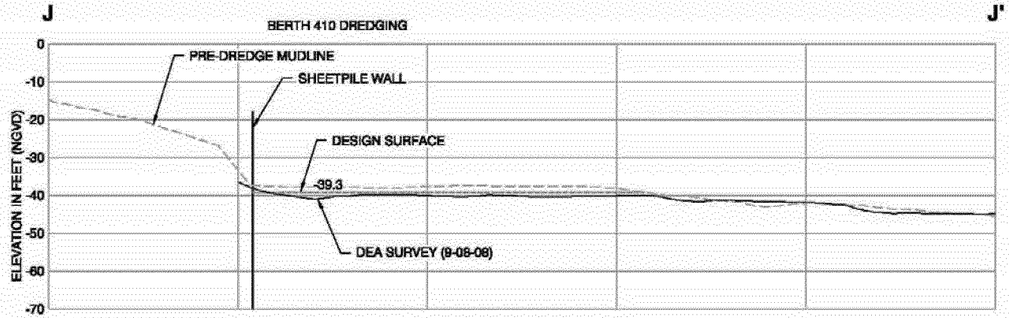
ANCHOR ENVIRONMENTAL, L.L.C.



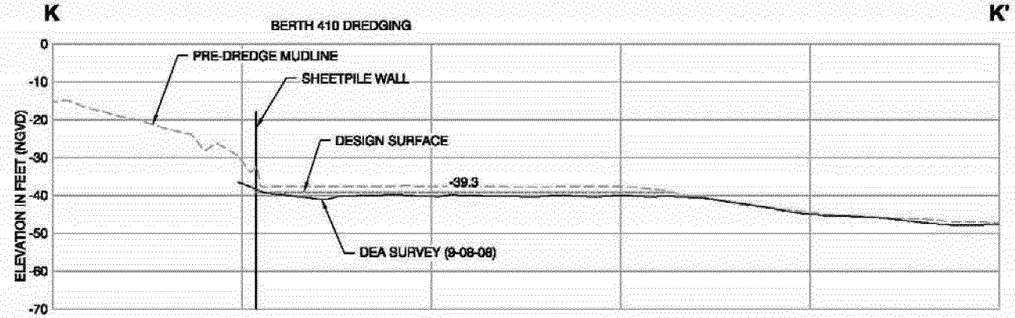
SLIP 3 - BENT 80 - H-H'
No Vert Exag



SLIP 3 - BENT 90 - I-I'
No Vert Exag



SLIP 3 - BENT 80 - H-H'
No Vert Exag



SLIP 3 - BENT 110 - K-K'
No Vert Exag

NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET)
   VERTICAL DATUM: NGVD 29-47
   CONTOUR INTERVAL = 1 FT
2. POST-DREDGE BATHYMETRY CONTOURS CREATED FROM SURVEY PROVIDED BY DAVID EVANS AND ASSOCITATE, INC. DATED SEPTEMBER 08, 2008 AND AUGUST 28, 2008.

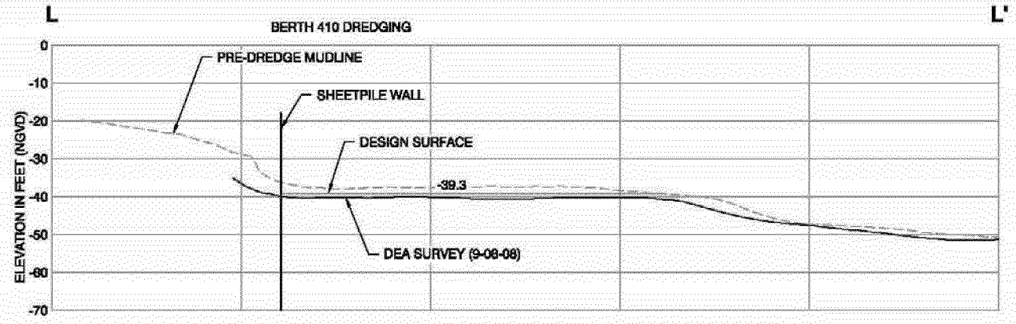
NOTE: ELEVATIONS ARE IN NGVD NOT CRD

0 20 40
SCALE IN FEET
(HORIZ AND VERT)

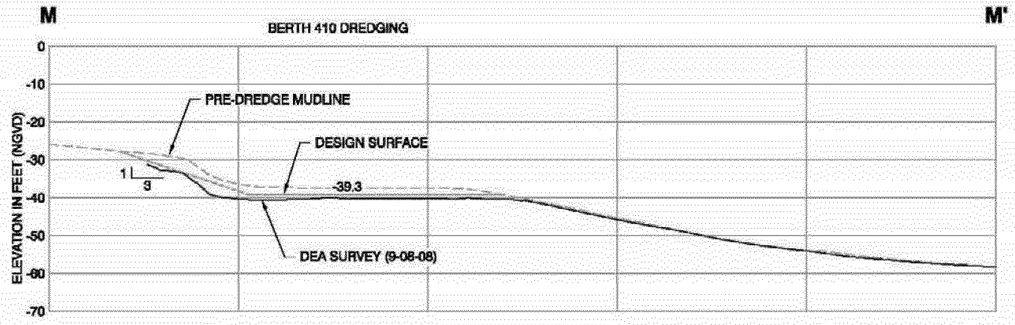
May 21, 2009 1:43pm tgrigit K:\Jobs\050235-PORT OF PORTLAND\Drawings\Figures\Figure 4c - Post Dredge and Sand Layer Cross Sections.dwg

Figure 4c
Post Dredge and Sand Layer Cross Sections
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

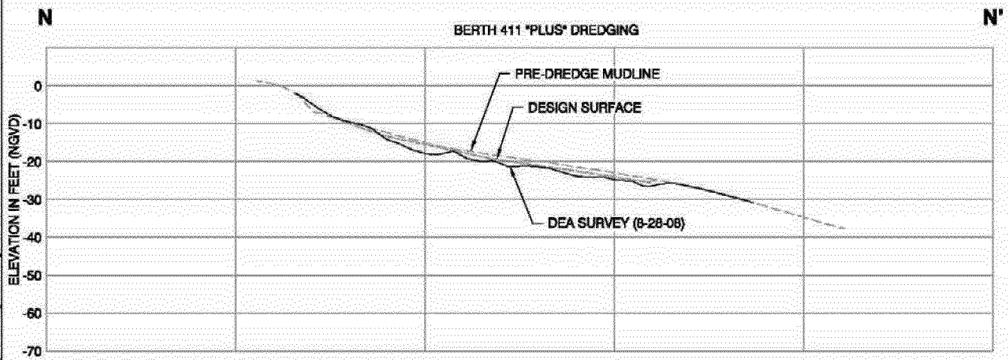
ANCHOR ENVIRONMENTAL, L.L.C.



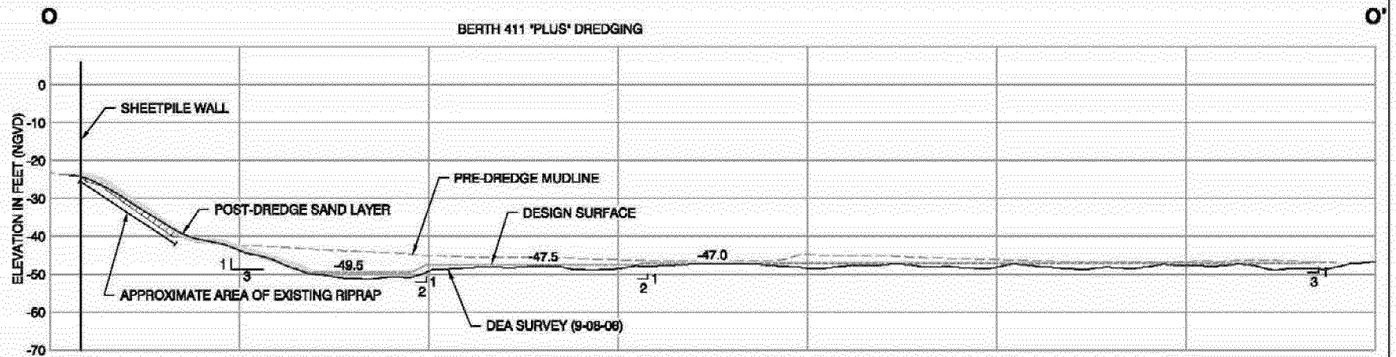
SLIP 3 - BENT 120 - L-L'
No Vert Exag



SLIP 3 - M-M'
No Vert Exag



SLIP 3 - N-N'
No Vert Exag



SLIP 3 - O-O'
No Vert Exag

NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET) VERTICAL DATUM: NGVD 29-47 CONTOUR INTERVAL = 1 FT
2. POST-DREDGE BATHYMETRY CONTOURS CREATED FROM SURVEY PROVIDED BY DAVID EVANS AND ASSOCITATE, INC. DATED SEPTEMBER 08, 2008 AND AUGUST 28, 2008.

NOTE: ELEVATIONS ARE IN NGVD NOT CRD

0 20 40
SCALE IN FEET
(HORIZ AND VERT)

May 21, 2009 1:01pm kgriga K:\Jobs\040033\Graphics\PORT OF PORTLAND\040033\01 TERMINAL 4\Phase I\RAOR PH I-1-FIG4.dwg RAOR FIG 4d

Figure 4d
Post Dredge and Sand Layer Cross Sections
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.

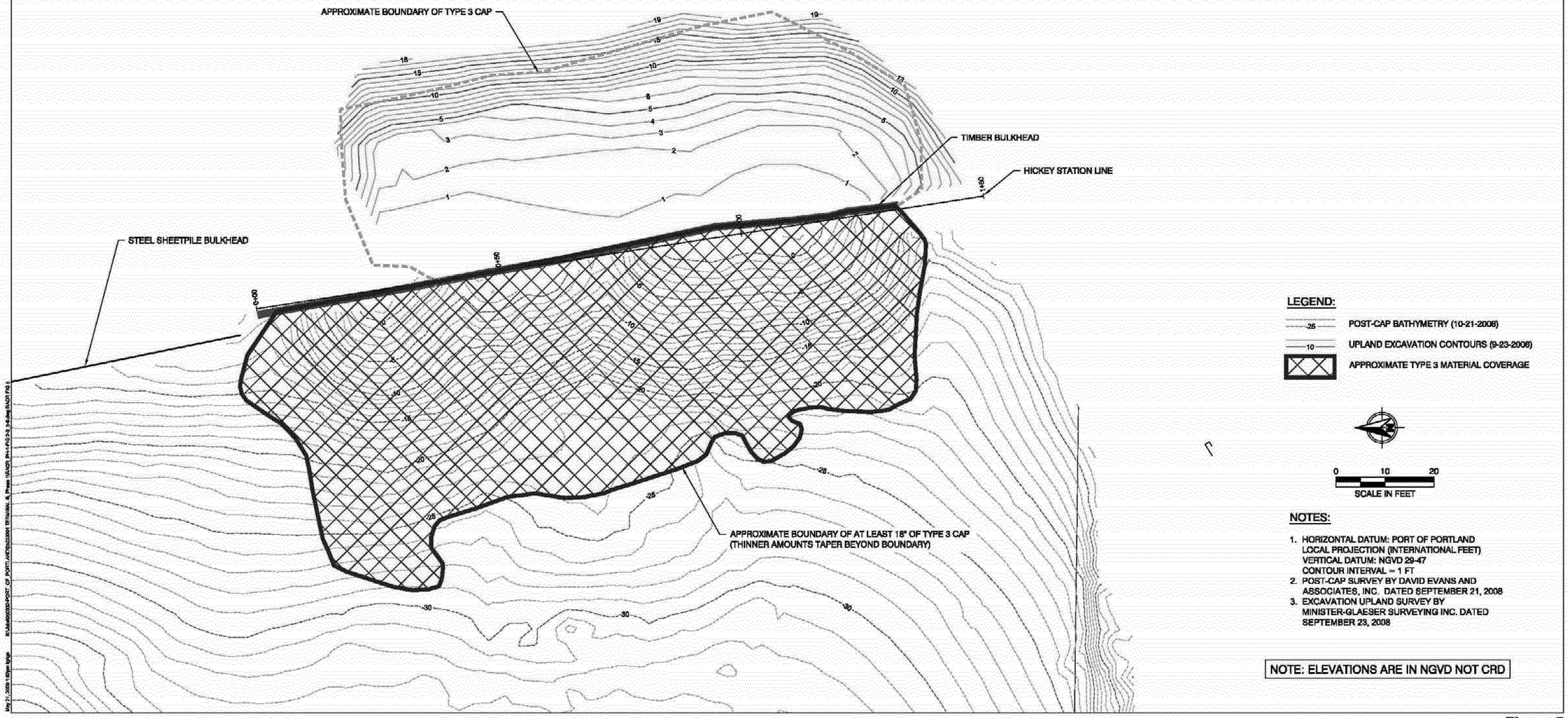


Figure 5
Extent of Type 3 Cap Placement and Extent of Upland Excavation - Head of 3 Slip
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.

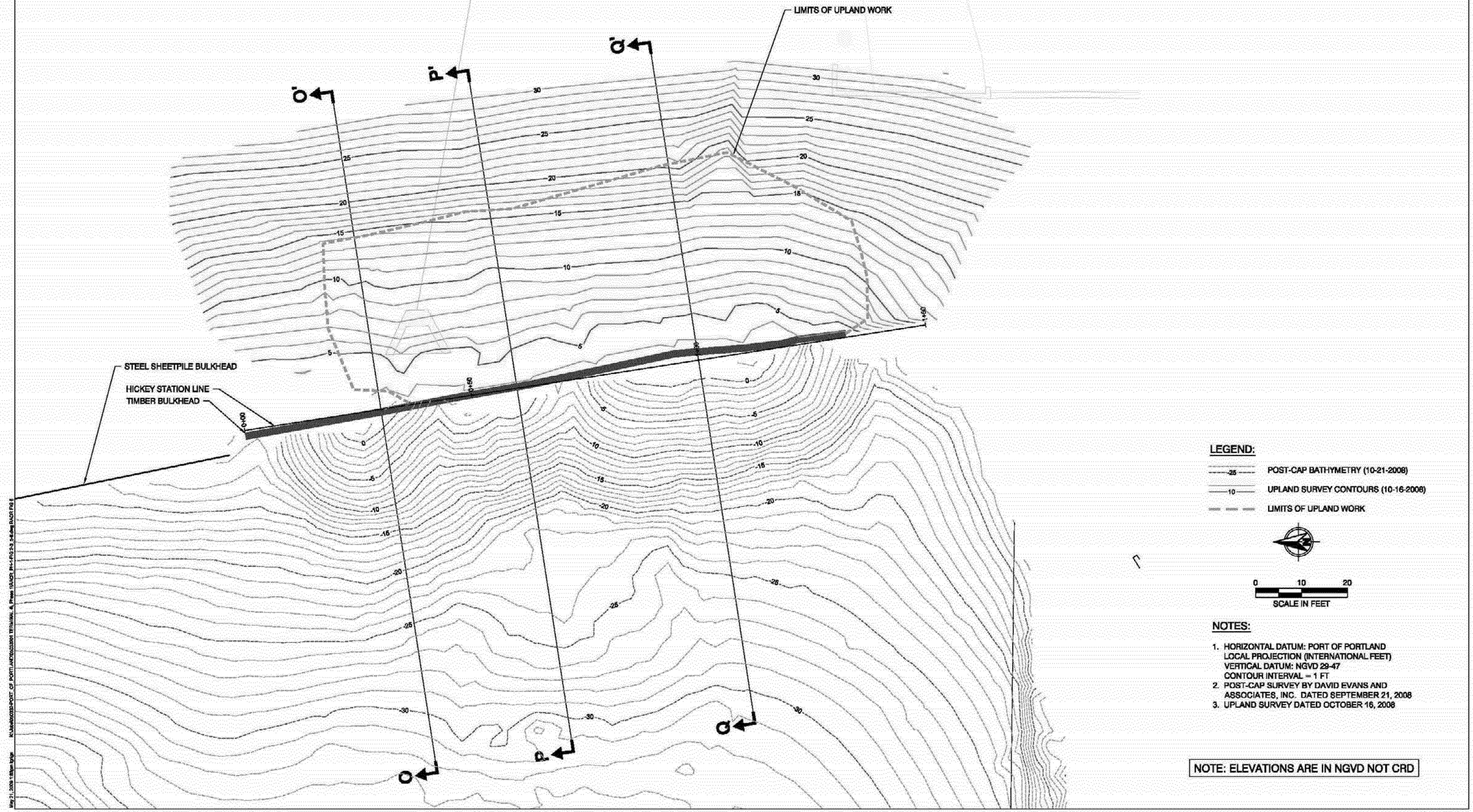
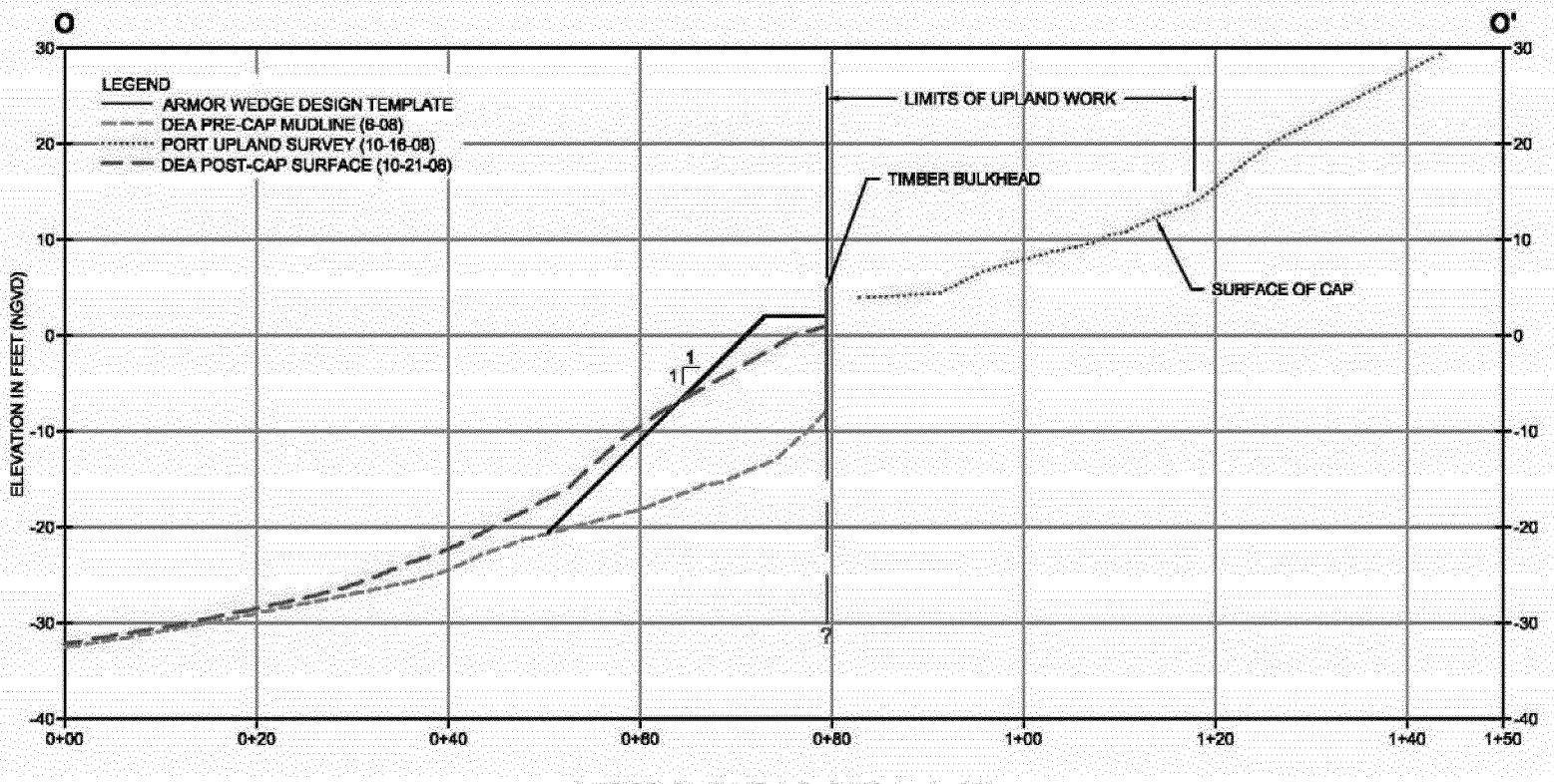
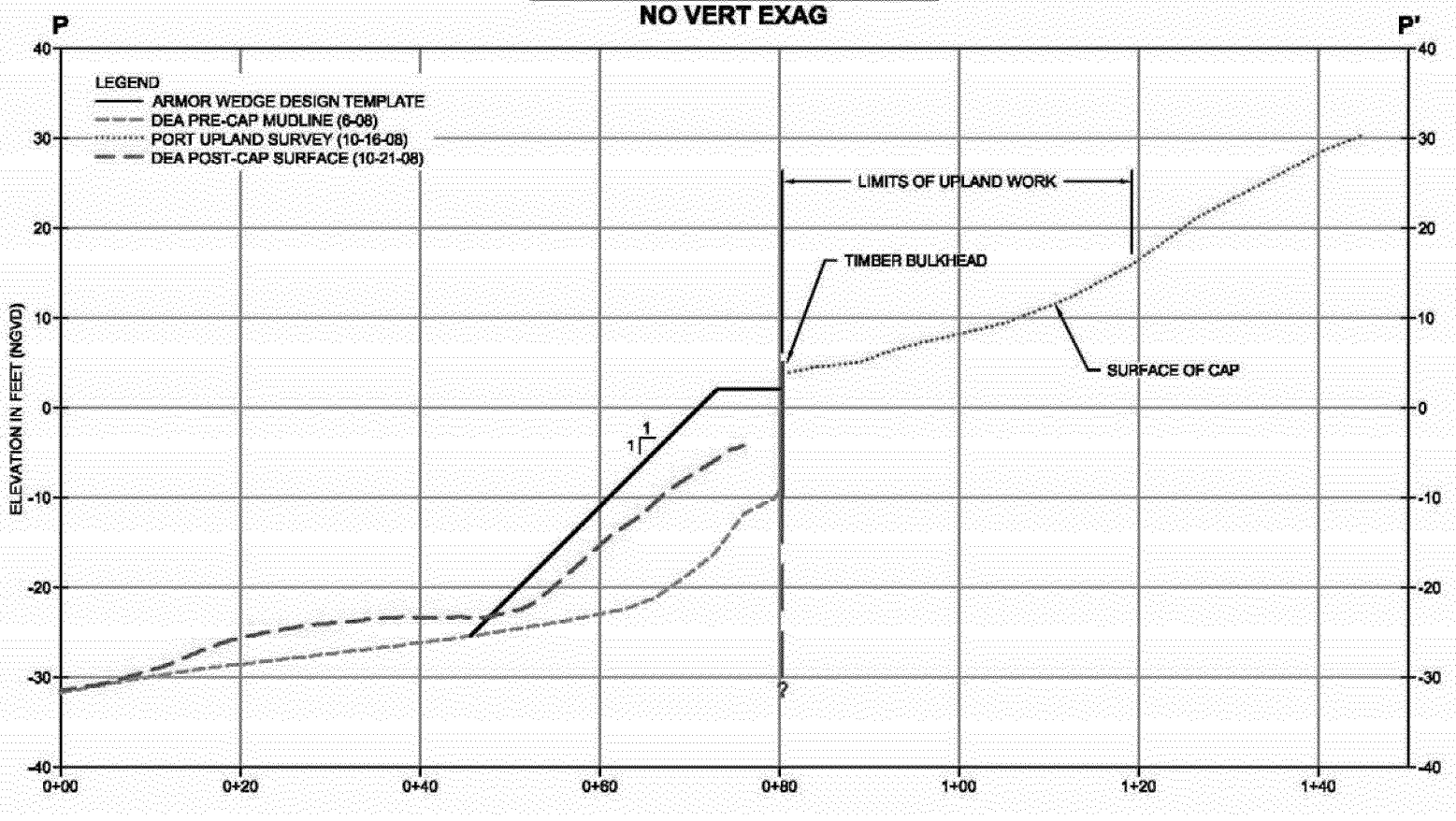


Figure 6
As-built Head of Slip 3 Capping and Upland Plan View and Cross Section Locations
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

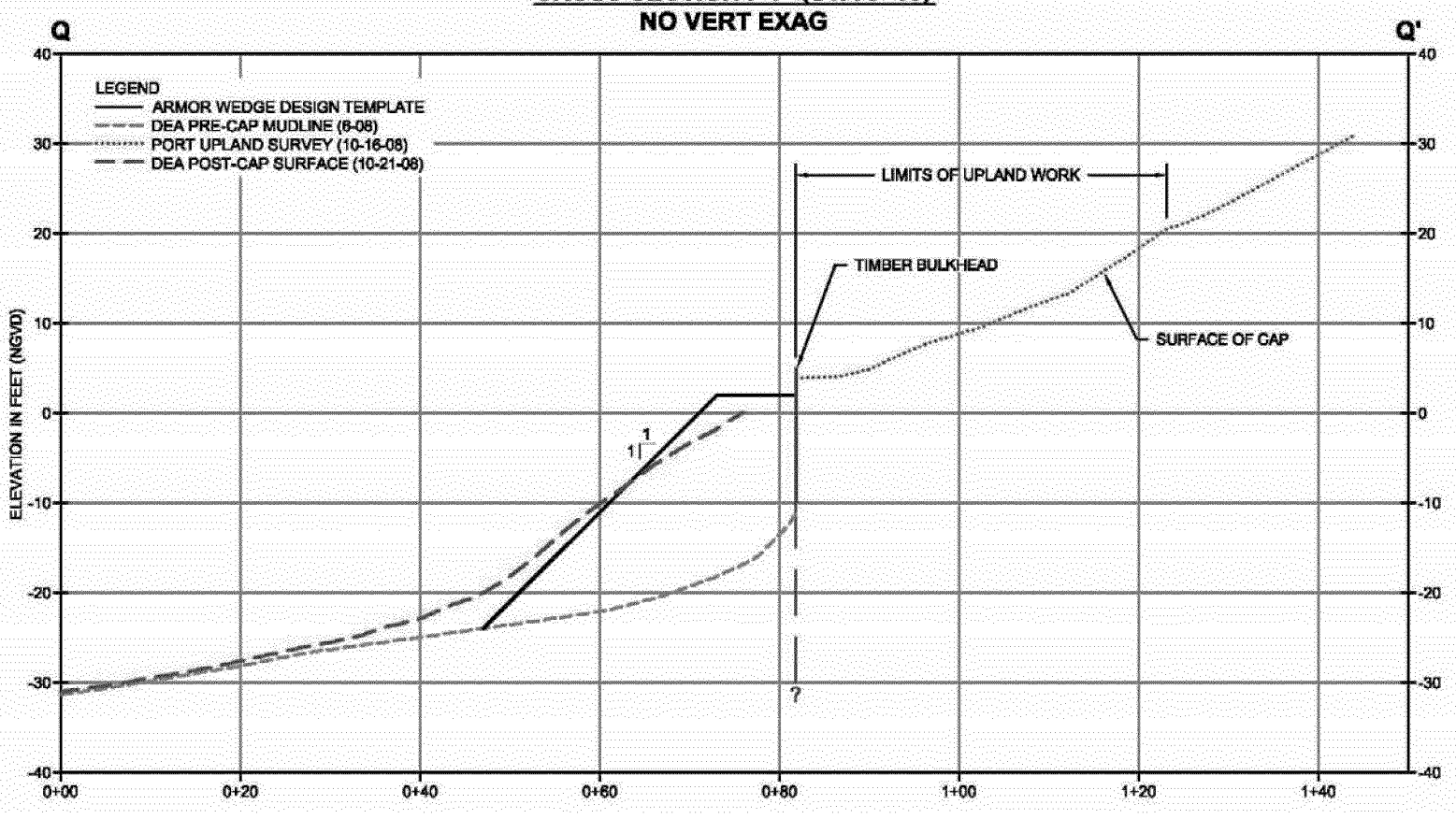
ANCHOR ENVIRONMENTAL, L.L.C.



CROSS SECTION O-O' (STA 0+30)
NO VERT EXAG



CROSS SECTION P-P' (STA 0+60)
NO VERT EXAG



CROSS SECTION Q-Q' (STA 1+00)
NO VERT EXAG

NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET)
   VERTICAL DATUM: NGVD 29-47
   CONTOUR INTERVAL = 1 FT
2. POST-CAP SURVEY BY DAVID EVANS AND ASSOCIATES, INC. DATED SEPTEMBER 21, 2008
3. UPLAND SURVEY DATED OCTOBER 16, 2008

0 10 20
SCALE IN FEET
(HORIZ AND VERT)

May 21, 2009 1:03pm tgriga K:\Jobs\050332-PORT_OF_PORTLAND\05033201 TERMINAL 4_Phase 1\RACR_PH-1-FIG 2-3_5-6.dwg RACR FIG 6a

Figure 6a
As-built Head of Slip 3 Capping Cross Section
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.

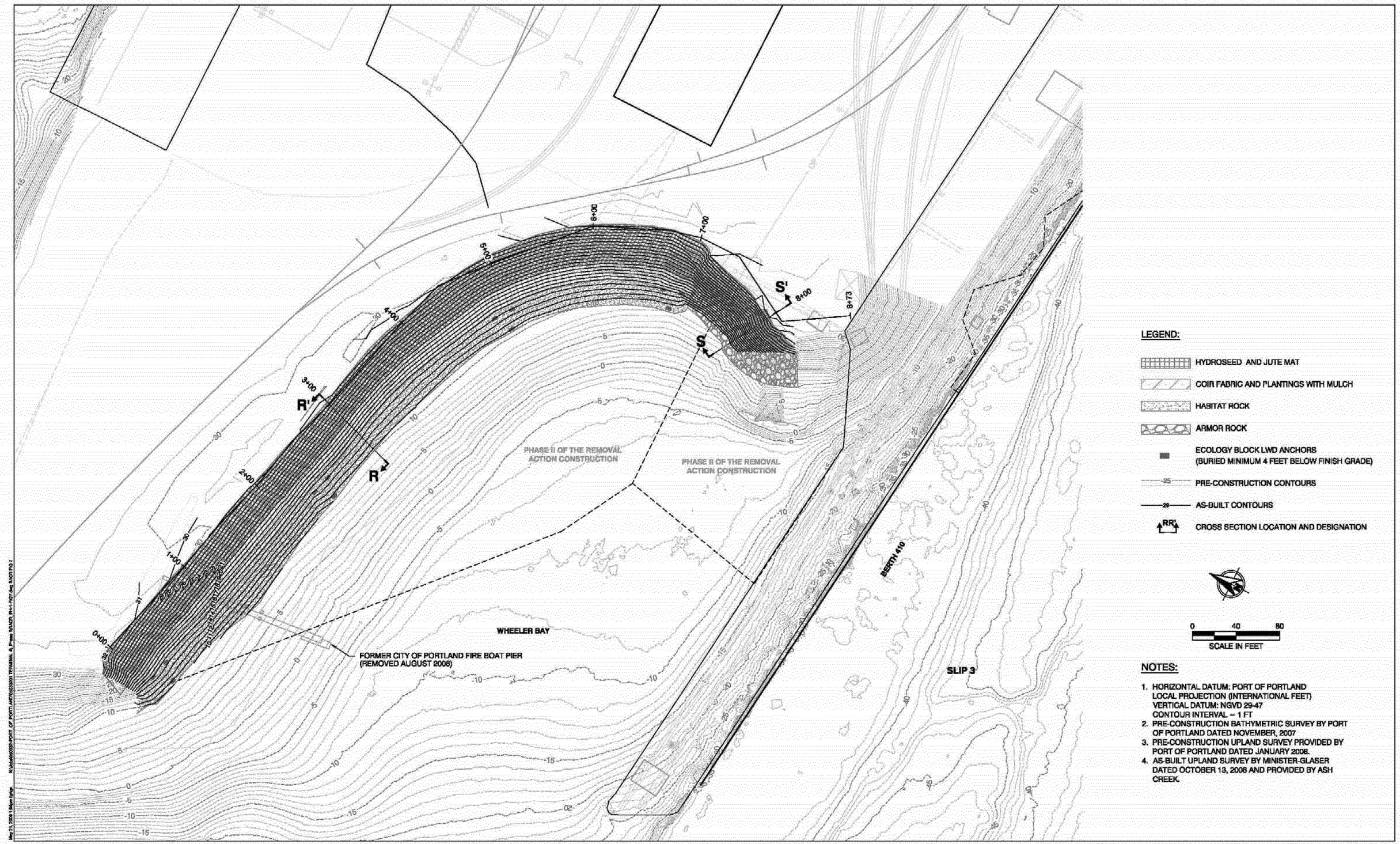
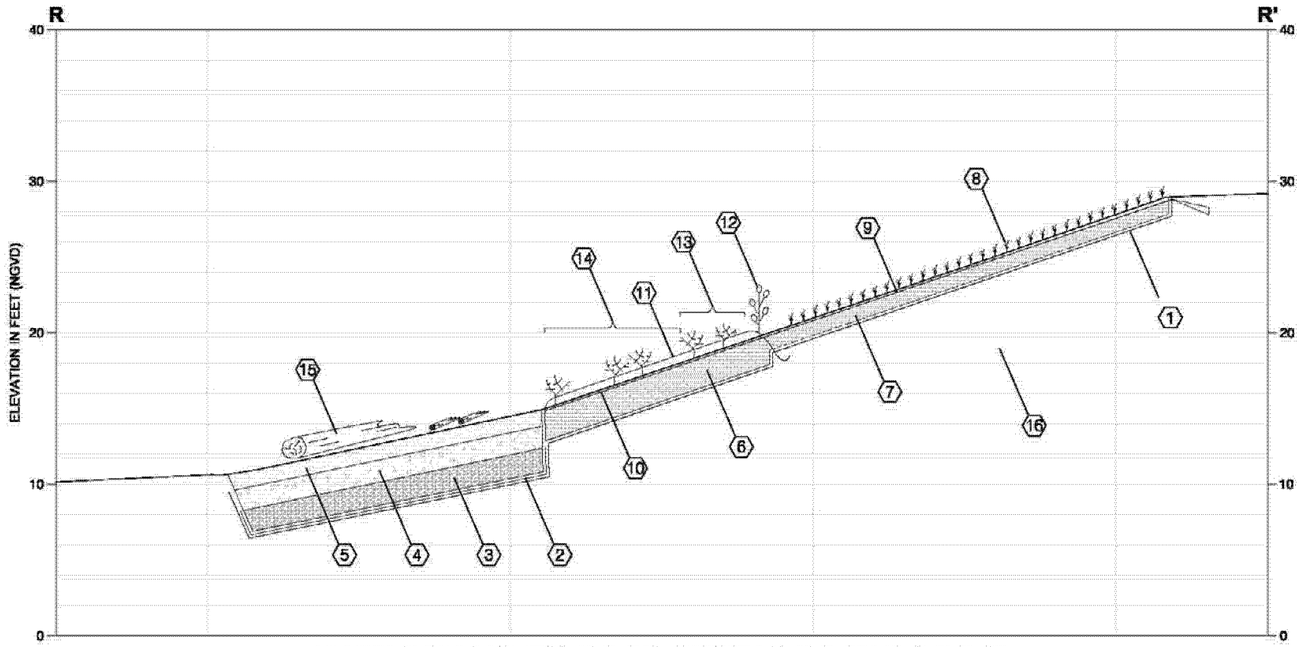


Figure 7
As-Built Wheeler Bay Shoreline Stabilization Surface Plan View and Cross Section Locations
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.

AS CONSTRUCTED NOTES:

1. DEMARCATION LAYER. PLASTIC MESH, ORANGE CONSTRUCTION FENCING. 1.75" x 1.75" OPEN SPACES.
2. GEOTEXTILE FILTER FABRIC.
3. SELECT FILL. 1½-INCH-MINUS OR 3½-INCH-MINUS CRUSHED ROCK. LAYER 18 INCHES THICK.
4. ARMOR STONE. 3-INCH TO 10-INCH ROCK. LAYER 18 INCHES THICK.
5. HABITAT COVER. 2-INCH-MINUS ROUND ROCK AND SAND. LAYER 12 INCHES THICK.
6. TOPSOIL. SANDY LOAM, COMPOST MIX. LAYER 24 INCHES THICK.
7. TOPSOIL. SANDY LOAM, COMPOST MIX. LAYER 12 INCHES THICK.
8. HYDROSEEDED GRASS MIX. NATIVE GRASSES AND STERILE WHEATGRASS.
9. JUTE MAT. ANCHORED IN TRENCH AT TOP. STAPLED THROUGHOUT. PLACED OVER TOP OF HYDROSEED.
10. COIR EROSION CONTROL FABRIC. ENDS BURIED TOP AND BOTTOM. STAKED THROUGHOUT.
11. BARK MULCH. MEDIUM FIR. LAYER 4 TO 6 INCHES THICK.
12. BLACK COTTONWOOD. SPACED 10 FEET ON CENTER AT ELEVATION 20 FEET.
13. SCOULER WILLOW AND HOOKER WILLOW. SPACED 4 FEET ON CENTER BETWEEN ELEVATION 18 AND 20 FEET.
14. COLUMBIA RIVER WILLOW. SPACED 4 FEET ON CENTER BETWEEN ELEVATION 15 AND 18 FEET.
15. HABITAT LOGS AND LARGE WOODY DEBRIS.
16. SUBGRADE. CUT/FILL OF EXISTING SLOPE. GENERALLY CONSISTING OF SAND, SILTY SAND, OR GRAVELLY SAND.



CROSS SECTION R-R' (STA 3+00) - TYPICAL STA 0+00 TO STA 7+00
NO VERT EXAG

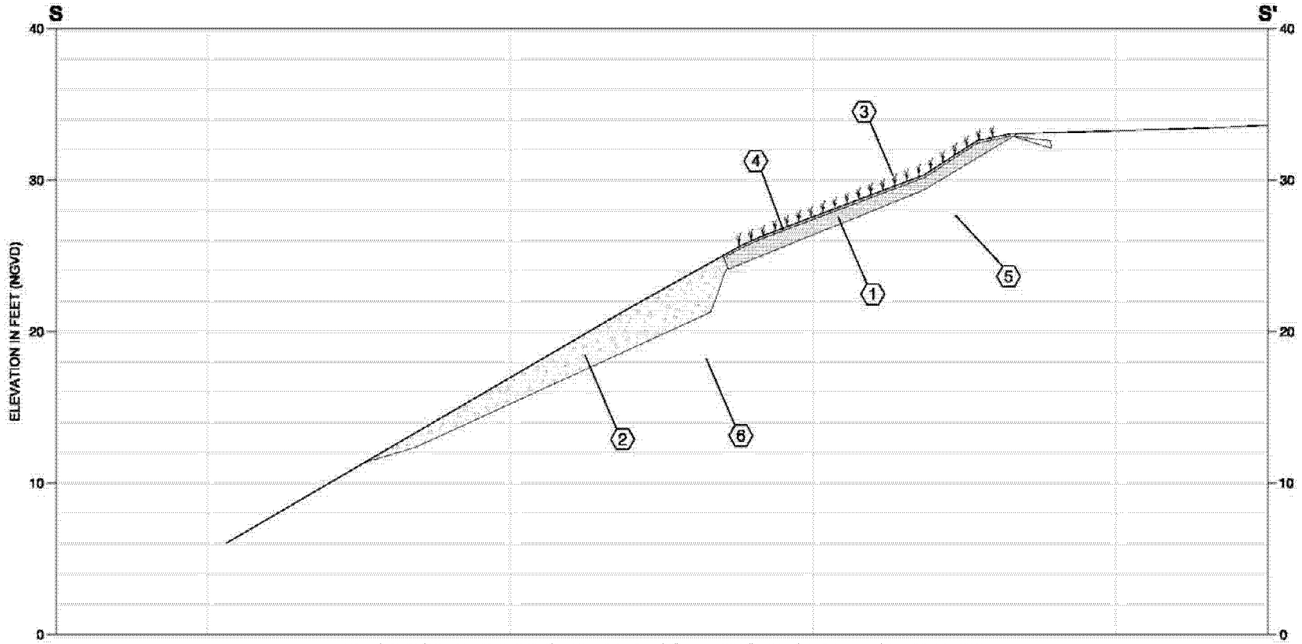
AS CONSTRUCTED NOTES:

1. TOPSOIL. SANDY LOAM, COMPOST MIX. LAYER 12 INCHES THICK.
2. ARMOR STONE. 3-INCH TO 10-INCH ROCK. LAYER UP TO 36 INCHES THICK. AREAS WITHOUT EXISTING ARMOR (GENERALLY BETWEEN STATIONS 7+00 AND 7+50) INCLUDE FILTER FABRIC, SELECT FILL (18-INCH LAYER OF 3½-INCH-MINUS CRUSHED ROCK), AND 18-INCH LAYER ARMOR STONE.
3. HYDROSEEDED GRASS MIX. NATIVE GRASSES AND STERILE WHEATGRASS.
4. JUTE MAT. ANCHORED IN TRENCH AT TOP. STAPLED THROUGHOUT. PLACED OVER TOP OF HYDROSEED.
5. SUBGRADE (BENEATH TOPSOIL). CUT INTO EXISTING SLOPE. GENERALLY CONSISTING OF SAND, SILTY SAND, OR GRAVELLY SAND.
6. SUBGRADE (BENEATH ARMOR). TYPICALLY EXISTING RIP RAP. SOME AREAS BETWEEN STATION 7+00 AND 7+50 CONSISTED OF SAND, SILTY SAND, OR GRAVELLY SAND AFTER REMOVAL OF EXISTING ARMOR CONSISTING OF CONCRETE DEBRIS.

SURVEY NOTES:

1. VERTICAL DATUM: NGVD 29-47

0 5 10
SCALE IN FEET
(HORIZ AND VERT)

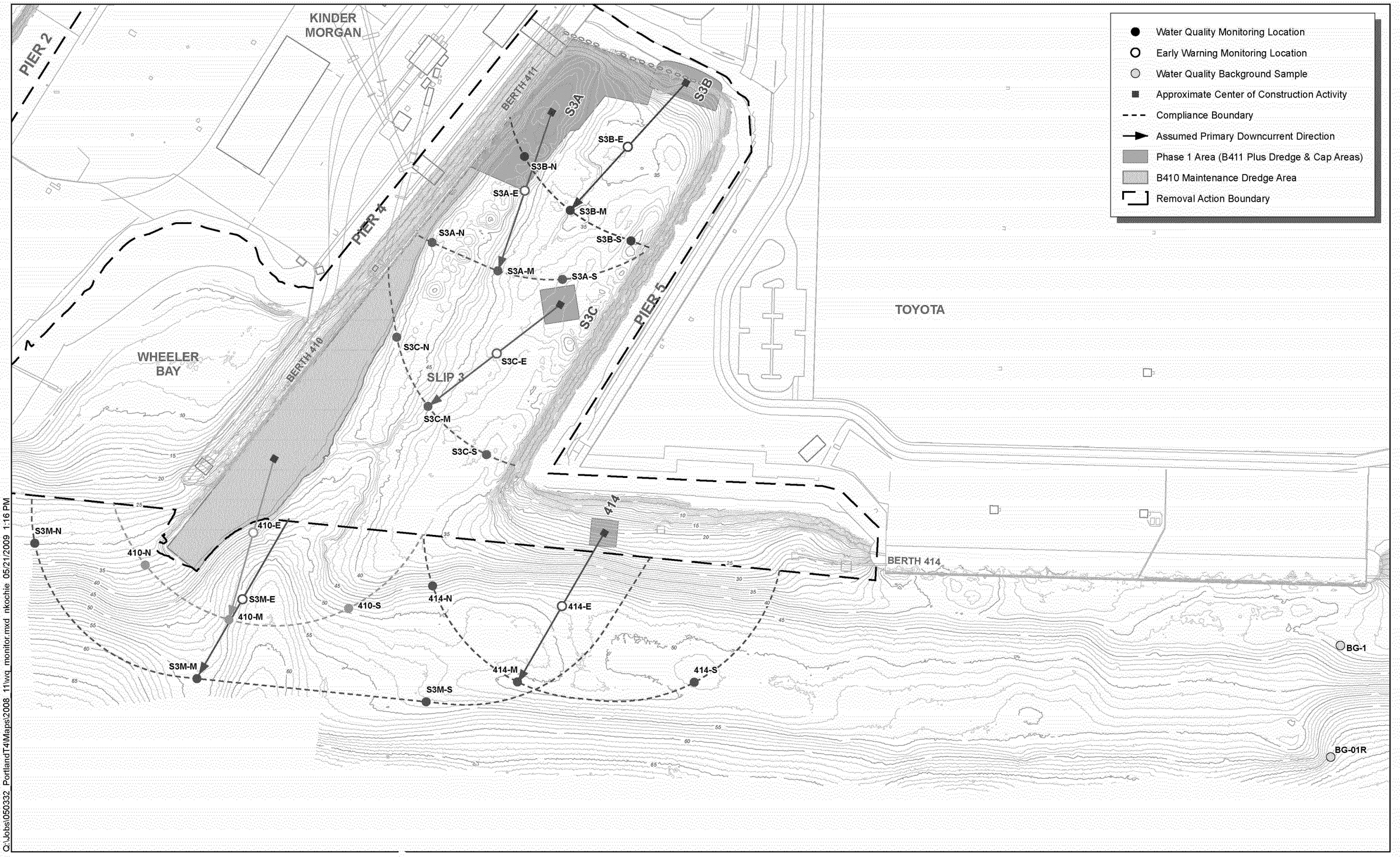


CROSS SECTION S-S' (STA 8+00) - TYPICAL STA 7+00 TO 8+20
NO VERT EXAG

May 21, 2009 1:49pm tgray K:\Jobs\050025-PORT_OF_PORTLAND\T4SUBAREA_B_Phase 1\AGR_PH-I-1R27.dwg BASIS.PIG 1/1

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 7a
As-Built Wheeler Bay Shoreline Stabilization Cross Sections
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon



Q:\Jobs\050332_PortlandT4\Maps\2008_11\wq_monitor.mxd nkochie 05/21/2009 1:16 PM

ANCHOR ENVIRONMENTAL, L.L.C.

0 175
Scale in Feet

Notes:
Slip 3 water quality monitoring (except for turbidity) will occur 100 meters from the actual location of construction activities. Compliance boundaries shown may not be representative of the actual location.
The point of compliance is 100 meters from the center of the construction activities (except for turbidity).

Bathymetry and base map from Port of Portland, 2007.
Bathymetric elevations in feet NGVD.

Figure 8
Water Quality Monitoring - T4 Site
Terminal 4 Phase 1 Removal Action - Removal Action Completion Report
Portland, Oregon

KMB00006748

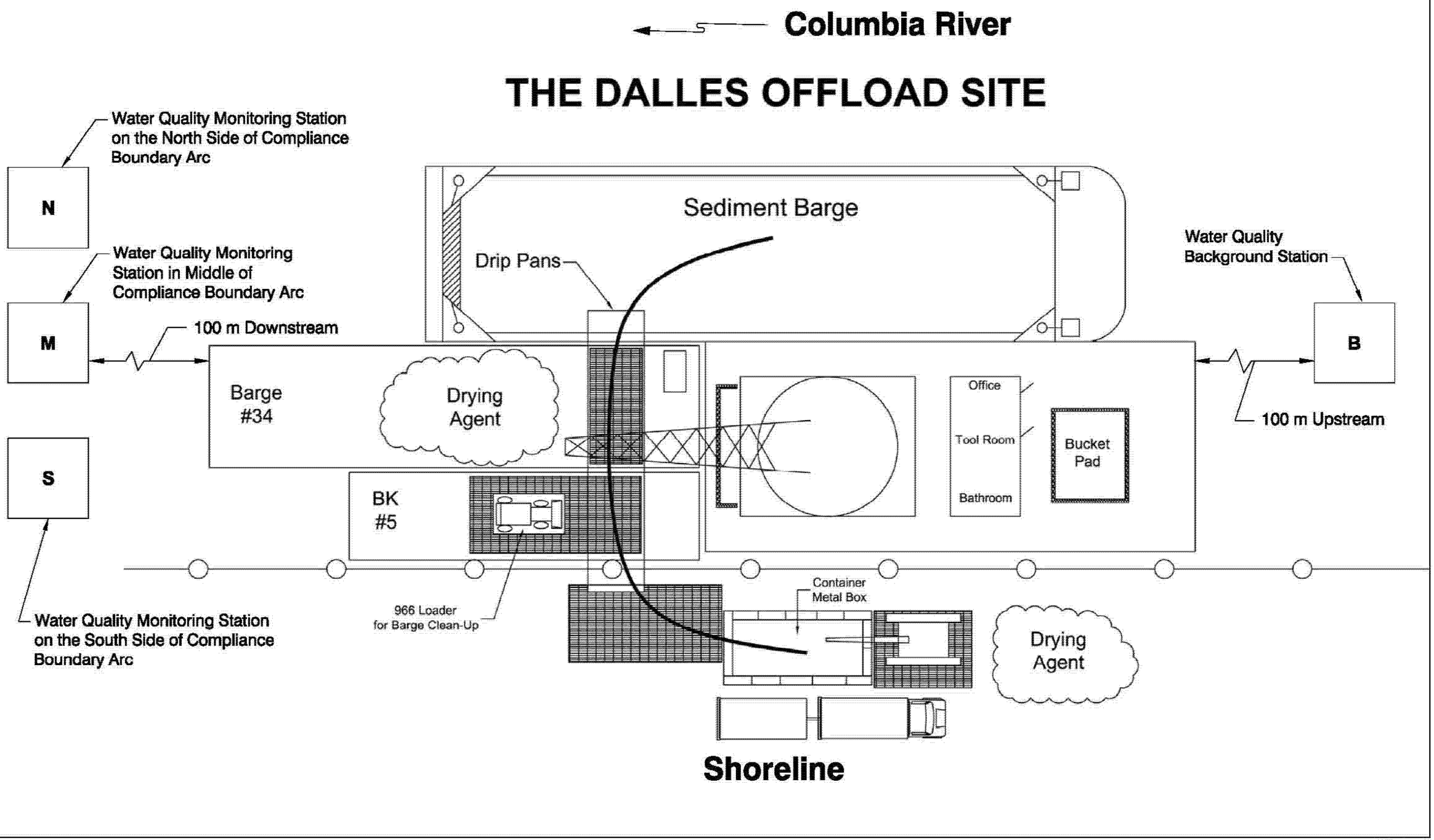
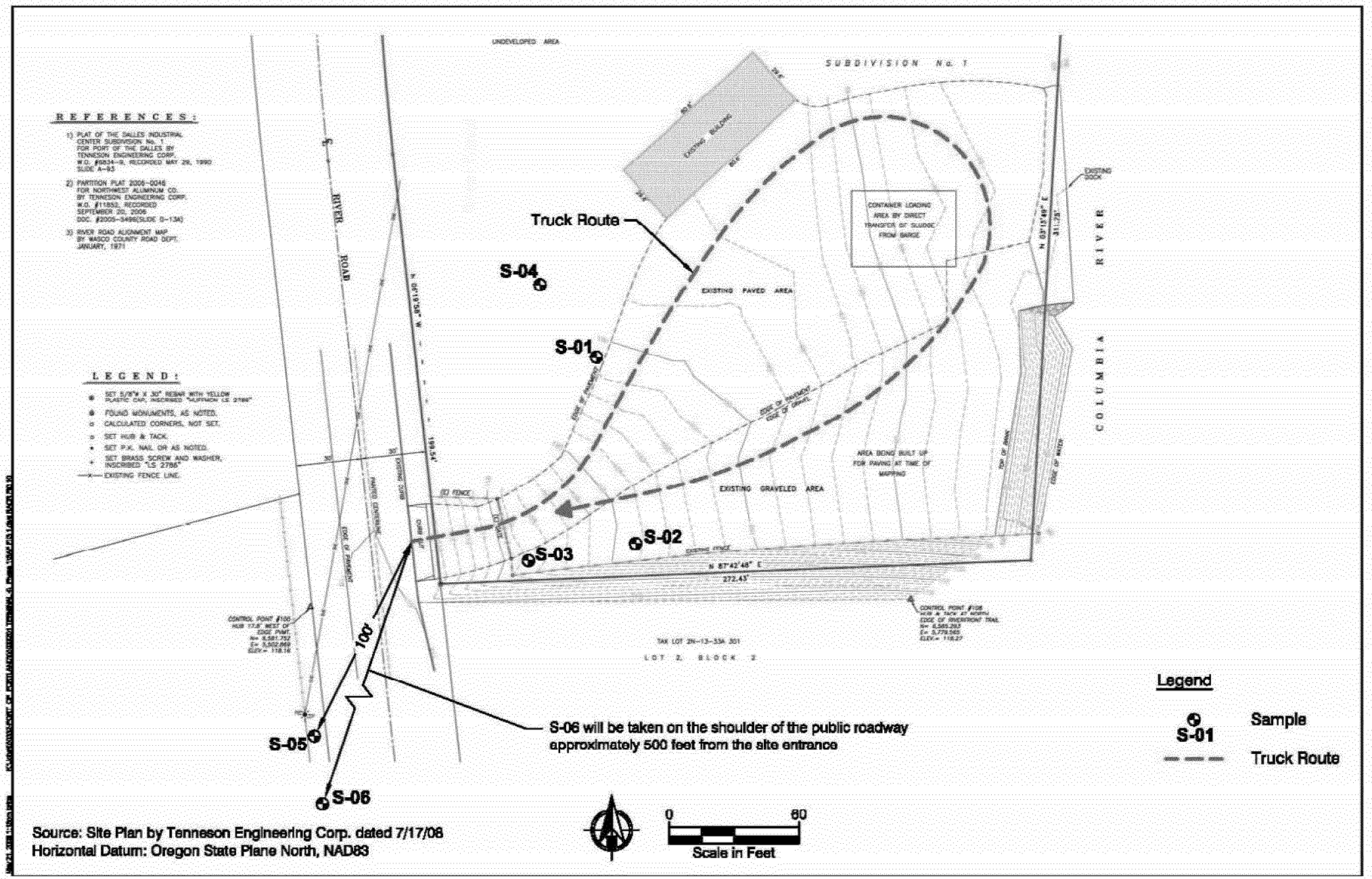


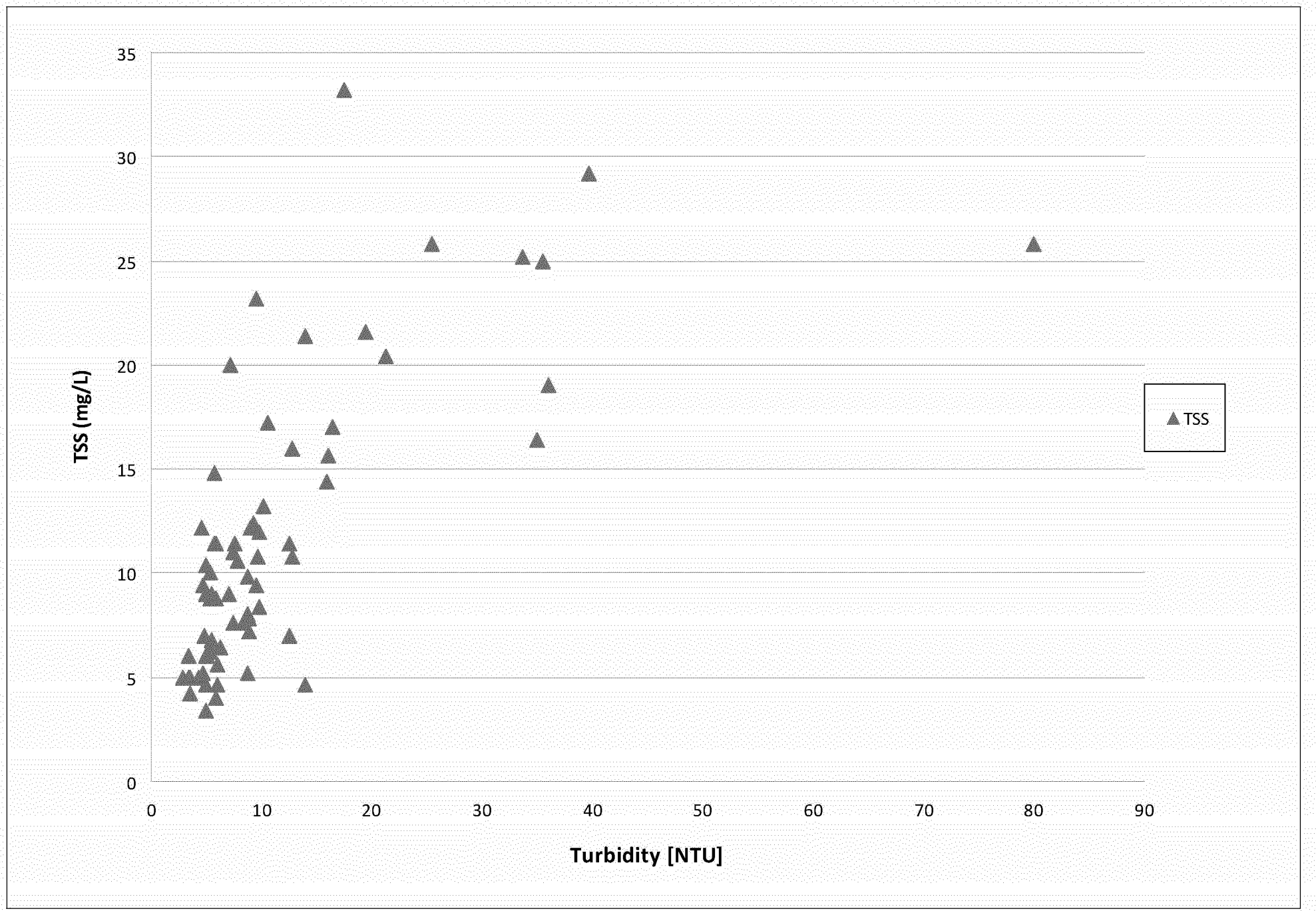
Figure 9
Water Quality Monitoring Locations - Transloading Station
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon

ANCHOR ENVIRONMENTAL, L.L.C.



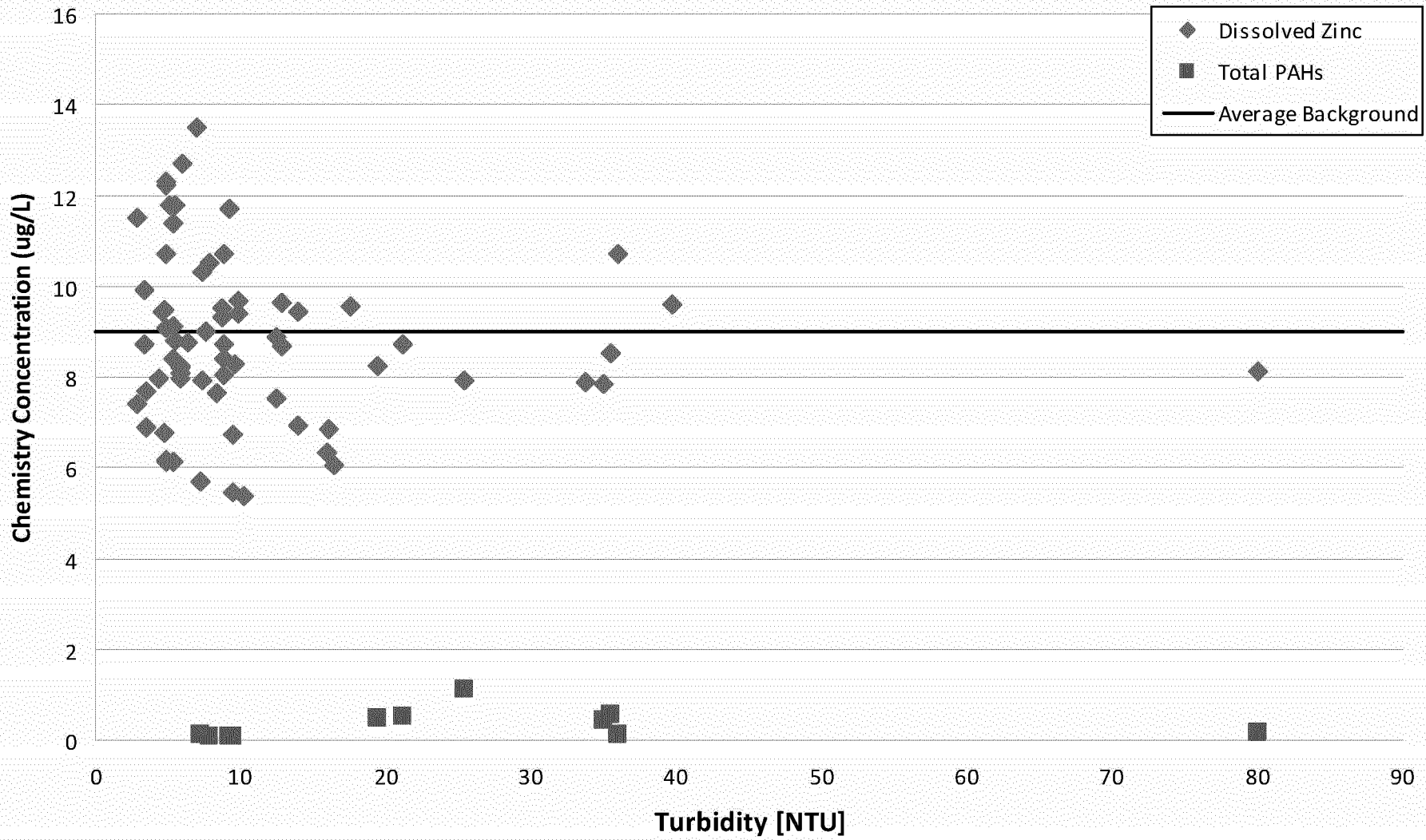
ANCHOR ENVIRONMENTAL, L.L.C.

Figure 10
Soil Sampling Locations - Transloading Station
Terminal 4 Phase I Removal Action - Removal Action Completion Report
Portland, Oregon



ANCHOR ENVIRONMENTAL, L.L.C.

Figure 11
Turbidity versus TSS Results
Terminal 4 Phase I Removal Action Completion Report



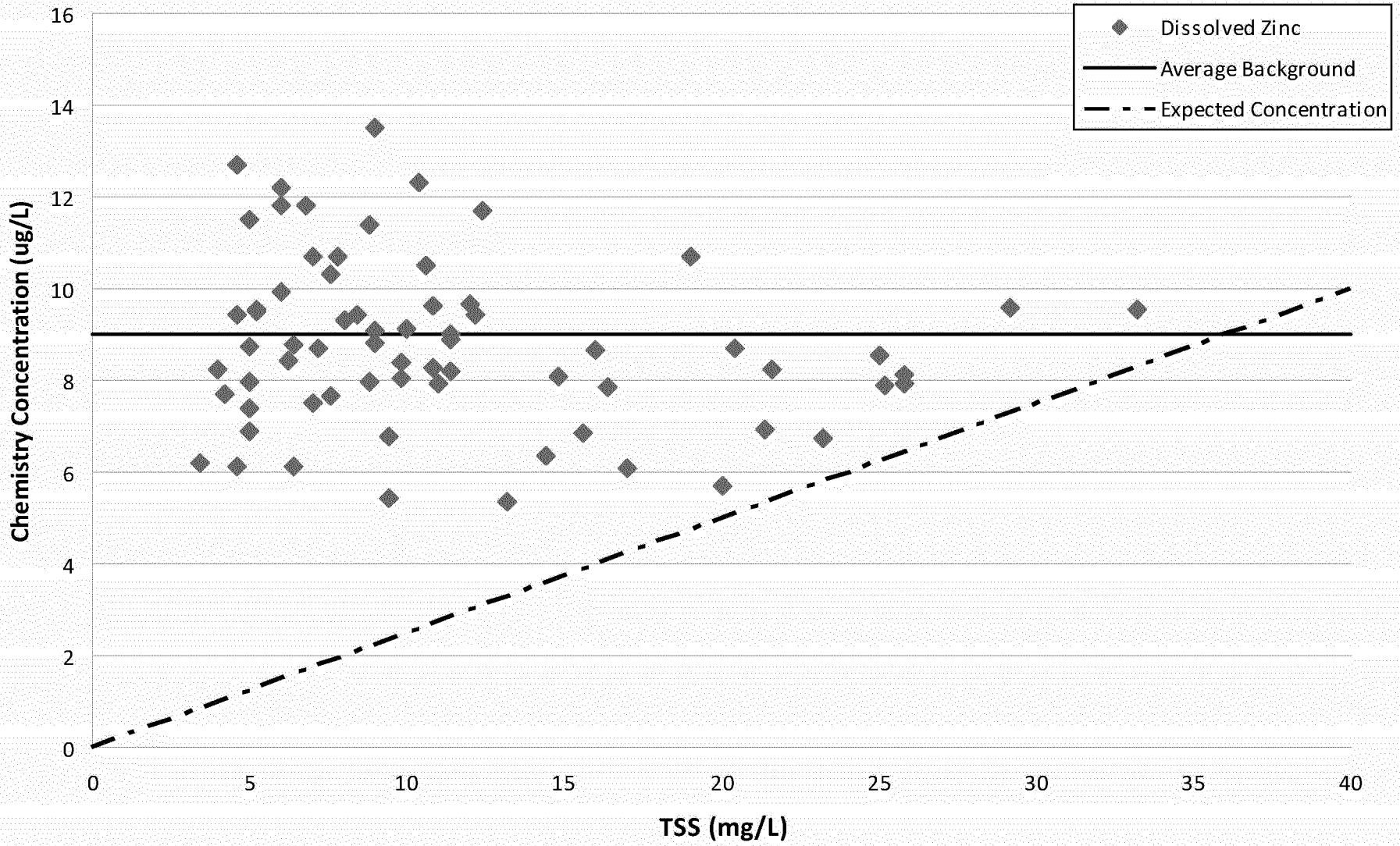
Notes:

For TSS censored concentrations, data point is reported at the detection limit of 5 NTUs.

Expected Concentration based on average dredge prism sediment concentration of 250 mg/kg.

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 12a
Turbidity versus Analytical Results
Terminal 4 Phase I Removal Action Completion Report



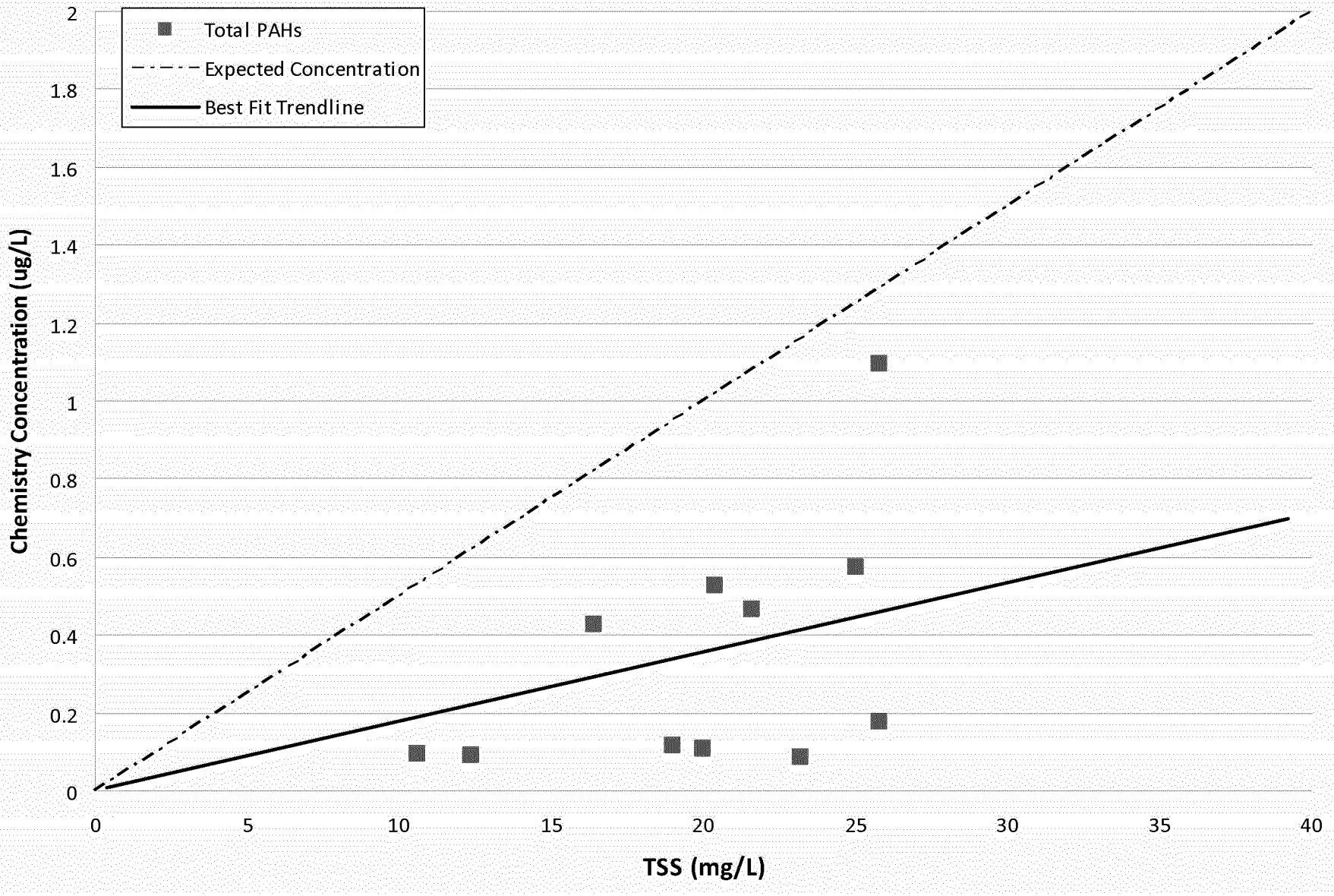
Notes:

For TSS censored concentrations, data point is reported at the detection limit of 5 NTUs.

Expected Concentration based on average dredge prism sediment concentration of 250 mg/kg.

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 12b
TSS versus Analytical Results
Terminal 4 Phase I Removal Action Completion Report



Notes:

For TSS censored concentrations, data point is reported at the detection limit of 5 NTUs.

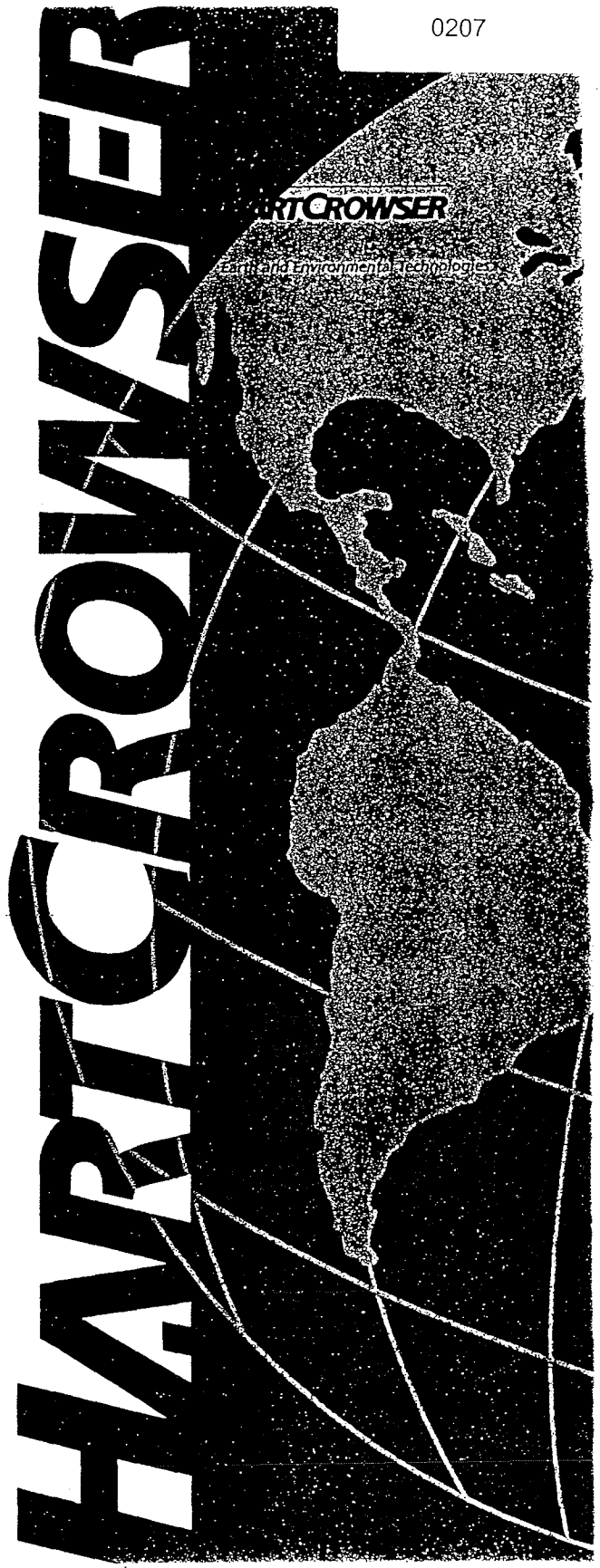
Expected Concentration based on average dredge prism sediment concentration of 50,000 µg/kg.

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 12c
Total PAHs versus Total Suspended Solids (TSS)
Terminal 4 Phase I Removal Action Completion Report

0207

MKS copy



Pencil Pitch Removal Oversight and Sediment Characterization Report
Terminal 4, Slip 3, Berth 411
Portland, Oregon

Prepared for
Hall-Buck Marine

September 25, 1997
J-5670

124

CONTENTS

Page

1.0 INTRODUCTION 1

1.1 Project Background 1
1.2 Report Organization 1

2.0 REMOVAL OVERSIGHT 2

2.1 Pencil Pitch Removal July 7, 8, and 9, 1997 2
2.2 Collection and Analysis Sediment Samples 3

3.0 SUMMARY OF SEDIMENT SAMPLING AND ANALYSIS ACTIVITIES 4

3.1 Sampling Locations and Methods 5
3.2 Modifications to the Sampling and Analysis Plan 5
3.3 Summary of Pencil Pitch Concentrations Reported in Sediment 5

4.0 CONCLUSIONS 6

LIMITATIONS 7

TABLES

1 Summary of Sediment Descriptions and Field Observations, August 5, 1997 8
2 Pencil Pitch Concentrations in Surface Sediment Samples (Vacuum-Area) Collected July 8, 1997 10
3 Pencil Pitch Concentrations in Surface Sediment Samples (Berth 411) Collected August 5, 1997 11

FIGURE

1 Surface Sediment Sampling Location Map with Reported Pencil Pitch Concentrations

APPENDIX A
ANALYTICAL RESULTS FOR VACUUM-AREA SAMPLES
NORTH CREEK ANALYTICAL

APPENDIX B
ANALYTICAL RESULTS FOR BERTH 411 SAMPLES
SCREENING ANALYSIS AND CONFIRMATORY ANALYSIS
NORTH CREEK ANALYTICAL

KMB00006756

PENCIL PITCH REMOVAL OVERSIGHT AND SEDIMENT CHARACTERIZATION REPORT TERMINAL 4, SLIP 3, BERTH 411 PORTLAND, OREGON

1.0 INTRODUCTION

1.1 Project Background

This report presents the results of Hart Crowser's oversight of the pencil pitch removal effort conducted on July 7 and 8, 1997, at Terminal 4, Slip 3, Berth 411, and the results of the surface sediment chemistry analyses for pencil pitch. Sediment sampling and testing was conducted on July 8 at the end of the preliminary removal activities, and again on August 5 to better define the extent of pencil pitch. These chemical testing results are compared to the stipulated limit specified on the Consent Order for Berth 411 (0.5% dry weight).

Terminal 4, Slip 3 is a ship loading and unloading facility located on the Willamette River in Portland, Oregon (Fig. 1). The west side of the terminal has several berths that are parallel and perpendicular to the Willamette River. The area east of the terminal is used for industrial and commercial activities. The areas north and south of the terminal are occupied by marine, industrial, and commercial operations.

A recent spill of pencil pitch occurred at Berth 411 during off loading. It was estimated that between 50 to 1,000 pounds of pencil pitch were released during this incident. A preliminary removal action was undertaken on July 7 and 8, 1997, by Foss Environmental to hydraulically dredge the area most likely containing the spilled pencil pitch. However, surface sediment samples collected after this removal action revealed that concentrations of pencil pitch in excess of 0.5% remained in surface sediments of the slip. A subsequent sampling effort was conducted to further delineate the horizontal extent of pencil pitch and to assess the need for future remedial activities at the site.

1.2 Report Organization

The body of the report is divided into two sections. Section 2.0 presents the results of Hart Crowser's oversight of the initial pencil pitch removal effort at Terminal 4, Slip 3 and discusses the initial surface sediment sampling effort conducted in the immediate vicinity of the dredge site. Section 3.0 presents the

KMB00006757

results of subsequent sampling and analysis activities and chemical analytical results for pencil pitch in the sediment samples.

2.0 REMOVAL OVERSIGHT

Hart Crowser provided oversight and sampling support for the initial pencil pitch removal project at Hall-Buck Marine. The objectives of this project were to:

- Oversee and document the pencil pitch removal effort conducted by Foss Environmental and Advanced Diving; and
- Oversee and document the collection and analysis of surface sediment samples.

2.1 Pencil Pitch Removal July 7, 8, and 9, 1997

On July 7, 8, and 9, 1997, Hart Crowser observed Foss Environmental (Foss) and Advanced Diving during pencil pitch removal activities. Foss was directly contracted to Hall-Buck Marine with Advanced Diving subcontracted to Foss.

Pencil Pitch Release Area. At the time of release, Hall-Buck Marine estimated that the approximate affected area of the slip extended beneath fender piles 114 through 117, and out into the slip approximately 30 feet from the face of the pier.

Pencil Pitch Removal Method. Pencil pitch removal work was conducted in accordance with the conditions specified in the emergency removal permit, issued to Hall-Buck Marine by the Army Corps of Engineers, Portland District and the Work Plan prepared by Foss dated July 6, 1997. Diver-assisted vacuuming of surface sediments occurred on July 7 and 8, 1997. Vacuuming was done using a 4-inch-diameter hose connected to a surface pump. Vacuumed materials (sediment and water) were pumped into a storage tank located on a barge. The tank was used for initial settlement of solids, then the overlying water was discharged to an on-site retention impoundment. From the retention impoundment, the water was treated by Hall-Buck's water treatment system and discharged to the City of Portland sanitary sewer under an existing permit.

Pumping Problems. During removal, numerous problems occurred with the pumps used to vacuum the river bottom. The initial pump did not produce enough suction to lift the sediment material into the storage tank. Advanced Diving brought in a more powerful replacement pump that was able to pump sediments into the storage tank. However, during vacuuming the hose clogged

KMB00006758

several times, requiring stoppage of work to unclog the hose. On July 8, 1997, the replacement pump broke down. After several attempts at repairing the pump, and with impending scheduling constraints (an incoming ship was about to arrive), it was decided to demobilize Foss and pursue a more thorough characterization of the remaining sediments (see Section 3.0).

Vacuumed and Visually Checked Areas. River bottom areas that were vacuumed or visually checked are shown on Figure 1. The diver did not see pencil pitch in the area beneath the pier and between fender piles 116 and 117. The area was not vacuumed, but is indicated as being visually checked. The area beneath the pier and between fender piles 115 and 116 was vacuumed based on visual evidence of pencil pitch. The area beneath the pier extending out into the slip approximately 10 feet was vacuumed between fender piles 114 and 115. The divers were unable to see the river bottom in the slip out past the fender piles, because of the increased water depth and turbidity.

Approximately 16 Gallons of Pencil Pitch Removed from the River Bottom. On July 9, 1997, Hart Crowser observed the drumming of sediment from the storage tank. About 45 gallons (6 cubic feet) of sediment and pencil pitch were drummed. It was estimated that up to 25% of the drummed material was pencil pitch. Using this estimate, approximately 11 gallons (1.5 cubic feet) of pencil pitch were recovered from the storage tank. Another drum was filled with approximately 45 gallons of water and mud slurry. The slurry material did not appear to contain a significant volume of pencil pitch.

Additional pencil pitch was recovered from the surface of the pier. Initially, vacuumed sediments were discharged to the pier to visually inspect the recovery. Water discharged to the pier surface was then directed to the retention impoundment for treatment. Approximately 10 gallons of solid material were collected from the pier surface; of the 10 gallons approximately 50% appeared to be pencil pitch. With the estimates given above, a total volume of approximately 16 gallons of pencil pitch was removed from the bottom of Slip 3 on July 7 and 8, 1997.

Disposal at the Hillsboro Landfill. The pencil pitch and sediment material were transferred to a lined Hall-Buck Marine dumpster. The dumpster material is periodically disposed at the Hillsboro landfill.

2.2 Collection and Analysis Sediment Samples

Five Sediment Samples Collected. Five sediment samples (S-1 through S-5) were collected from the bottom of the slip. Sample locations are shown on Figure 1. Samples were collected by a diver using 2-inch-diameter 6-inch-long brass tubes

KMB00006759

with caps. Only one sample was collected per dive. Before diving, the diver was given the sampling location. On the river bottom, the diver was guided to the sampling location using a two-way radio. The diver's location was determined from the surface by observing the location of his bubbles as they surfaced.

The diver was instructed to push the brass tube into the river bottom sediment, cap the upper end of the tube, and gently remove sediment from around the tube until the bottom cap could be slipped underneath. Each sample was marked with a sample number, date, project number, and sampler's initials. Samples were placed in an ice chest with blue ice, and transported to Hart Crowser's Portland office. From there, the samples were transported to North Creek Analytical in Beaverton, Oregon. Sample chain of custody was maintained at all times.

Samples Analyzed for Pencil Pitch. The sediment samples were analyzed for pencil pitch by North Creek Analytical using the NWTPH-Dx methodology.

Results of Pencil Pitch Analysis of Surface Sediment. The results of the pencil pitch analysis of the five diver samples (S-1 through S-5) are presented in Table 2. These results are compared against the Consent Order stipulated clean-up level of 0.5% (5,000 mg/kg dry). Of the five sediment samples collected, only one sediment sample (Sample S-2; 2,520 mg/kg pencil pitch) was below the stipulated level. The remaining sediment samples (S-1, S-3, S-4, and S-5) have pencil pitch concentrations ranging from 5,710 mg/kg (sample S-1) to 150,000 mg/kg (sample S-3). Copies of the Laboratory Certificates for these analyses are provided in Appendix A of this report.

3.0 SUMMARY OF SEDIMENT SAMPLING AND ANALYSIS ACTIVITIES

Based on the initial results of the five diver samples, Hall-Buck authorized Hart Crowser to conduct a more extensive sediment characterization effort in the vicinity of the spill. The objective of this effort was to better delineate the extent pencil pitch concentrations which exceed the stipulated cleanup level.

The sediment sampling and handling activities were performed on August 5 in accordance with the Hart Crowser Sampling and Analysis Plan dated July 30, 1997. These procedures included methods for locating, collecting, and analyzing the sediment samples for pencil pitch. Minor field modifications to the Sampling and Analysis Plan are detailed below in Section 3.2.

KMB00006760

3.1 Sampling Locations and Methods

Surface sediment samples were collected using either a Ponar Grab sampler or a 0.1 m^2 modified van Veen Grab sampler from the locations shown on Figure 1 on August 5, 1997. A summary of field measurements and visual descriptions of the sediment samples is provided in Table 1.

3.2 Modifications to the Sampling and Analysis Plan

There were two changes made to the protocols presented in the Sampling and Analysis Plan because of site-specific field conditions. First, surface sediment samples were collected using a Ponar Grab sampler. The heavier van Veen Grab sampler was burying itself in the soft substrate of Slip 3. Because of the fine-grained nature and high water content of the sediment, a smaller sampling device (Ponar) was required to maintain an accurate sampling depth. The second change was in the number and location of surface sediment samples presented in the Sampling and Analysis Plan. The number of locations was increased to a total of 23 locations (plus one field duplicate). Also, the specific locations changed (see Figure 1) based on the visual observations of pencil pitch made during sampling. The area to be sampled was increased because pencil pitch was observed outside of the area initially targeted for characterization.

3.3 Summary of Pencil Pitch Concentrations Reported in Sediment

The 24 surface sediment samples were initially analyzed for pencil pitch using a rapid screening methodology (GC/HCID). This was done to confirm that the perimeter of the area exceeding the stipulated cleanup level (0.5% or 5,000 mg/kg dry pencil pitch) had been defined by the sampling effort. The results of this analysis are presented in Table 3 and on Figure 1. As outlined in the Sampling and Analysis Plan, screening results showing pencil pitch levels between 4,000 and 5,000 mg/kg were confirmed by more rigorous analysis using the NWTPH-Dx methodology. Additionally, three samples exhibiting pencil pitch levels below 4,000 mg/kg in the screening analysis were also confirmed to evaluate the accuracy of the screening level results.

The results of the screening level analysis revealed that the highest levels of pencil pitch were localized around pilings 113 to 123, extending out approximately 30 feet from the face of the pier. Visual observations of this sediment revealed the presence of grains of pencil pitch in surface sediments from this area. The very high concentrations observed in some samples (e.g., 150,000 mg/kg at S-3 and 205,000 mg/kg at HC-SS-101) most likely result from having a discrete piece or pieces of pencil pitch present in the subsample extracted by the laboratory. In addition, a few outlying samples exceeded the

KMB00006761

stipulated cleanup level in screening or confirmatory analysis (samples HC-SS-122, HC-SS-124, and HC-SS-113). It is unclear whether these exceedences are related to the spill or to residual accumulations of pencil pitch in the head of the slip.

The screening level analysis generally predicted pencil pitch concentrations to within a factor of two compared to the confirmatory analysis. The only significant discrepancy between the screening level and confirmatory analysis was for Sample HC-SS-124. The results of the initial screening indicated a pencil pitch level of 3,110 mg/kg while the confirmatory analysis reported a concentration of 44,100 mg/kg pencil pitch. Field observations of this sediment indicated that it contained a trace to moderate amount of rocky debris with visual evidence of pencil pitch grains in the substrate. It appears that the significant variability in detected levels of pencil pitch resulted from having a piece or pieces of pencil pitch present in the subsample extracted by the laboratory, exacerbated by the difficult sediment matrix at this location.

4.0 CONCLUSIONS

In summary, this surface sediment sampling effort was able to delineate the extent of pencil pitch in surface sediment that exceeds the Consent Order stipulated cleanup level of 0.5% (5,000 mg/kg) pencil pitch in the vicinity of the recent spill. However, a few outlying exceedences may indicate residual contamination in the head of the slip.

The levels of pencil pitch were initially analyzed by a rapid screening level method and a subset of the samples were analyzed by a confirmatory method. These two methods provided a relatively consistent estimate of pencil pitch concentrations in surface sediment. The reported variability in pencil pitch levels between the two analytical methods was most likely caused by sample heterogeneities, i.e., the presence of grains of pencil pitch in the subsample extracted by the analytical laboratory.

KMB00006762

LIMITATIONS

This report was prepared in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Hall-Buck Marine for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Sincerely,

HART CROWSER, INC.

TAKU FUJI, PH. D.
Toxicologist

TODD THORNBURG, PH.D.
Associate Oceanographer

TF/TT:sde
5670/SedimentCharacter.doc

KMB00006763

Table 1 - Summary of Sediment Descriptions and Field Observations, August 5, 1997

Sample ID	Approximate Water Depth in Feet	Time of Sampling	Sediment Description
HC-SS-101	37	10:30	Black sand with moderate amount of wood chips, stones, pieces of pencil pitch. No odor or sheen.
HC-SS-102	49	10:50	Grey green silty sand with moderate amount of wood fragments, shells and pieces of pencil pitch. No sheen or odor.
HC-SS-103	54	11:00	Grey green silt, no shells, rocks, wood, dusting of pencil pitch.
HC-SS-104	40	9:20	Black sand, moderate amount of rocks, wood fragments and pencil pitch pieces. Slight sheen.
HC-SS-105	50	9:30	Black sand, moderate amount of rocks, paint chips, wood, and small pieces of pencil pitch. Slight odor.
HC-SS-106	53	NR	Surface grey-brown silt (0 - 6 cm), then black sand (6 - 10 cm), dusting of pencil pitch, no odor or sheen.
HC-SS-107	50	9:55	Gray clayey silt, no rocks, slight dusting of pencil pitch.
HC-SS-108	51	8:25	Grey-black sandy silt, scattered rocks, and debris, trace pencil pitch, no sheen or odor.
HC-SS-109	46	8:40	Grey-brown (black) silty sand, no debris, few small pieces pencil pitch, no sheen or odor.
HC-SS-110	50	8:50	Grey-brown silt (0 - 2 cm), then black silty sand (2 -10 cm), scattered wood and stones. No observable pencil pitch, no sheen or odor.
HC-SS-111	49	12:50	Gray-black silty sand, moderate rock and wood debris, moderate amount of pencil pitch, no sheen or odor.
HC-SS-112	52	12:10	Grey-black silty sand, moderate rock, wood debris. Trace of small pieces of pencil pitch, no sheen or odor.
HC-SS-113	51	12:20	Grey-black silty sand, moderate rocks and wood debris, trace grains of pencil pitch.
HC-SS-114	49	12:30	Brown sandy silt. No rocks or debris, no visible pencil pitch.
HC-SS-115	48	12:50	Brown sandy silt with trace of pencil pitch grains.
HC-SS-116	52	1:00	Brown silt, no rocks, no debris, no visual signs of pencil pitch.
HC-SS-117	51	1:20	Brown silty sand, moderate rocks, trace of small grains of pencil pitch.

KMB00006764

Table 1 - Summary of Sediment Descriptions and Field Observations, August 5, 1997

Sample ID	Approximate Water Depth in Feet	Time of Sampling	Sediment Description
HC-SS-118	53	1:30	Brown-black sandy silt, no rocks, or visible pencil pitch.
HC-SS-119			Field Duplicate of HC-SS-104
HC-SS-120	51	10:00	Brown clayey silt, no rocks, no visual signs of pencil pitch.
HC-SS-121	54	11:05	Grey-green clayey silt, moderate amount of rocks, trace of small grains of pencil pitch.
HC-SS-122	49	11:15	Grey-brown silty sand. Considerable amount of rocks, shells, trace to moderate pieces of pencil pitch.
HC-SS-123	51	11:20	Brown sandy silt. Considerable amount of rocks, and shells, trace to moderate amount of pencil pitch pieces.
HC-SS-124	48	11:30	Grey silt. Trace to moderate rocks, trace of pencil pitch.

Note: NR = Not Recorded.

5670\SedimentCharacter.doc

KMB00006765

Table 2 - Pencil Pitch Concentrations in Surface Sediment Samples (Vacuum Area)
Collected July 8, 1997

Sample	Analytical Method	Pencil Pitch Concentration in mg/kg (dry)
S-1	NWTPH-Dx	5,710
S-2	NWTPH-Dx	2,520
S-3	NWTPH-Dx	150,000
S-4	NWTPH-Dx	49,400
S-5	NWTPH-Dx	10,200

Exceeds Consent Order Cleanup Level of 0.5% (5,000 mg/kg - dry).

5670\Table2.xls

KMB00006766

Table 3 - Pencil Pitch Concentrations in Surface Sediment Samples (Berth 411)
Collected August 5, 1997

Sample	Analytical Method	Pencil Pitch Concentration in mg/kg (dry)
HC-SS-101	GC/HCID	205,000
HC-SS-102	GC/HCID	11,700
HC-SS-103	GC/HCID	3,390
HC-SS-104	GC/HCID	19,000
HC-SS-105	GC/HCID	24,700
HC-SS-106	GC/HCID	2,390
HC-SS-107	GC/HCID	1,420
HC-SS-108	GC/HCID	1,120
HC-SS-109	GC/HCID	1,460
HC-SS-110	GC/HCID	2,920
HC-SS-111	GC/HCID	76,800
HC-SS-112	GC/HCID	2,380
HC-SS-113	GC/HCID	5,480
HC-SS-114	GC/HCID	1,470
HC-SS-115	GC/HCID	3,910
HC-SS-116	GC/HCID	2,280
HC-SS-117	GC/HCID	2,630
HC-SS-118	GC/HCID	1,000 U
HC-SS-119*	GC/HCID	13,000
HC-SS-120	GC/HCID	4,420
HC-SS-121	GC/HCID	2,760
HC-SS-122	GC/HCID	4,660
HC-SS-123	GC/HCID	3,540
HC-SS-124	GC/HCID	3,110
HC-SS-109	NWTPH-Dx	1,760
HC-SS-110	NWTPH-Dx	3,560
HC-SS-120	NWTPH-Dx	2,000
HC-SS-122	NWTPH-Dx	8,640
HC-SS-124	NWTPH-Dx	44,100

Exceeds Consent Order Cleanup Level of 0.5% (5,000 mg/kg - dry).

U Not detected at detection limit indicated.

* Field Duplicate of HC-SS-104.

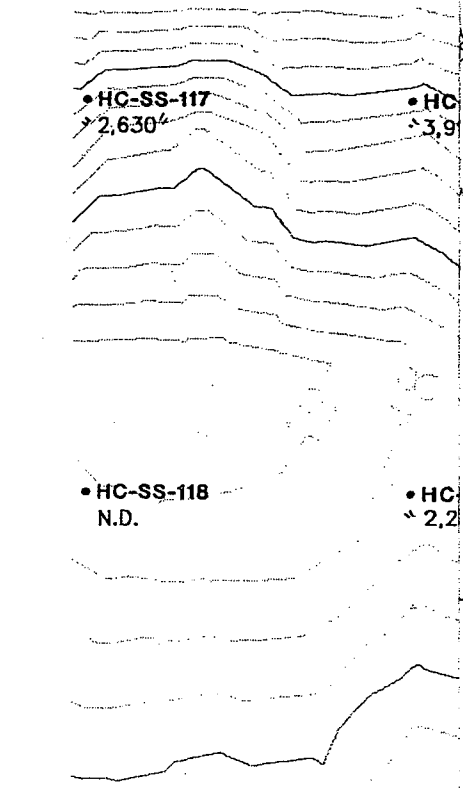
5670\Table3.xls

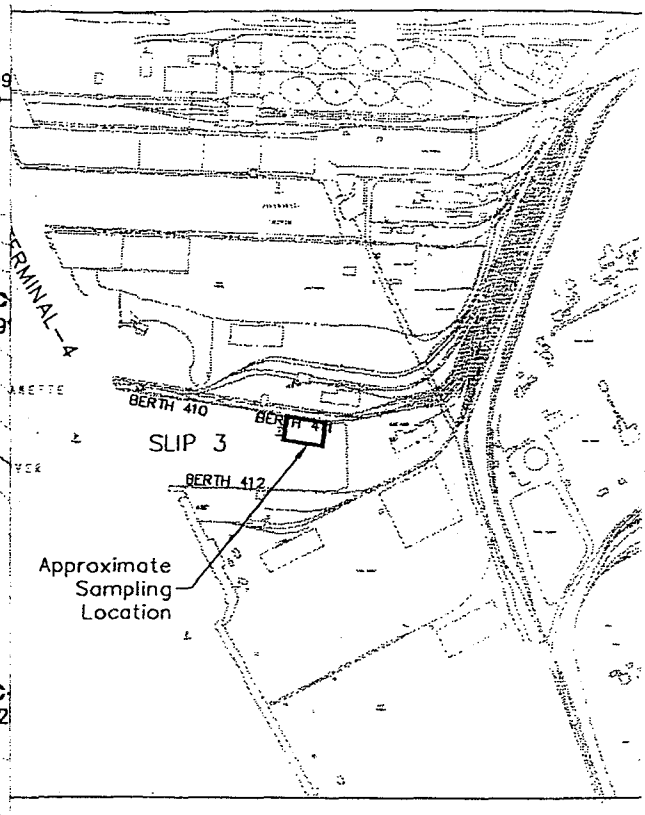
KMB00006767

Surface Sediment S

Terminal 4, Slip 3

Hall-Buck Marine





Vicinity Map

0 800 1600

Scale in Feet

• HC-SS-101	Surface Sedim
• S-1	Surface Sedim
1,460	Concentration
1,760	Concentration
	Area with No
	Area Vacuum
102	Piling Locatio

amp 9/4/97 1=20 color.pc2
58700001

HARTCROWSER

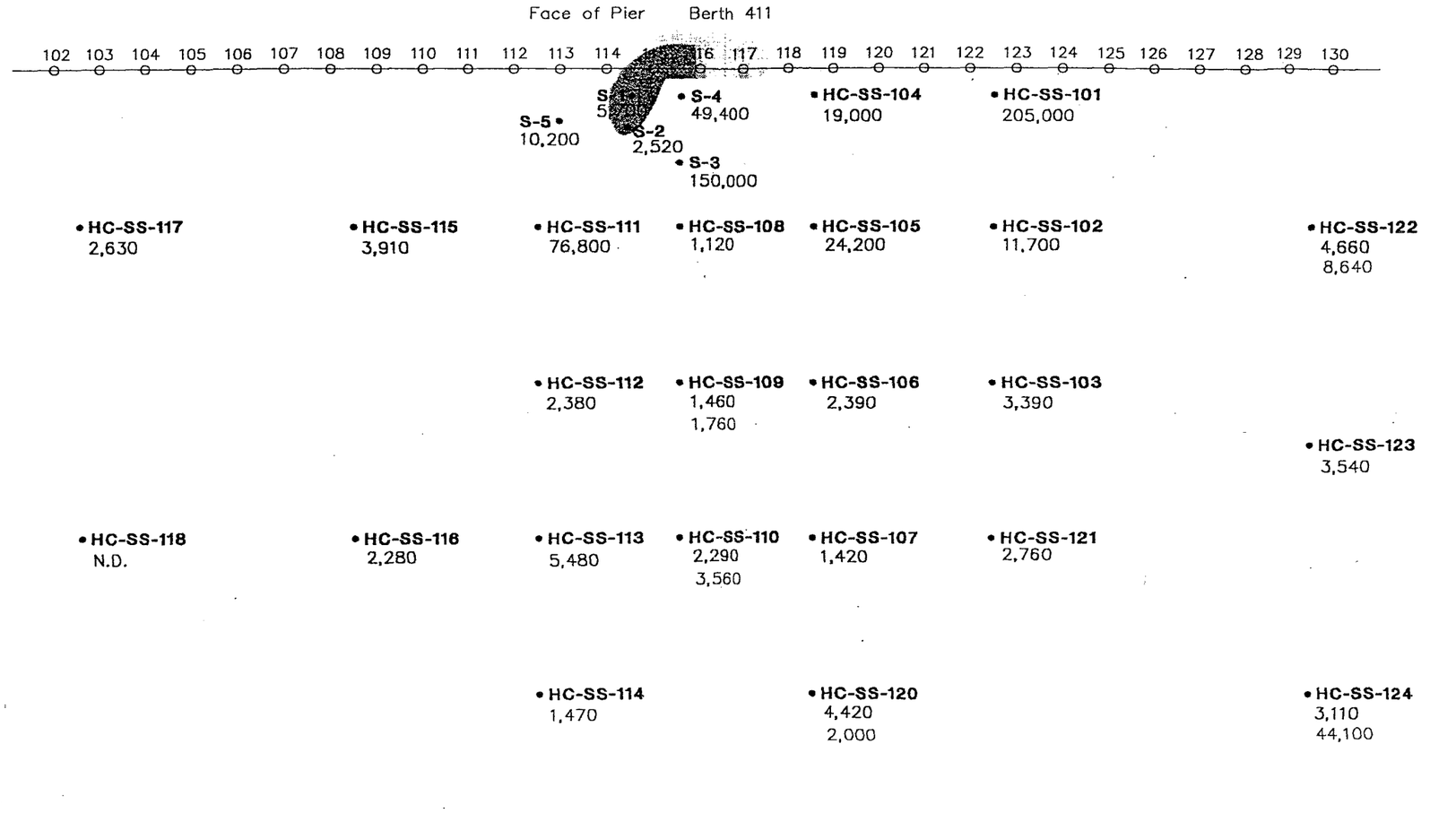
J-5670 9/97

Figure 1

Surface Sediment Sampling Location Map with Reported Pencil Pitch Concentrations

Terminal 4, Slip 3

Hall-Buck Marine



• HC-SS-101	Surface Sediment Sample Location and Number
• S-1	Surface Sediment Samples Collected by Foss Environmental
1,460	Concentration of Pencil Pitch in mg/kg Analyzed by GC/HCID Rapid Screen Methodology
1,760	Concentration of Pencil Pitch in mg/kg Analyzed by NWTPH Methodology
	Area with No Visual Pencil Pitch, as Reported by Diver
	Area Vacuumed by Diver
102 o	Piling Location and Number

0 20 40
Scale in Feet

HARTCROWSER
J-5670 8/97
Figure 1

168

awp 8/15/97 1=20 color.pc2
55700001

APPENDIX A
ANALYTICAL RESULTS
FOR VACUUM-AREA SAMPLES
NORTH CREEK ANALYTICAL

KMB00006770

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	Hall-Buck	Sampled: 7/8/97
Five Centerpointe Drive	Project Number:	5670	Received: 7/9/97
Lake Oswego, OR 97035	Project Manager:	Leon Lahiere	Reported: 7/23/97 11:44

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
S-1	P707160-01	Soil	7/8/97
S-2	P707160-02	Soil	7/8/97
S-3	P707160-03	Soil	7/8/97
S-4	P707160-04	Soil	7/8/97
S-5	P707160-05	Soil	7/8/97

HART CROWSER INC.
AUG - 5 1997
Portland Office

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

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

KMB00006771

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	Hall-Buck	Sampled: 7/8/97
Five Centerpointe Drive	Project Number:	5670	Received: 7/9/97
Lake Oswego, OR 97035	Project Manager:	Leon Lahiere	Reported: 7/23/97 11:44

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
S-1	P707160-01	Soil	71.8	%
S-2	P707160-02	Soil	66.6	%
S-3	P707160-03	Soil	53.7	%
S-4	P707160-04	Soil	76.5	%
S-5	P707160-05	Soil	58.6	%

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006772

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project: Hall-Buck	Sampled:	7/8/97
Five Centerpointe Drive	Project Number: 5670	Received:	7/9/97
Lake Oswego, OR 97035	Project Manager: Leon Lahiere	Reported:	7/23/97 11:44

Diesel and Heavy Range Hydrocarbons per NWTPH Methodology/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0770253	**Date Prepared: 7/14/97**					**Extraction Method: TPH-D Extraction**				
Blank	**0770253-BLK1**									
Surrogate: 1-Chlorooctadecane	*7/15/97*	*5.00*		*5.00*	*mg/kg dry*	*50.0-150*	*100*			
Diesel Range Organics	"			ND	"	25.0				
Heavy Oil Range Hydrocarbons	"			ND	"	50.0				
LCS	**0770253-BS1**									
Surrogate: 1-Chlorooctadecane	*7/15/97*	*5.00*		*5.85*	*mg/kg dry*	*50.0-150*	*117*			
Diesel Range Organics	"	125		137	"	50.0-150	110			
Duplicate	**0770253-DUP1**	**P707232-01**								
Surrogate: 1-Chlorooctadecane	*7/14/97*	*5.08*		*5.94*	*mg/kg dry*	*50.0-150*	*117*			
Diesel Range Organics	"		169	154	"			50.0	9.29	
Heavy Oil Range Hydrocarbons	"		480	368	"			50.0	26.4	
Duplicate	**0770253-DUP2**	**P707232-02**								
Surrogate: 1-Chlorooctadecane	*7/15/97*	*5.07*		*6.27*	*mg/kg dry*	*50.0-150*	*124*			
Diesel Range Organics	"		167	165	"			50.0	1.20	
Heavy Oil Range Hydrocarbons	"		434	355	"			50.0	20.0	
Duplicate	**0770253-DUP3**	**P707232-03**								
Surrogate: 1-Chlorooctadecane	*7/15/97*	*5.07*		*8.27*	*mg/kg dry*	*50.0-150*	*163*			*3*
Diesel Range Organics	"		134	ND	"			50.0		
Heavy Oil Range Hydrocarbons	"		401	436	"			50.0	8.36	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

KMB00006773

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	Hall-Buck	Sampled: 7/8/97
Five Centerpointe Drive	Project Number:	5670	Received: 7/9/97
Lake Oswego, OR 97035	Project Manager:	Leon Lahiere	Reported: 7/23/97 11:44

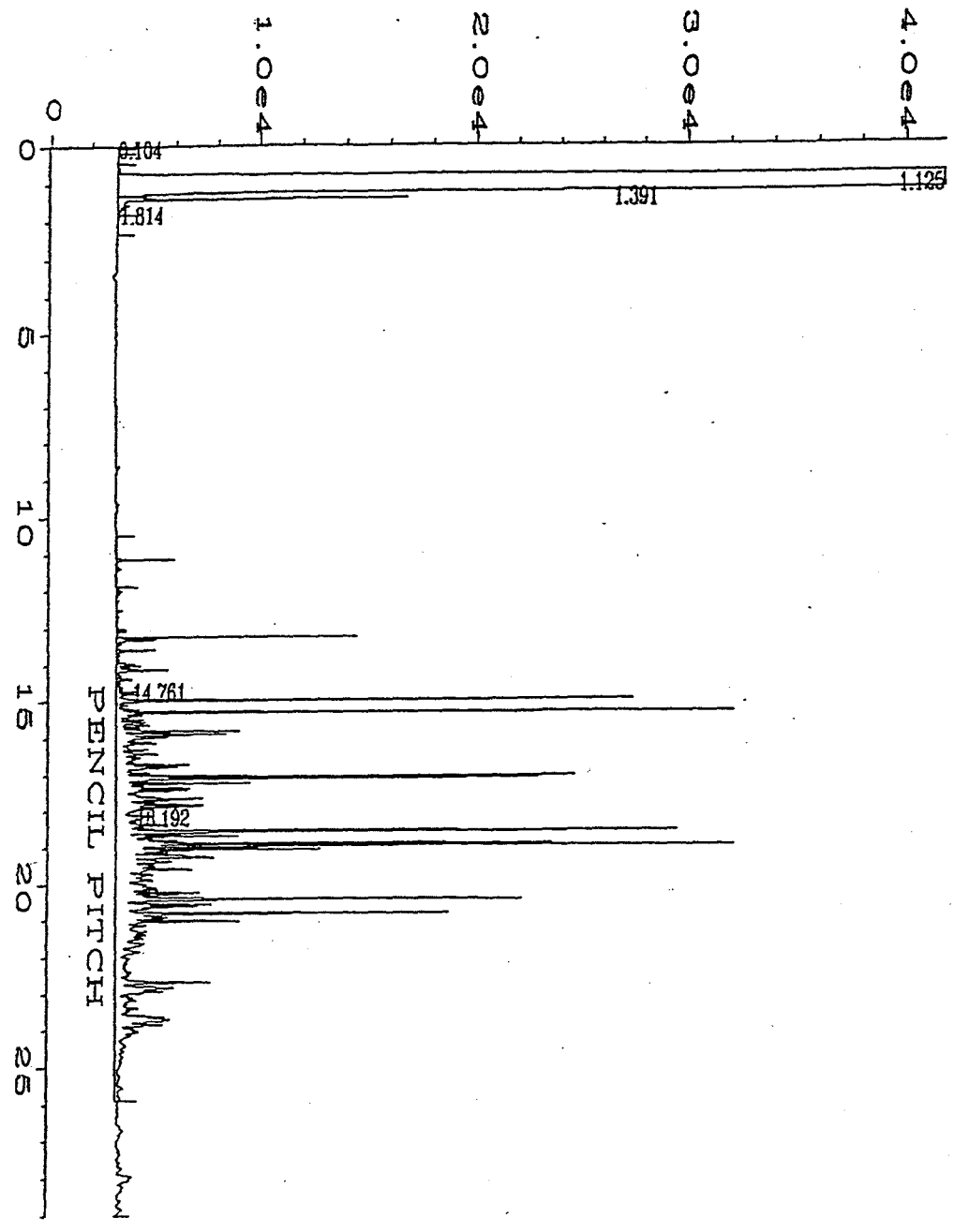
Notes and Definitions

#	Note
1	Detected hydrocarbons quantitated against pencil pitch standard.
2	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
3	Surrogate recovery is outside control limits due to matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

KMB00006774



File Name	: C:\HPCHEM\1\DATA\A072197B\016F1001.D		
Operator	: LQN	Page Number	: 1
Instrument	: DUALFID1	Vial Number	: 16
Sample Name	: 707160-4 x100	Injection Number	: 1
Sample Bar Code:		Sequence Line	: 10
Acquired on	: 22 Jul 97 08:30 AM	Instrument Method	: PP.MTH
Data Created on	: 22 Jul 97 06:18 PM	Analysis Method	: PP.MTH
Last Recalib on	: 22 JUL 97 01:10 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	Hall-Buck	Sampled: 7/8/97
Five Centerpointe Drive	Project Number:	5670	Received: 7/9/97
Lake Oswego, OR 97035	Project Manager:	Leon Lahiere	Reported: 7/23/97 11:44

Diesel and Heavy Range Hydrocarbons per NWTPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
S-1			**P707160-01**				**Soil**	
Surrogate: 1-Chlorooctadecane	*0770253*	*7/14/97*	*7/22/97*	*50.0-150*		*100*	*%*	
Pencil Pitch	"	"	"		1000	**5710**	mg/kg dry	1
S-2			**P707160-02**				**Soil**	
Surrogate: 1-Chlorooctadecane	*0770253*	*7/14/97*	*7/22/97*	*50.0-150*		*82.0*	*%*	
Pencil Pitch	"	"	"		500	**2520**	mg/kg dry	1
S-3			**P707160-03**				**Soil**	
Surrogate: 1-Chlorooctadecane	*0770253*	*7/14/97*	*7/22/97*	*50.0-150*		*NR*	*%*	*2*
Pencil Pitch	"	"	"		10000	**150000**	mg/kg dry	1
S-4			**P707160-04**				**Soil**	
Surrogate: 1-Chlorooctadecane	*0770253*	*7/14/97*	*7/22/97*	*50.0-150*		*NR*	*%*	*2*
Pencil Pitch	"	"	"		10000	**49400**	mg/kg dry	1
S-5			**P707160-05**				**Soil**	
Surrogate: 1-Chlorooctadecane	*0770253*	*7/14/97*	*7/22/97*	*50.0-150*		*NR*	*%*	*2*
Pencil Pitch	"	"	"		2000	**10200**	mg/kg dry	1

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

KMB00006776

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # P707160

REPORT TO:
ATTENTION: Hart Crowser Leon Lahiere Ext 188
ADDRESS: Five Centerpointe Dr. #240
Lake Oswego, OR 97035
PHONE: 620-7284 FAX: 620-6918
PROJECT NAME: Hall-Buck
PROJECT NUMBER: 5670
SAMPLED BY: Stacey Callison

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: NWTPH

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	NWTPH	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	S-1	7/8/97		X	sediment	1	
2.	S-2	↓		X	↓	↓	
3.	S-3	↓		X	↓	↓	
4.	S-4	↓		X	↓	↓	
5.	S-5	↓		X	↓	↓	
6.							
7.							
8.							
9.							
10.							

0228

RELINQUISHED BY (Signature): Stacey W. Callison DATE: 7/9/97
PRINT NAME: Stacey W. Callison FIRM: HC TIME: 1315
RECEIVED BY (Signature): [signature] DATE: 7-9-97
PRINT NAME: Larry Spangler FIRM: NCA TIME: 1315

RELINQUISHED BY (Signature): [signature] DATE: 7-9-97
PRINT NAME: Larry Spangler FIRM: NCA TIME: 1535
RECEIVED BY (Signature): [signature] DATE: 7/9/97
PRINT NAME: Claire Mull FIRM: NCA TIME: 15:32

ADDITIONAL REMARKS: contaminant of concern is pencil pitch use same methodology as used during pencil pitch analysis on Port of Portland sampling

PAGE 1 OF 1

KMB00006777

APPENDIX B
ANALYTICAL RESULTS FOR BERTH 411 SAMPLES SCREENING ANALYSIS AND CONFIRMATORY ANALYSIS NORTH CREEK ANALYTICAL

KMB00006778

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/6/97 14:07

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
HC-SS-101	P708083-01	Soil	8/5/97
HC-SS-102	P708083-02	Soil	8/5/97
HC-SS-103	P708083-03	Soil	8/5/97
HC-SS-104	P708083-04	Soil	8/5/97
HC-SS-105	P708083-05	Soil	8/5/97
HC-SS-106	P708083-06	Soil	8/5/97
HC-SS-107	P708083-07	Soil	8/5/97
HC-SS-108	P708083-08	Soil	8/5/97
HC-SS-109	P708083-09	Soil	8/5/97
HC-SS-110	P708083-10	Soil	8/5/97
HC-SS-111	P708083-11	Soil	8/5/97
HC-SS-112	P708083-12	Soil	8/5/97
HC-SS-113	P708083-13	Soil	8/5/97
HC-SS-114	P708083-14	Soil	8/5/97
HC-SS-115	P708083-15	Soil	8/5/97
HC-SS-116	P708083-16	Soil	8/5/97
HC-SS-117	P708083-17	Soil	8/5/97
HC-SS-118	P708083-18	Soil	8/5/97
HC-SS-119	P708083-19	Soil	8/5/97
HC-SS-120	P708083-20	Soil	8/5/97

North Creek Analytical, Inc.

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

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006779

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/6/97 14:07

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
HC-SS-121	P708083-21	Soil	8/5/97
HC-SS-122	P708083-22	Soil	8/5/97
HC-SS-123	P708083-23	Soil	8/5/97
HC-SS-124	P708083-24	Soil	8/5/97

KMB00006780

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

0232

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/6/97 14:07

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-101			P708083-01				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		100000	205000	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-102			P708083-02				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		5000	11700	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-103			P708083-03				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	3390	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*113*	%	
HC-SS-104			P708083-04				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		10000	19000	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-105			P708083-05				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		10000	24700	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-106			P708083-06				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	2390	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	3
HC-SS-107			P708083-07				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	1420	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*115*	%	
HC-SS-108			P708083-08				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	1120	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*105*	%	
HC-SS-109			P708083-09				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	1460	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*116*	%	
HC-SS-110			P708083-10				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	2920	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	3

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

KMB00006781

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project: TERMINAL 4 - SEDIMENT	Sampled:	8/5/97
Five Centerpointe Drive	Project Number: 5670	Received:	8/5/97
Lake Oswego, OR 97035	Project Manager: Taku Fuji	Reported:	8/6/97 14:07

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-111			P708083-11				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		50000	76800	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*2*
HC-SS-112			P708083-12				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	2380	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*3*
HC-SS-113			P708083-13				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		5000	5480	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*2*
HC-SS-114			P708083-14				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	1470	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*107*	%	*3*
HC-SS-115			P708083-15				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	3910	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*3*
HC-SS-116			P708083-16				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	2280	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*110*	%	
HC-SS-117			P708083-17				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	2630	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*92.9*	%	
HC-SS-118			P708083-18				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	ND	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*111*	%	
HC-SS-119			P708083-19				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		10000	13000	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*2*
HC-SS-120			P708083-20				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	4420	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*87.9*	%	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL • (425) 481-9200 • FAX 485-2992
SPOKANE • (509) 924-9200 • FAX 924-9290
PORTLAND • (503) 643-9200 • FAX 644-2202

Hart Crowser, Inc.- Portland	Project: TERMINAL 4 - SEDIMENT	Sampled:	8/5/97
Five Centerpointe Drive	Project Number: 5670	Received:	8/5/97
Lake Oswego, OR 97035	Project Manager: Taku Fuji	Reported:	8/6/97 14:07

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-121			P708083-21				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	2760	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*93.5*	%	
HC-SS-122			P708083-22				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	4660	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*110*	%	
HC-SS-123			P708083-23				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	3540	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*105*	%	
HC-SS-124			P708083-24				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	3110	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*119*	%	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006783

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL • (425) 481-9200 • FAX 485-2992
SPOKANE • (509) 924-9200 • FAX 924-9290
PORTLAND • (503) 643-9200 • FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/6/97 14:07

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
HC-SS-101	P708083-01	Soil	71.4	%
HC-SS-102	P708083-02	Soil	50.1	%
HC-SS-103	P708083-03	Soil	47.7	%
HC-SS-104	P708083-04	Soil	69.9	%
HC-SS-105	P708083-05	Soil	66.9	%
HC-SS-106	P708083-06	Soil	49.8	%
HC-SS-107	P708083-07	Soil	42.8	%
HC-SS-108	P708083-08	Soil	71.2	%
HC-SS-109	P708083-09	Soil	48.8	%
HC-SS-110	P708083-10	Soil	53.0	%
HC-SS-111	P708083-11	Soil	61.0	%
HC-SS-112	P708083-12	Soil	49.4	%
HC-SS-113	P708083-13	Soil	55.6	%
HC-SS-114	P708083-14	Soil	49.5	%
HC-SS-115	P708083-15	Soil	44.9	%
HC-SS-116	P708083-16	Soil	46.7	%
HC-SS-117	P708083-17	Soil	56.6	%
HC-SS-118	P708083-18	Soil	53.7	%
HC-SS-119	P708083-19	Soil	70.1	%

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006784

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/6/97 14:07

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
HC-SS-120	P708083-20	Soil	43.9	%
HC-SS-121	P708083-21	Soil	44.6	%
HC-SS-122	P708083-22	Soil	42.9	%
HC-SS-123	P708083-23	Soil	46.9	%
HC-SS-124	P708083-24	Soil	45.8	%

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006785

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

0237

BOTHELL • (425) 481-9200 • FAX 485-2992
SPOKANE • (509) 924-9200 • FAX 924-9290
PORTLAND • (503) 643-9200 • FAX 644-2202

Hart Crowser, Inc.- Portland	Project: TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number: 5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager: Taku Fuji	Reported: 8/6/97 14:07

Notes and Definitions

#	Note
1	Sample was quantitated against Pencil Pitch standard.
2	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
3	Unable to calculate surrogate recovery due to matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

KMB00006786

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

0238

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
HC-SS-101	P708083-01	Soil	8/5/97
HC-SS-102	P708083-02	Soil	8/5/97
HC-SS-103	P708083-03	Soil	8/5/97
HC-SS-104	P708083-04	Soil	8/5/97
HC-SS-105	P708083-05	Soil	8/5/97
HC-SS-106	P708083-06	Soil	8/5/97
HC-SS-107	P708083-07	Soil	8/5/97
HC-SS-108	P708083-08	Soil	8/5/97
HC-SS-109	P708083-09	Soil	8/5/97
HC-SS-110	P708083-10	Soil	8/5/97
HC-SS-111	P708083-11	Soil	8/5/97
HC-SS-112	P708083-12	Soil	8/5/97
HC-SS-113	P708083-13	Soil	8/5/97
HC-SS-114	P708083-14	Soil	8/5/97
HC-SS-115	P708083-15	Soil	8/5/97
HC-SS-116	P708083-16	Soil	8/5/97
HC-SS-117	P708083-17	Soil	8/5/97
HC-SS-118	P708083-18	Soil	8/5/97
HC-SS-119	P708083-19	Soil	8/5/97
HC-SS-120	P708083-20	Soil	8/5/97

North Creek Analytical, Inc.

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

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006787

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
HC-SS-121	P708083-21	Soil	8/5/97
HC-SS-122	P708083-22	Soil	8/5/97
HC-SS-123	P708083-23	Soil	8/5/97
HC-SS-124	P708083-24	Soil	8/5/97

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project: TERMINAL 4 - SEDIMENT	Sampled:	8/5/97
Five Centerpointe Drive	Project Number: 5670	Received:	8/5/97
Lake Oswego, OR 97035	Project Manager: Taku Fuji	Reported:	8/13/97 14:19

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-101			P708083-01				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		100000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-102			P708083-02				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		5000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-103			P708083-03				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*113*	%	
HC-SS-104			P708083-04				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		10000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-105			P708083-05				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		10000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-106			P708083-06				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	3
HC-SS-107			P708083-07				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*115*	%	
HC-SS-108			P708083-08				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*105*	%	
HC-SS-109			P708083-09				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*116*	%	
HC-SS-110			P708083-10				Soil	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	3

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

KMB00006789

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-111			**P708083-11**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		50000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-112			**P708083-12**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	3
HC-SS-113			**P708083-13**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		5000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-114			**P708083-14**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*107*	%	
HC-SS-115			**P708083-15**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	3
HC-SS-116			**P708083-16**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*110*	%	
HC-SS-117			**P708083-17**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*92.9*	%	
HC-SS-118			**P708083-18**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	ND	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*111*	%	
HC-SS-119			**P708083-19**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		10000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	2
HC-SS-120			**P708083-20**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*87.9*	%	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006790

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-121			**P708083-21**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*93.5*	%	
HC-SS-122			**P708083-22**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*110*	%	
HC-SS-123			**P708083-23**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*105*	%	
HC-SS-124			**P708083-24**				**Soil**	
Heavy Oil Range Hydrocarbons	0870101	8/5/97	8/6/97		1000	DET	mg/kg dry	1
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*119*	%	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

S Wright
Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006791

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Diesel and Heavy Range Hydrocarbons per NWTPH Methodology
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
HC-SS-109			**P708083-09**				**Soil**	
Heavy Oil Range Hydrocarbons	0870132	8/7/97	8/7/97		100	**1760**	mg/kg dry	4
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*62.4*	%	
HC-SS-110			**P708083-10**				**Soil**	
Heavy Oil Range Hydrocarbons	0870132	8/6/97	8/6/97		200	**3560**	mg/kg dry	4
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*63.9*	%	
HC-SS-120			**P708083-20**				**Soil**	
Heavy Oil Range Hydrocarbons	0870132	8/6/97	8/6/97		200	**2000**	mg/kg dry	4
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*69.5*	%	
HC-SS-122			**P708083-22**				**Soil**	
Heavy Oil Range Hydrocarbons	0870132	8/6/97	8/7/97		1000	**8640**	mg/kg dry	4
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*77.9*	%	
HC-SS-124			**P708083-24**				**Soil**	
Heavy Oil Range Hydrocarbons	0870132	8/6/97	8/7/97		2000	**44100**	mg/kg dry	4
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

S Wright
Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006792

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
HC-SS-101	P708083-01	Soil	71.4	%
HC-SS-102	P708083-02	Soil	50.1	%
HC-SS-103	P708083-03	Soil	47.7	%
HC-SS-104	P708083-04	Soil	69.9	%
HC-SS-105	P708083-05	Soil	66.9	%
HC-SS-106	P708083-06	Soil	49.8	%
HC-SS-107	P708083-07	Soil	42.8	%
HC-SS-108	P708083-08	Soil	71.2	%
HC-SS-109	P708083-09	Soil	48.8	%
HC-SS-110	P708083-10	Soil	53.0	%
HC-SS-111	P708083-11	Soil	61.0	%
HC-SS-112	P708083-12	Soil	49.4	%
HC-SS-113	P708083-13	Soil	55.6	%
HC-SS-114	P708083-14	Soil	49.5	%
HC-SS-115	P708083-15	Soil	44.9	%
HC-SS-116	P708083-16	Soil	46.7	%
HC-SS-117	P708083-17	Soil	56.6	%
HC-SS-118	P708083-18	Soil	53.7	%
HC-SS-119	P708083-19	Soil	70.1	%

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

KMB00006793

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
HC-SS-120	P708083-20	Soil	43.9	%
HC-SS-121	P708083-21	Soil	44.6	%
HC-SS-122	P708083-22	Soil	42.9	%
HC-SS-123	P708083-23	Soil	46.9	%
HC-SS-124	P708083-24	Soil	45.8	%

North Creek Analytical, Inc.

S Wright

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006794

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Hydrocarbon Identification per NW-TPH Methodology/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870101	**Date Prepared: 8/5/97**				**Extraction Method: TPH-HCID (OR)**					
Blank	**0870101-BLK1**									
Gasoline Range Hydrocarbons	8/6/97			ND	mg/kg dry	20.0				
Diesel Range Hydrocarbons	"			ND	"	50.0				
Heavy Oil Range Hydrocarbons	"			ND	"	100				
Surrogate: 1-Chlorooctadecane	"	*DET*		*DET*	"	*50.0-150*	*107*			
Blank	**0870101-BLK2**									
Gasoline Range Hydrocarbons	8/6/97			ND	mg/kg dry	20.0				
Diesel Range Hydrocarbons	"			ND	"	50.0				
Heavy Oil Range Hydrocarbons	"			ND	"	100				
Surrogate: 1-Chlorooctadecane	"	*DET*		*DET*	"	*50.0-150*	*121*			
Duplicate	**0870101-DUP1**	**P708083-01**								
Heavy Oil Range Hydrocarbons	8/6/97		DET	DET	mg/kg dry			50.0		
Surrogate: 1-Chlorooctadecane	"	*DET*		*ND*	"	*50.0-150*	*NR*			
Duplicate	**0870101-DUP2**	**P708083-09**								
Heavy Oil Range Hydrocarbons	8/6/97		DET	DET	mg/kg dry			50.0		
Surrogate: 1-Chlorooctadecane	"	*DET*		*DET*	"	*50.0-150*	*103*			
Duplicate	**0870101-DUP3**	**P708083-20**								
Heavy Oil Range Hydrocarbons	8/6/97		DET	DET	mg/kg dry			50.0		
Surrogate: 1-Chlorooctadecane	"	*DET*		*DET*	"	*50.0-150*	*113*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

S Wright

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006795

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Diesel and Heavy Range Hydrocarbons per NWTPH Methodology/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870132	**Date Prepared: 8/6/97**				**Extraction Method: TPH-D Extraction**					
Blank	**0870132-BLK1**									
Diesel Range Organics	8/7/97			ND	mg/kg dry	25.0				
Heavy Oil Range Hydrocarbons	"			ND	"	50.0				
Surrogate: 1-Chlorooctadecane	"	*5.00*		*4.32*	"	*50.0-150*	*86.4*			
Blank	**0870132-BLK2**									
Diesel Range Organics	8/7/97			ND	mg/kg dry	25.0				
Heavy Oil Range Hydrocarbons	"			ND	"	50.0				
Surrogate: 1-Chlorooctadecane	"	*5.00*		*4.09*	"	*50.0-150*	*81.8*			
LCS	**0870132-BS1**									
Diesel Range Organics	8/7/97	125		99.0	mg/kg dry	50.0-150	79.2			
Surrogate: 1-Chlorooctadecane	"	*5.00*		*4.89*	"	*50.0-150*	*97.8*			
Duplicate	**0870132-DUP1**	**P708083-22**								
Diesel Range Organics	8/7/97		ND	ND	mg/kg dry			50.0		
Heavy Oil Range Hydrocarbons	"		8640	17400	"			50.0	**67.3**	5
Surrogate: 1-Chlorooctadecane	"	*46.6*		*36.8*	"	*50.0-150*	*79.0*			
Duplicate	**0870132-DUP2**	**P707526-01**								
Diesel Range Organics	8/8/97		502	687	mg/kg dry			50.0	**31.1**	
Heavy Oil Range Hydrocarbons	"		308	302	"			50.0	**1.97**	
Surrogate: 1-Chlorooctadecane	"	*5.97*		*7.64*	"	*50.0-150*	*128*			
Duplicate	**0870132-DUP3**	**P707526-04**								
Diesel Range Organics	8/11/97		1240	1100	mg/kg dry			50.0	**12.0**	
Heavy Oil Range Hydrocarbons	"		144	67.8	"			50.0	**72.0**	5
Surrogate: 1-Chlorooctadecane	"	*5.85*		*4.05*	"	*50.0-150*	*69.2*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006796

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Hart Crowser, Inc.- Portland	Project:	TERMINAL 4 - SEDIMENT	Sampled: 8/5/97
Five Centerpointe Drive	Project Number:	5670	Received: 8/5/97
Lake Oswego, OR 97035	Project Manager:	Taku Fuji	Reported: 8/13/97 14:19

Notes and Definitions

#	Note
1	Sample was quantitated against Pencil Pitch standard.
2	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
3	Unable to calculate surrogate recovery due to matrix interference.
4	Detected hydrocarbons were quantitated against pencil pitch standard.
5	Visual evaluation indicates the RPD is above the control limit due to a non-homogeneous sample matrix.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Sandra K. Wright, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

KMB00006797

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # P708083

REPORT TO:	INVOICE TO:
ATTENTION: TAKU FUJI, HART CROWSER	ATTENTION: SAME ←
ADDRESS: 1910 FAIRVIEW AVE EAST SEATTLE WA 98102	ADDRESS:
PHONE: 206-324-9530 FAX: 206-328-5581	P.O. NUMBER: NCA QUOTE #:
PROJECT NAME: TERMINA 4 - SEDIMENT	
PROJECT NUMBER: 5170	
SAMPLED BY: FUJI / CALLISON	

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | X | Same Day
OTHER Specify: GC/HCID SCREEN
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: PENCIL PITCH GC/HCID SCREEN	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. HC-SS-101	8/5/97 1030		X	sediment	1	
2. HC-SS-102	1050		X		1	
3. HC-SS-103	1100		X		1	
4. HC-SS-104	920		X		1	
5. HC-SS-105	930		X		1	
6. HC-SS-106	945		X		1	
7. HC-SS-107	955		X		1	
8. HC-SS-108	825		X		1	
9. HC-SS-109	840		X		1	
10. HC-SS-110	850		X		1	

RELINQUISHED BY (Signature): Stacey W. Callison	DATE: 8/5/97	RECEIVED BY (Signature): Howard B. Holmes	DATE: 8-5-97
PRINT NAME: Stacey Callison FIRM: HC	TIME: 1510	PRINT NAME: Howard B. Holmes FIRM: NCA-P	TIME: 1570
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	DATE:
PRINT NAME: FIRM:	TIME:	PRINT NAME: FIRM:	TIME:

ADDITIONAL REMARKS:

COC Rev 8, 1/96

0249

KMB00006798

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # P708083

REPORT TO:	INVOICE TO:
ATTENTION: TAKU FUJI, HART CROWSER	ATTENTION: SAME
ADDRESS: 1910 FAIRVIEW AVE EAST SEATTLE WA 98102	ADDRESS: ←
PHONE: 206-324-9530 FAX: 206-328-5581	P.O. NUMBER: NCA QUOTE #:
PROJECT NAME: TERMINAL 4 - SEDIMENT	
PROJECT NUMBER: 5670	
SAMPLED BY: FUJI / CALLISON	

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | X | Same Day — GC/HCID SCREEN
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: Diesel Pitch GC/HCID Screen	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. HC-SS-111	8/5/97 1205		X	Sediment	1	
2. HC-SS-112	1210		X		1	
3. HC-SS-113	~~1220~~ 1220		X		1	
4. HC-SS-114	1230		X		1	
5. HC-SS-115	1250		X		1	
6. HC-SS-116	1300		X		1	
7. HC-SS-117	~~1310~~ 1320		X		1	
8. HC-SS-118	1330		X		1	
9. HC-SS-119	1335		X		1	
10. HC-SS-120	1000		X		1	

RELINQUISHED BY (Signature): Stacey W. Callison	DATE: 8/5/97	RECEIVED BY (Signature): Howard B. Holmes	DATE: 8-5-97
PRINT NAME: Stacey Callison FIRM: HC	TIME: 1510	PRINT NAME: Howard B. Holmes FIRM: NCA-P	TIME: 1510
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	DATE:
PRINT NAME: FIRM:	TIME:	PRINT NAME: FIRM:	TIME:

ADDITIONAL REMARKS:

PAGE 2 OF 2

0250

KMB00006799

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # P708083

REPORT TO:	INVOICE TO:
ATTENTION: Taku Fuji, Hart Crowser	ATTENTION: same ←
ADDRESS: 1910 Fairview Ave. East Seattle, WA 98102	ADDRESS:
PHONE: 206-324-9530 FAX: 206-328-5581	P.O. NUMBER: NCA QUOTE #:
PROJECT NAME: Terminal 4 - Sediment	
PROJECT NUMBER: 5670	
SAMPLED BY: Fuji / Callison	

TURNAROUND REQUEST In Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | [X] | Same Day
OTHER Specify: GC/HCID Screen
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: Pentachlorophenol by GC/HCID Screen	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	HC-SS-121	8/5/97 1105		X	sediment	1	
2.	HC-SS-122	1115		X		1	
3.	HC-SS-123	1120		X		1	
4.	HC-SS-124	1130		X		1	
5.							
6.							
7.							
8.							
9.							
10.							

RELINQUISHED BY (Signature): Stacey M. Callison	DATE: 8/5/97	RECEIVED BY (Signature): Howard B. Holmes	DATE: 8-5-97
PRINT NAME: Stacey Callison FIRM: HC	TIME: 1510	PRINT NAME: Howard B. Holmes FIRM: NCA-P	TIME: 1570
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	DATE:
PRINT NAME: FIRM:	TIME:	PRINT NAME: FIRM:	TIME:

ADDITIONAL REMARKS:

CHC Rev 8, 1/96

0251

KMB0000680

REPORT

Phase II Pencil Pitch Investigation Report Terminal 4 Slip 3 Upland Facility

Port of Portland
Portland, Oregon 97209

July 2007

NEWFIELDS

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Phase II Pencil Pitch Investigation Report Terminal 4 Slip 3 Upland Facility

Port of Portland
Portland, Oregon 97209
July 2007

Respectfully submitted,

Amanda L. Spencer, R.G., P.E.
Principal, Ash Creek Associates

REGISTERED PROFESSIONAL ENGINEER
17,296
OREGON
JULY 19, 1994
MICHAEL W. STEVENS
EXPIRES JUNE 30, 2008

Michael W. Stevens, P.E.
Associate Engineer, Ash Creek Associates

NEWFIELDS

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Table of Contents

Section 1. Introduction 1-1

Section 2. Background 2-1

2.1 Facility Setting 2-1
2.2 Initial Observation of Pencil Pitch on River Bank and Limited Soil Removal 2-1
2.3 Visual Reconnaissance Surveys 2-1
2.4 Initial Characterization Sampling 2-2

Section 3. Field Investigations 3-1

3.1 Review of Historical Aerial Photographs 3-1
3.2 Soil Sampling Locations 3-1

Section 4. Analytical Results 4-1

Section 5. Recommendations 5-1

Section 6. References 6-1

Tables

1 Laboratory Analytical Results: Slip Bank Samples
2 Laboratory Analytical Results: River Bank Samples

Figures

1 Facility Location Map
2 Facility Vicinity Plan
3 Facility Site Conditions: 2002
4 Exploration Locations - Slip Bank Area
5 Exploration Locations - River Bank Area
6 PAH Concentrations - Slip Bank Area
7 PAH Concentrations - River Bank Area

Appendices

A Sampling and Analysis Plan
B Data QA/QC Review

1. Introduction

This report describes a second phase of characterization that was completed to assess the lateral and vertical extent of Polycyclic Aromatic Hydrocarbons (PAHs) associated with pencil pitch observed in riverbank soil in two areas of the Port of Portland (Port) Terminal 4 Slip 3 Upland Facility (the Facility; Figure 1). The characterization supplements the work described in the May 10, 2006 *Pencil Pitch Investigation Report* prepared by Ash Creek Associates/Newfields (ACA/Newfields, 2006a). The investigation was performed in general accordance with the *Pencil Pitch Investigation Work Plan, Terminal 4 Slip 3 Upland Facility*, (the Work Plan) dated September 2005 and the Addendum to the Work Plan dated November 2006 (the Addendum).

The work was conducted pursuant to a Voluntary Cleanup Program (VCP) Agreement between the Port and the Oregon Department of Environmental Quality (DEQ) dated June 27, 2002 (LQVC-NWR-02-1 [VCP Agreement]), an April 2003 Record of Decision (ROD) issued by the DEQ for the remediation of the Facility (DEQ, 2002 and DEQ, 2003, respectively), and an October 2004 Consent Judgment entered in Multnomah County Circuit Court. As required by the DEQ, the objective of the work was to determine whether pencil pitch or PAHs were present in potentially erodable soil along the riverbanks of the Facility (specifically in two identified bank areas), and to make recommendations for source control measures and/or further work, if needed.

The initial pencil pitch investigation, described in the May 2006 investigation report, did not fully define the extent of PAHs associated with pencil pitch in the River Bank or Slip Bank areas. This report discusses the results of a second phase of characterization performed to complete the investigation. The scope of work included the collection and analysis of additional soil samples at both areas to better define the horizontal and vertical extent of PAHs associated with pencil pitch in soil, and a review of historical aerial photographs to guide the final selection of sampling locations. Results were compared to applicable ecological or human health screening levels, and appropriate actions to address areas containing PAHs exceeding these levels are recommended.

2. Background

2.1 Facility Setting

The Facility is located at 11040 North Lombard Street in Portland, Oregon, along the east bank of the Willamette River, near river mile 5 (Figure 1). The Facility is generally flat at an average elevation of about 35 feet above mean sea level (MSL). The river water elevation is typically less than 10 feet above MSL and is subject to a mean tidal range of about 2 feet. Immediately east of the Facility, the ground surface rises at about a 15 percent grade to an elevation of about 100 feet. The riverbank components of the pencil pitch investigation areas slope steeply to the Willamette River. The layout of Terminal 4 (T4) is shown on Figure 2; the areas of the pencil pitch investigation are identified on the figure.

2.2 Initial Observation of Pencil Pitch on River Bank and Limited Soil Removal

Bank improvement activities were conducted in the fall of 2003 on the bank of the Willamette River in the southwestern portion of the Facility in conjunction with development activities at the adjacent Terminal 4 Auto Storage Area (T4 ASA). The area of the bank improvements and brush removal is shown on Figure 2. Pencil pitch was observed by the T4 ASA construction contractor during brush removal in a small area along the bank. DEQ was notified and approximately 50 cubic yards of soil with visible pencil pitch was excavated from the bank by the T4 ASA construction contractor. Fifty (50) cubic yards was the maximum amount that could be excavated on the riverbank within the existing project permits. The excavated soil containing pencil pitch was placed into roll-off containers and transported to the Hillsboro landfill for appropriate disposal. Pencil pitch was still observed in the area following the removal (referred to herein as the "River Bank area"). Confirmation samples were not collected because the Port understood that additional work would be required by the DEQ pursuant to the Terminal 4 Slip 3 VCP Agreement.

2.3 Visual Reconnaissance Surveys

Hart Crowser, as a consultant to the Port, visited the River Bank pencil pitch area on December 12, 2003, with Port personnel. The excavated area had been stabilized with jute cloth to prevent erosion. Small amounts of pencil pitch were observed in the soil outside of the area covered by the jute cloth, extending approximately 20 to 25 feet north and 100 feet south of the excavated area. The presence of the pencil pitch was observed to be bounded to the west (i.e., riverward) by rip-rap, to the east and north by a concrete wall. The southern extent of the pencil pitch could not be readily observed.

A second reconnaissance was completed by ACA and Port personnel on March 23, 2005. The survey of the bank started south of the area included in the December 2003 reconnaissance and continued north along the riverbank and around the perimeter of Slip 3 (the south and east banks). The survey included a visual scan of the ground surface but did not include disturbing the ground surface or dense vegetation. Discrete pencil pitch pieces were observed in two areas. The first area was the area noted during the December 2003 event (i.e., the River Bank area).

The second area was observed near the northeast corner of Slip 3 and is referred to herein as the "Slip Bank area". The Slip Bank area containing visible pencil pitch is relatively small and is bounded

to the west by rip-rap, to the north by a concrete wall and dock structures, to the east by the bank boundary, and to the south by the bank improvements made during the Bank Excavation and Backfill Remedial Action (BEBRA) at the Facility. The bank improvements of the BEBRA included covering the bank in jute cloth and planting native vegetation to stabilize the bank soil.

2.4 Initial Characterization Sampling

In November 2005, an investigation was completed in the River Bank and Slip Bank areas (ACA/Newfields, 2006a). The objective of the characterization was to define the horizontal and vertical extent of erodible soil containing PAHs at concentrations that could be of potential concern to the river. Concentrations of PAHs were detected above Probable Effects Concentrations (PECs) of the DEQ and EPA Portland Harbor Joint Source Control Strategy (JSCS) guidance document (DEQ/EPA, 2005) at the Slip Bank and the River Bank areas. The enrichment ratios (the ratio of the detected concentrations to the PEC) for PAH constituents in samples from the Slip Bank area ranged from 0.3 to 21.3 (ACA/Newfield, 2006a). The enrichment ratios for samples from the River Bank area ranged from 0.02 to 49. The extent of soil with PAH concentrations that exceeded PECs was not determined from the initial characterization results. Additional characterization sampling was recommended to define the extent sufficiently to assess appropriate remedial actions (ACA/Newfields, 2006b). Additional detail regarding the initial sampling and the chemical results is documented in the *Pencil Pitch Investigation Report* (ACA/Newfields, 2006a).

3. Field Investigations

This section describes the procedures used for selecting the sampling locations to complete the assessment of the lateral and vertical extent of the PAHs in soil associated with pencil pitch sufficient to assess what further actions, if any, were needed. Details regarding field procedures, chemical analytical methods, and quality assurance/quality control (QA/QC) are discussed in the Sampling and Analysis Plan (SAP) contained in Appendix A.

Soil samples for the second phase of investigation were collected from the Slip Bank and River Bank areas over three separate sampling events (February 1, March 6, and April 16, 2007). Following each event, the collected samples were submitted to the analytical laboratory to be analyzed for Total Petroleum Hydrocarbons (TPH) and PAHs (as described in Section 4). Based on an evaluation of the analytical data from each of the first two events, additional sampling was completed as necessary to define the extent of pencil pitch in each area. Prior to completing the final event in the Slip Bank area, a review of historical aerial photos was conducted to guide the selection of sample locations. The following describes the results of the historical aerial review and the selected sample locations.

3.1 Review of Historical Aerial Photographs

Results of the initial pencil pitch sampling indicated the presence of PAHs in Upland soil near the Slip Bank area at concentrations that exceeded DEQ's Risk-Based Concentrations (RBCs) for human receptors (DEQ, 2007). To better understand the possible lateral extent of PAHs in the Upland soil prior to completing soil sampling and analysis, historical aerial photographs were reviewed. The review of the aerial photographs identified areas at the Facility that were unpaved during the time period of the pencil pitch handling operations. Surface soil in areas covered by pavement or buildings during the time period of pencil pitch handling would not contain PAHs from pencil pitch.

Results of the aerial photograph review support that much of the area around Slip 3 had been paved or covered with buildings throughout the time period of pencil pitch handling at the Facility, which occurred from 1978 to 1998. As stated above, it is expected that these areas would not have been impacted by the historical handling of pencil pitch. Figure 3 shows the site conditions around the Slip Bank area in 2002 and is representative of the paved and unpaved areas on the east side of the slip dating back to at least the early 1950s. As shown on the figure, the extent of unpaved surfaces was apparently limited to the area immediately at the head of Slip 3, including the former Quaker State tank yard. On the south side of the slip, the area was (and remains) paved up to the top of the Slip Bank. Based on this evaluation, the Upland soil sampling was limited to the areas at the head of Slip 3 that were unpaved at the time of the pencil pitch handling, as identified on Figure 3.

3.2 Soil Sampling Locations

Figures 4 and 5 are site plans for the Slip Bank and River Bank areas, respectively, showing the sampling locations completed in each area during both the first and second phases of investigation; Figure 2 shows the locations of the Slip and River Bank areas at the Facility. The locations of these explorations were selected based on the results of the preceding sampling and analysis event and the physical limitations described in Section 3.1.

Slip Bank Area. As shown on Figure 4, a total of 15 explorations were advanced in this area (over three sampling events) during the second phase of investigation. Explorations SB-11 through SB-15 were completed on February 1, 2007. Explorations SB-18 through SB-22 were completed on March 6, 2007. Explorations SB-24 through SB-27 were completed on April 16, 2007.

River Bank Area. Thirteen explorations were advanced in the River Bank area during the second phase of the investigation (Figure 5). Explorations SB-1 through SB-10 were completed on February 1, 2007, and explorations SB-16, SB-17, and SB-23 were completed on March 6, 2007.

3.2.1 Investigation-Derived Waste

Investigation-derived waste (IDW) consisted of decontamination water and personal protection equipment (PPE) and supplies. IDW water was placed in Department of Transportation (DOT)-approved drums and stored at an approved location at the Facility pending proper disposal. PPE and supplies were disposed of as solid waste.

4. Analytical Results

The collected soil samples were analyzed for TPH (by Method NWTPH-Dx with Silica Gel Cleanup) and PAHs (by EPA Method 8270M-SIM). The analytical data are summarized in Table 1 (Slip Bank area) and Table 2 (River Bank area). The laboratory report with a data quality review is included in Appendix B. The tables also list the appropriate screening levels and contain the results of the first phase of the investigation. Samples from erodible areas (e.g., on the River or Slip Banks up to the top of bank) were compared to the JSCS PECs for each of the PAH compounds (Upland soil toxicity as shown on Table 3-1; DEQ/EPA, 2005). Samples from the Upland area of Slip 3 were compared to DEQ RBCs for surface soil ingestion, dermal contact, and inhalation by human receptors (DEQ, 2007). With the exception of samples collected from the Slip Bank area below top of bank during the first phase of investigation, samples from the Slip Bank area were not compared to PECs because soil inland of the top of bank cannot reach the slip or river (ACA/Newfields, 2007b).

Slip Bank Upland Soil Samples. All of the samples collected from the Slip Bank area during the second phase of investigation were collected from Upland soil. As shown on Figure 6, with the exception of two locations in the southern slip area (SB-25 and SB-26), samples collected in shallow (i.e., less than 3 feet) Upland soils contained PAHs at concentrations exceeding one or more RBC. With the exception of the southernmost sampling locations, PAH concentrations were relatively comparable between the surface (i.e., samples collected between 0 and 12 inches) and 2-foot depth samples, and in places, the 2-foot depth samples contained the higher concentrations. Concentrations decreased dramatically by a depth of 5 feet below grade. Samples collected at a depth of 5-feet did not contain PAH concentrations above RBCs (Table 2).

River Bank Soil Samples. The distribution of PAHs detected in the River Bank soil samples is shown on Figure 7. The figure includes total PAH concentrations and the color-scale illustration of relative magnitude of PAH concentrations to PECs. As shown on the Figure, one or more PAHs exceeded the relevant PEC at each location.

Exceedances along the River Bank area were highest in the vicinity of RB-1 and RB-2 (with total PAH concentrations as high as 552 milligrams per kilogram [mg/kg] and 14 of 16 PAH constituents encountered at concentrations above their respective PECs). Beyond these two samples, concentrations were significantly lower but varied across the study area. Although concentrations were less in the deeper samples (Table 2), one or more PAH concentrations exceeded the relevant PEC.

5. Recommendations

Slip Bank Area. Results of the investigations indicate that shallow soil in Upland areas that were unpaved at the time of the pencil pitch handling operations contain PAHs at concentrations above DEQ RBCs for human receptors. Based on the results of the first phase of investigation, Slip Bank soil contains visible pencil pitch and PAHs in the southeast corner (Figure 6).

It is recommended that a source control action be conducted in the northeast Slip Bank area to remove soil containing visible pencil pitch. The action should remove the upper 2 feet of soil, replace the soil with clean fill and rip-rap, and stabilize the bank consistent with the adjacent BEBRA construction. To address the soil encountered Upland of the bank containing PAHs at concentrations above RBCs, it is recommended that the CAAMP required by the ROD include methods and procedures for the appropriate management of the Upland soil containing PAHs, including capping the impacted area to minimize and manage human contact. Capping with asphalt pavement would be suitable for this purpose and would be compatible with the anticipated use of this area of the Facility.

River Bank Area. The distribution of PAHs associated with pencil pitch along the River Bank area between the Toyota redevelopment and Slip 3 has been defined as part of this work. The area contains several PAHs that exceed screening criteria and is proximal to the river. A source control action may be needed for this area and a Source Control Measures Alternatives Evaluation similar to the scope of the evaluation conducted for the banks of Wheeler Bay located to the north (ACA/Newfields, 2007b) is recommended.

6. References

Ash Creek/Newfields, 2006a. Pencil Pitch Investigation Report, Terminal 4 Slip 3 Upland Facility. May 11, 2006.

Ash Creek/Newfields, 2006b. Addendum to the Pencil Pitch Investigation Work Plan, Terminal 4 Slip 3 Upland Facility. November 2006.

Ash Creek/Newfields, 2007a. Source Control Alternative Evaluation, Terminal 4 Slip 1 Upland Facility Operable Unit 2. February 22, 2007.

Ash Creek/Newfields, 2007b. Stormwater Evaluation Work Plan, Terminal 4 Slip1 and Slip 3. June 7, 2007.

BBL/Ash Creek/Newfields, 2005. Pencil Pitch Investigation Work Plan, Terminal 4 Slip 3 Upland Facility. September 28, 2005.

DEQ, 2002. Voluntary Cleanup Program Agreement, Terminal 4 Slip 3 Upland. June 27, 2002.

DEQ, 2003. Record of Decision, Port of Portland Terminal 4 Slip 3 Upland. April 7, 2003.

DEQ, 2004a. Pencil Pitch and Storm Water Investigations Letter, Port of Portland Terminal 4/Slip 3 Upland Facility. April 28, 2004.

DEQ, 2004b. Comments on Pencil Pitch Investigation Work Plan, Port of Portland Terminal 4/Slip 3 Upland. July 17, 2004

DEQ and EPA, 2005. Portland Harbor Joint Source Control Strategy. December 2005.

Table 1
Laboratory Analytical Results: Slip Bank Samples
Pencil Pitch Characterization
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Sample ID	Date Collected	Sample Depth [feet]	Concentration in mg/kg (ppm)																				
			Total Petroleum Hydrocarbons		Polynuclear Aromatic Hydrocarbons (PAHs)																Total PAHs		
			Diesel	Heavy-Oil	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(ghi) perylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	Total	cPAHs	% cPAHs
Pencil Pitch Standard																							
Pencil Pitch	11/16/2005	NA	--	--	< 3,850	< 3,850	< 3,850	**8,420**	**13,400**	**11,000**	**9,360**	**9,350**	**8,440**	< 3,850	**11,200**	< 3,850	**8,740**	< 3,850	**6,100**	**10,700**	108,260	61,275	56.6%
Slip Bank Samples (Bank)																							
T4S3PP-SB5-2.0	11/16/2005	2	--	--	**0.582**	< 0.0155	**0.673**	**4.51**	**3.90**	**4.75**	**2.37**	**3.06**	**4.40**	**1.16**	**6.46**	**0.549**	**2.27**	**0.111**	**4.18**	**4.86**	--	--	--
				PEC	0.30	0.20	0.845	1.05	1.45	--	0.30	13.0	1.29	1.30	2.23	0.536	0.10	0.561	1.17	1.52			
Slip Bank Samples (Upland)																							
T4S3PP-SB1-2.0	11/16/2005	2	--	--	**2.56**	< 0.285	**2.33**	**21.5**	**24.1**	**23.5**	**15.2**	**18.7**	**20.1**	**6.48**	**28.1**	**0.831**	**13.8**	**0.383**	**10.2**	**24.3**	212	128	60.4%
T4S3PP-SB2-2.0	11/16/2005	2	--	--	**0.758**	< 0.155	**0.757**	**7.87**	**9.08**	**9.76**	**5.79**	**6.52**	**7.85**	**2.39**	**11.3**	**0.309**	**5.21**	**0.162**	**3.63**	**9.38**	80.8	48.7	60.2%
T4S3PP-SB3-2.0	11/16/2005	2	--	--	**0.0343**	< 0.0165	**0.0343**	**0.299**	**0.386**	**0.304**	**0.180**	**0.256**	**0.366**	**0.0506**	**0.483**	**0.0182**	**0.176**	**0.0213**	**0.182**	**0.484**	3.28	1.84	56.0%
T4S3PP-SB4-2.0	11/16/2005	2	--	--	**0.273**	< 0.0154	**0.409**	**2.54**	**2.76**	**2.96**	**1.87**	**2.00**	**2.38**	**0.78**	**3.68**	**0.102**	**1.69**	**0.0567**	**1.64**	**2.96**	26.1	15.1	57.9%
T4S3PP-SB6-2.0	11/16/2005	2	--	--	**1.86**	< 0.314	**1.67**	**18.8**	**20.7**	**22.8**	**13.0**	**15.1**	**18.5**	**5.63**	**28.7**	**1.04**	**11.8**	**0.325**	**9.33**	**23.0**	192	113	58.9%
SB-11-0.5	2/1/2007	0.5	**173**	**402**	< 2.92	< 2.92	< 2.92	**27.8**	**34.7**	**31.7**	**25.7**	**27.2**	**29.6**	**8.26**	**36.0**	< 2.92	**23.9**	< 2.92	**13.1**	**32.5**	298	183	61.5%
SB-11-2.5	2/1/2007	2.5	**353**	**1,160**	**5.10**	< 3.09	**4.74**	**36.4**	**40.7**	**38.2**	**28.3**	**30.2**	**40.4**	**9.57**	**57.8**	< 3.09	**25.9**	< 3.09	**24.2**	**46.5**	393	221	56.4%
SB-12-0.5	2/1/2007	0.5	**73.4**	**151**	**0.896**	< 0.375	**0.820**	**5.73**	**6.69**	**5.95**	**4.47**	**5.14**	**5.74**	**1.49**	**8.17**	< 0.375	**4.25**	< 0.375	**3.40**	**6.84**	60.1	35.0	58.2%
SB-12-2.5	2/1/2007	2.5	**517**	**853**	**9.04**	< 2.99	**7.79**	**55.3**	**67.9**	**65.3**	**47.2**	**50.2**	**58.8**	**16.2**	**84.9**	**3.66**	**44.1**	< 2.99	**35.3**	**64.3**	613	358	58.4%
SB-12D-5	3/6/2007	5	**39.4**	**59.1**	< 0.0148	< 0.0148	< 0.0148	**0.0957**	**0.106**	**0.124**	**0.0647**	**0.0712**	**0.0845**	**0.0204**	**0.128**	< 0.0148	**0.061**	< 0.0148	**0.0554**	**0.132**	0.980	0.563	57.4%
SB-13-0.5	2/1/2007	0.5	**204**	**680**	< 2.98	< 2.98	< 2.98	**12.6**	**15.0**	**13.8**	**10.8**	**12.0**	**13.1**	**3.37**	**17.6**	< 2.98	**9.83**	< 2.98	**7.72**	**15.4**	139	79.7	57.5%
SB-13-2.5	2/1/2007	2.5	**2,090**	**4,410**	< 2.94	< 2.94	< 2.94	< 2.94	**3.22**	**2.94**	< 2.94	< 2.94	**3.11**	< 2.94	**4.29**	< 2.94	< 2.94	< 2.94	< 2.94	**3.56**	33.3	15.2	45.5%
SB-14-0.5	2/1/2007	0.5	**39.7**	**88.8**	< 3.02	< 3.02	< 3.02	**6.84**	**8.01**	**7.08**	**5.96**	**6.32**	**7.02**	< 3.02	**9.20**	< 3.02	**5.40**	< 3.02	**3.91**	**8.38**	77.2	42.2	54.7%
SB-14-2.4	2/1/2007	2.4	**78.9**	**176**	< 3.03	< 3.03	< 3.03	**12.9**	**14.7**	**12.7**	**10.6**	**11.3**	**12.8**	**3.36**	**17.6**	< 3.03	**9.81**	< 3.03	**7.72**	**15.0**	136	77.6	57.0%
SB-15-0.5	2/1/2007	0.5	**29.0**	**85.8**	< 3.04	< 3.04	< 3.04	**5.71**	**7.04**	**6.74**	**5.65**	**5.55**	**6.04**	< 3.04	**7.50**	< 3.04	**4.96**	< 3.04	< 3.04	**6.97**	66.8	37.6	56.2%
SB-15-2.8	2/1/2007	2.8	< 13.9	< 27.9	< 0.0147	< 0.0147	< 0.0147	**0.0686**	**0.0865**	**0.0803**	**0.0737**	**0.0671**	**0.0774**	**0.0199**	**0.100**	< 0.0147	**0.0624**	< 0.0147	**0.0394**	**0.0906**	0.803	0.462	57.6%
SB-18D-0.5	3/6/2007	0.5	**166**	**366**	< 2.95	< 2.95	< 2.95	**7.40**	**8.52**	**10.7**	**5.15**	**5.47**	**6.62**	< 2.95	**9.00**	< 2.95	**5.09**	< 2.95	**3.34**	**9.03**	79.2	45.3	57.2%
SB-18D-5	3/6/2007	5	**44.4**	**97.8**	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	< 0.0153	0.122	0.0536	43.8%
SB-19-0.5	3/6/2007	0.5	**107**	**233**	< 0.779	< 0.779	< 0.779	**7.06**	**7.95**	**9.78**	**4.77**	**5.06**	**6.40**	**1.91**	**8.90**	< 0.779	**4.80**	< 0.779	**3.17**	**8.73**	70.5	43.0	61.0%
SB-19-2.5	3/6/2007	2.5	**82.6**	**167**	**0.0343**	< 0.0149	**0.0317**	**0.256**	**0.277**	**0.296**	**0.150**	**0.204**	**0.215**	**0.0563**	**0.315**	< 0.0149	**0.152**	< 0.0149	**0.134**	**0.317**	2.46	1.46	59.2%
SB-20-0.5	3/6/2007	0.5	**17.9**	**43.3**	< 0.743	< 0.743	< 0.743	**3.23**	**3.70**	**4.12**	**22.4**	**2.82**	**2.95**	**0.822**	**4.04**	< 0.743	**2.25**	< 0.743	**1.47**	**4.01**	53.7	19.9	37.1%
SB-20-2.5	3/6/2007	2.5	< 13.9	< 27.8	< 0.752	< 0.752	< 0.752	**2.11**	**2.42**	**2.72**	**1.38**	**1.73**	**1.91**	< 0.752	**2.59**	< 0.752	**1.41**	< 0.752	**0.999**	**2.59**	22.1	12.7	57.3%
SB-21-0.5	3/6/2007	0.5	**34.2**	**71.9**	< 1.53	< 1.53	< 1.53	**4.06**	**4.33**	**5.34**	**2.59**	**3.17**	**3.60**	< 1.53	**5.18**	< 1.53	**2.65**	< 1.53	**2.15**	**5.05**	42.7	23.9	56.0%
SB-22-0.5	3/6/2007	0.5	**126**	**200**	< 2.90	< 2.90	< 2.90	**11.5**	**13.7**	**16.7**	**9.13**	**9.31**	**10.2**	**3.28**	**13.3**	< 2.90	**8.80**	< 2.90	**5.01**	**14.2**	122	73.5	60.1%
SB-24-1	4/16/2007	1	**38.8**	**241**	< 0.691	< 0.691	< 0.691	**1.91**	**2.75**	**2.88**	**2.82**	**2.11**	**2.24**	**1.01**	**2.26**	< 0.691	**2.49**	< 0.691	**0.916**	**2.53**	25.6	15.4	60.0%
SB-24-2	4/16/2007	2	< 13.6	< 27.1	< 0.288	< 0.288	< 0.288	**1.80**	**2.51**	**2.78**	**2.22**	**1.77**	**2.09**	**0.66**	**2.30**	< 0.288	**2.00**	< 0.288	**0.956**	**2.77**	22.6	13.6	60.3%
SB-25-1	4/16/2007	1	**21.6**	**138**	< 0.293	< 0.293	< 0.293	**1.72**	**2.35**	**2.63**	**2.04**	**1.69**	**2.01**	**0.82**	**2.28**	< 0.293	**1.84**	< 0.293	**0.926**	**2.72**	21.8	13.1	60.0%
SB-25-2	4/16/2007	2	< 13.3	< 26.7	< 0.0142	< 0.0142	< 0.0142	**0.0891**	**0.134**	**0.158**	**0.136**	**0.109**	**0.111**	**0.0452**	**0.117**	< 0.0142	**0.112**	< 0.0142	**0.0518**	**0.154**	1.25	0.758	60.5%
SB-26-1	4/16/2007	1	**28.3**	**210**	< 0.370	< 0.370	< 0.370	**0.447**	**0.670**	**0.630**	**0.679**	**0.531**	**0.548**	< 0.370	**0.635**	< 0.370	**0.520**	< 0.370	< 0.370	**0.699**	6.65	3.53	53.1%
SB-26-2	4/16/2007	2	**849**	**5,150**	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	< 0.714	5.71	2.50	43.8%
SB-27-1	4/16/2007	1	**18.4**	**167**	< 0.297	< 0.297	< 0.297	**1.18**	**1.69**	**1.71**	**1.59**	**1.25**	**1.33**	**0.594**	**1.55**	< 0.297	**1.39**	< 0.297	**0.651**	**1.77**	15.4	9.14	59.2%
SB-27-2	4/16/2007	2	**32.2**	**111**	< 0.295	< 0.295	< 0.295	**1.49**	**2.10**	**2.45**	**1.82**	**1.38**	**1.72**	**0.667**	**1.96**	< 0.295	**1.59**	< 0.295	**0.769**	**2.33**	19.0	11.4	59.9%
				RBC	16,000	--	90,000	2.7	0.27	2.7	--	27	270	0.27	8,900	12,000	2.7	710	--	6,700			

Notes:
Bold values represent detected concentrations of listed analyte.
Shaded values represent concentrations of analyte that exceed relevant RBC for upland soil or the PEC for erodible soil.
PEC = Joint Source Control Strategy (JSCS) Probable Effect Concentration.
RBC = Department of Environmental Quality Risk Based Concentration (lower of Construction Worker and Occupational exposure for soil ingestion, dermal contact, and inhalation).

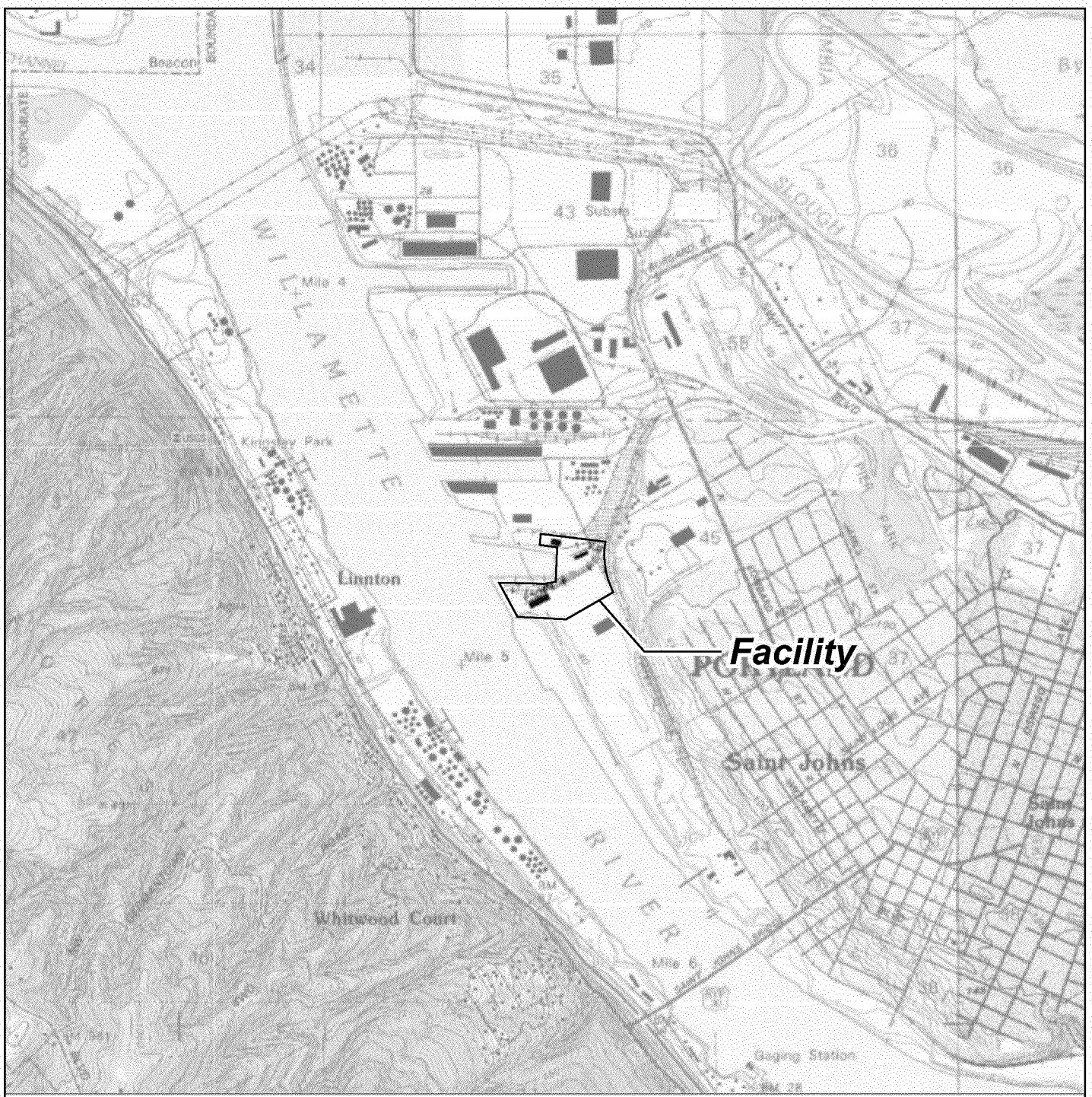
KMB00006814

Table 2
Laboratory Analytical Results: River Bank Samples
Pencil Pitch Characterization
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Sample ID	Date Collected	Sample Depth [feet]	Concentration in mg/kg (ppm)																
			Total Petroleum Hydrocarbons		Polynuclear Aromatic Hydrocarbons (PAHs)														
			Diesel	Heavy-Oil	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(ghi) perylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene
Pencil Pitch Standard																			
Pencil Pitch	11/16/2005	NA	--	--	< 3,850	< 3,850	< 3,850	**8,420**	**13,400**	**11,000**	**9,360**	**9,350**	**8,440**	< 3,850	**11,200**	< 3,850	**8,740**	< 3,850	**6,100**	**10,700**
River Bank Samples																			
T4S3PP-RB1-0.5	11/17/2005	0.5	--	--	**6.37**	< 0.373	**8.35**	**51.3**	**50.5**	**60.7**	**29.4**	**41.3**	**54.0**	**14.0**	**90.6**	**3.68**	**28.3**	**1.82**	**48.6**	**63.1**
T4S3PP-RB2-0.5	11/17/2005	0.5	--	--	**3.98**	< 0.314	**5.42**	**35.7**	**36.0**	**45.3**	**22.6**	**27.9**	**38.3**	**10.4**	**59.1**	**2.67**	**21.2**	**0.675**	**32.5**	**44.1**
T4S3PP-RB3-0.5	11/17/2005	0.5	--	--	**0.107**	< 0.0153	**0.107**	**1.11**	**1.30**	**1.46**	**0.858**	**1.02**	**1.18**	**0.370**	**1.73**	**0.0608**	**0.779**	< 0.0153	**0.672**	**1.32**
T4S3PP-RB4-1.0	11/17/2005	1	--	--	**0.0186**	< 0.0146	**0.0204**	**0.212**	**0.277**	**0.257**	**0.112**	**0.214**	**0.279**	**0.0364**	**0.343**	< 0.0146	**0.114**	< 0.0146	**0.141**	**0.308**
T4S3PP-RB5-1.0	11/17/2005	1	--	--	**0.198**	< 0.0156	**0.307**	**1.99**	**2.12**	**2.91**	**1.40**	**1.40**	**2.17**	**0.612**	**3.42**	**0.133**	**1.28**	**0.0288**	**1.76**	**2.42**
T4S3PP-RB6-1.0	11/17/2005	1	--	--	< 0.0149	< 0.0149	< 0.0149	**0.0235**	**0.0326**	**0.0293**	< 0.0149	**0.0258**	**0.0312**	< 0.0149	**0.0351**	< 0.0149	< 0.0149	< 0.0149	**0.015**	**0.0357**
SB-1-0.5	2/1/2007	0.5	**108**	**496**	< 2.83	< 2.83	< 2.83	**6.36**	**7.60**	**5.57**	**7.71**	**5.59**	**7.85**	< 2.83	**11.8**	< 2.83	**5.68**	< 2.83	< 2.83	**16.7**
SB-1-3	2/1/2007	3	< 69.9	**388 J**	< 0.075	**0.141 J**	**0.165 J**	**1.73 J**	**2.05 J**	**2.15 J**	**1.57 J**	**1.34 J**	**1.76 J**	**0.283 J**	**2.72 J**	< 0.075	**1.28 J**	**0.0763 J**	**0.462 J**	**3.10 J**
SB-2-0.5	2/1/2007	0.5	< 13.5	< 27.0	< 0.0738	< 0.0738	< 0.0738	**0.300**	**0.383**	**0.379**	**0.467**	**0.335**	**0.380**	**0.094**	**0.468**	< 0.0738	**0.373**	< 0.0738	**0.165**	**0.474**
SB-3-2.5	2/1/2007	2.5	< 14.7	< 29.3	< 0.077	< 0.077	< 0.077	**0.102**	**0.142**	**0.120**	**0.147**	**0.0965**	**0.120**	< 0.077	**0.181**	< 0.077	**0.107**	< 0.077	< 0.077	**0.202**
SB-4-3.0	2/1/2007	3	**297**	**520**	**4.48**	< 3.03	**4.51**	**27.1**	**28.5**	**29.6**	**20.3**	**23.3**	**30.8**	**7.43**	**46.9**	< 3.03	**19.1**	< 3.03	**24.8**	**33.7**
SB-5-0.5	2/1/2007	0.5	< 14.7	**147**	< 0.779	< 0.779	< 0.779	**1.21**	**1.39**	**1.39**	**1.09**	**1.09**	**1.42**	< 0.779	**1.87**	< 0.779	**0.944**	< 0.779	< 0.779	**1.60**
SB-6-0.5	2/1/2007	0.5	< 13.7	**60.2**	< 0.0736	< 0.0736	< 0.0736	**0.134**	**0.181**	**0.173**	**0.188**	**0.147**	**0.209**	< 0.0736	**0.196**	< 0.0736	**0.149**	< 0.0736	**0.130**	**0.236**
SB-7-0.5	2/1/2007	0.5	< 13.8	< 27.6	< 0.0735	< 0.0735	< 0.0735	**0.184**	**0.226**	**0.213**	**0.180**	**0.201**	**0.205**	< 0.0735	**0.256**	< 0.0735	**0.163**	< 0.0735	**0.0974**	**0.227**
SB-8-0.5	2/1/2007	0.5	< 13.9	< 27.8	< 0.0732	< 0.0732	< 0.0732	**0.0857**	**0.121**	**0.109**	**0.180**	**0.0981**	**0.0994**	< 0.0732	**0.122**	< 0.0732	**0.132**	< 0.0732	< 0.0732	**0.129**
SB-9-0.5	2/1/2007	0.5	< 13.9	**37.6**	< 0.072	< 0.072	**0.0966**	**0.891**	**1.16**	**1.00**	**0.961**	**0.886**	**0.894**	**0.246**	**1.42**	< 0.072	**0.856**	< 0.072	**0.481**	**1.19**
SB-10-0.5	2/1/2007	0.5	**19.8**	**221**	< 0.573	< 0.573	< 0.573	< 0.573	**0.688**	**0.710**	< 0.573	< 0.573	**0.643**	< 0.573	**0.806**	< 0.573	< 0.573	< 0.573	< 0.573	**0.717**
SB-16-0.5	3/6/2007	0.5	**59.9**	**378**	< 0.480	< 0.480	< 0.480	**0.658**	**0.663**	**1.15**	< 0.480	**0.596**	**0.829**	< 0.480	**0.847**	< 0.480	< 0.480	< 0.480	< 0.480	**0.829**
SB-17-0.5	3/6/2007	0.5	< 14.0	< 28.0	< 0.146	< 0.146	< 0.146	**0.187**	**0.205**	**0.242**	**0.147**	**0.170**	**0.179**	< 0.146	**0.261**	< 0.146	< 0.146	< 0.146	< 0.146	**0.271**
SB-23-0.5	3/6/2007	0.5	**91.3**	**569**	< 1.48	< 1.48	< 1.48	< 1.48	< 1.48	**2.22**	< 1.48	< 1.48	**1.51**	< 1.48	**1.48**	< 1.48	< 1.48	< 1.48	< 1.48	**1.51**
				PEC	0.30	0.20	0.845	1.05	1.45	--	0.30	13.0	1.29	1.30	2.23	0.536	0.10	0.561	1.17	1.52

Notes:
Bold values represent detected concentrations of listed analyte.
Shaded values represend concentrations of analyte that exceed relevant PEC.
PEC = Joint Source Control Strategy (JSCS) Probable Effect Concentration.

KMB00006815



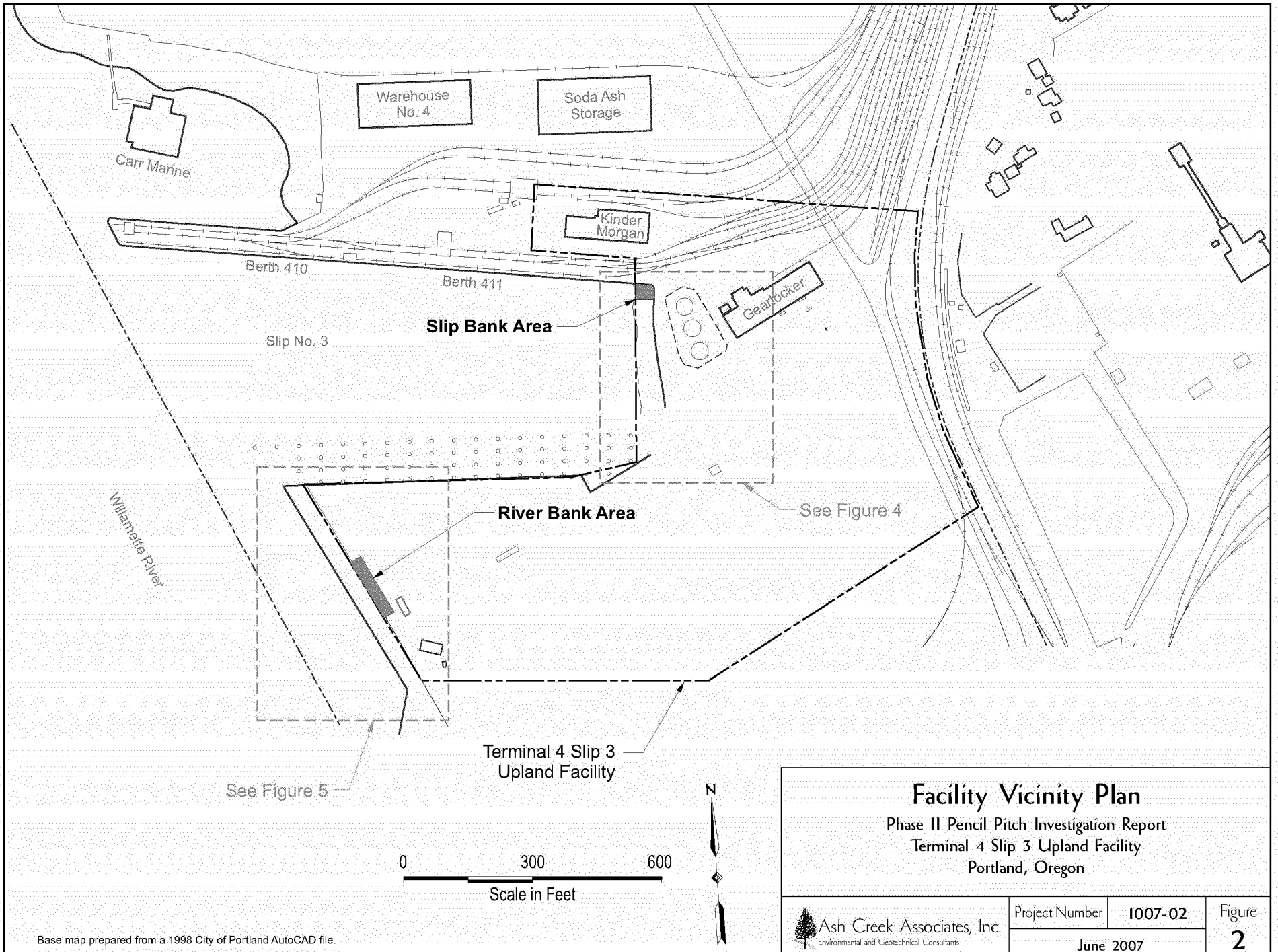
Base map prepared from USGS 7.5-minute quadrangles as provided by TerraServer.

Facility Location Map

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number 1007-02	Figure 1
	June 2007	

KMB00006816



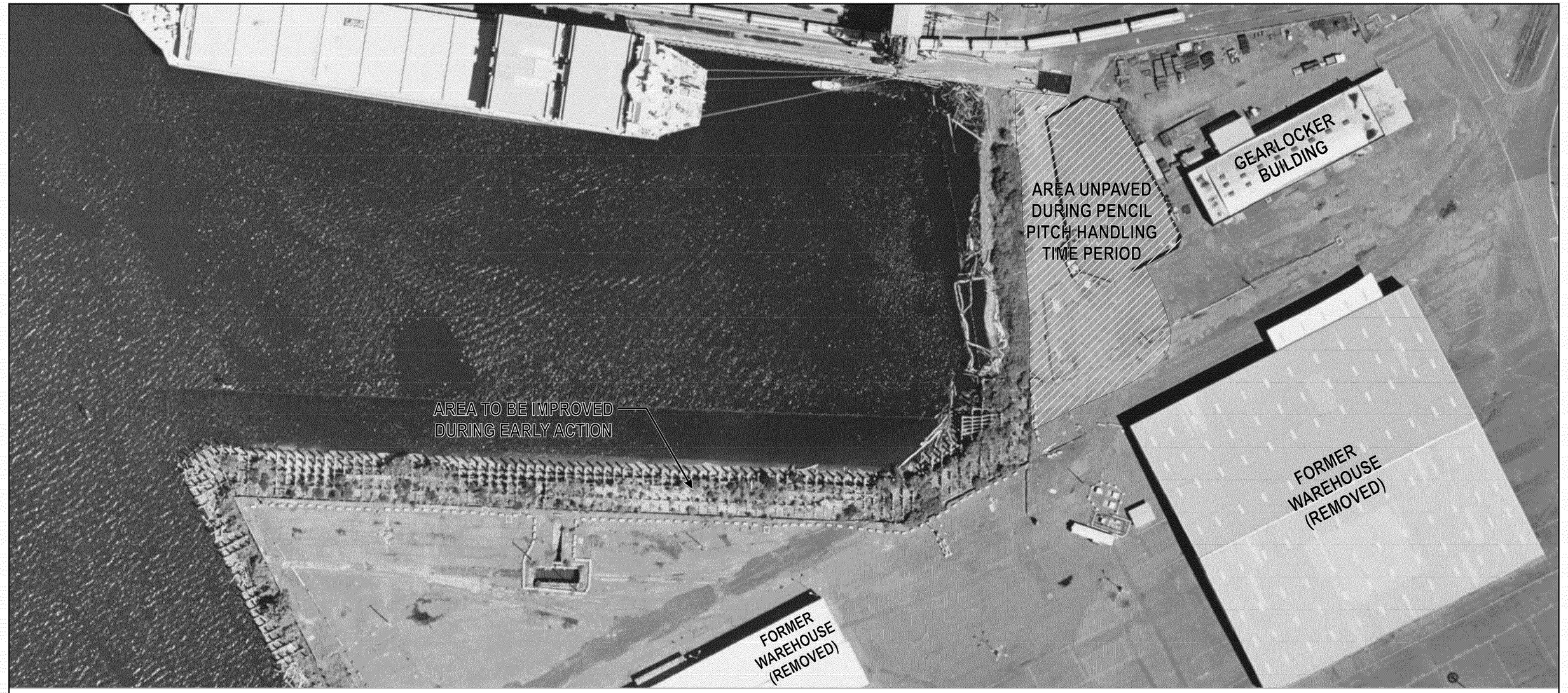
Base map prepared from a 1998 City of Portland AutoCAD file.

Facility Vicinity Plan

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number	1007-02	Figure 2
	June 2007		

KMB00006817



0 100 200
Scale in Feet

N

Aerial Photograph from PortlandMaps: 2002

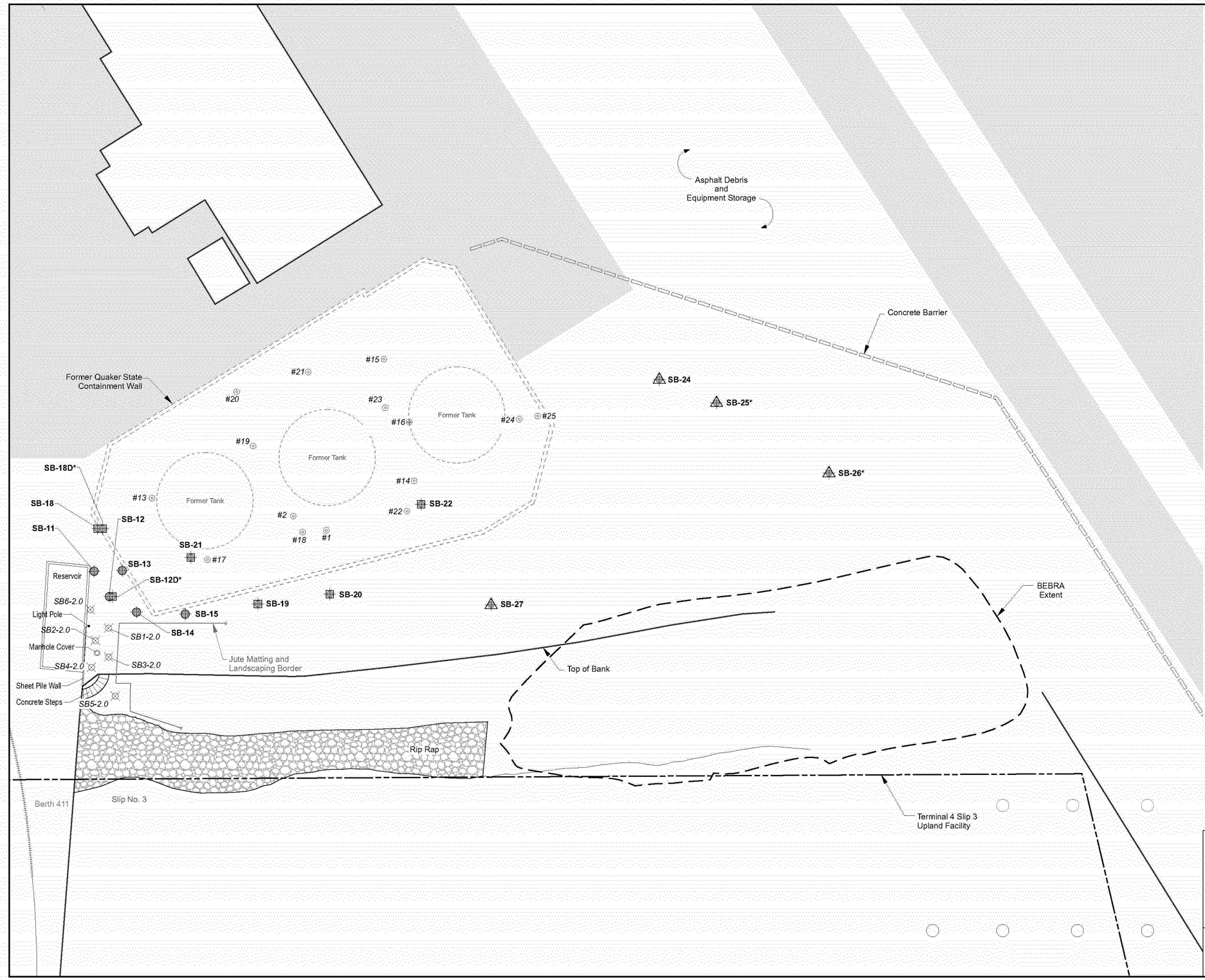
Facility Site Conditions: 2002

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Project Number	1007-02	Figure
June 2007		3

KMB00006818



Legend:

- SB-1 ⊕ Phase II Soil Exploration Location
  - ○ February 2007
  - □ March 2007
  - △ April 2007
- RB4-1.0 ⊠ Phase I Soil Exploration Location (November 2005)
- #2 ◎ Historical Surface Soil Exploration Location
- #16 ⊕ Historical Subsurface Soil Exploration Location
- Paved Area

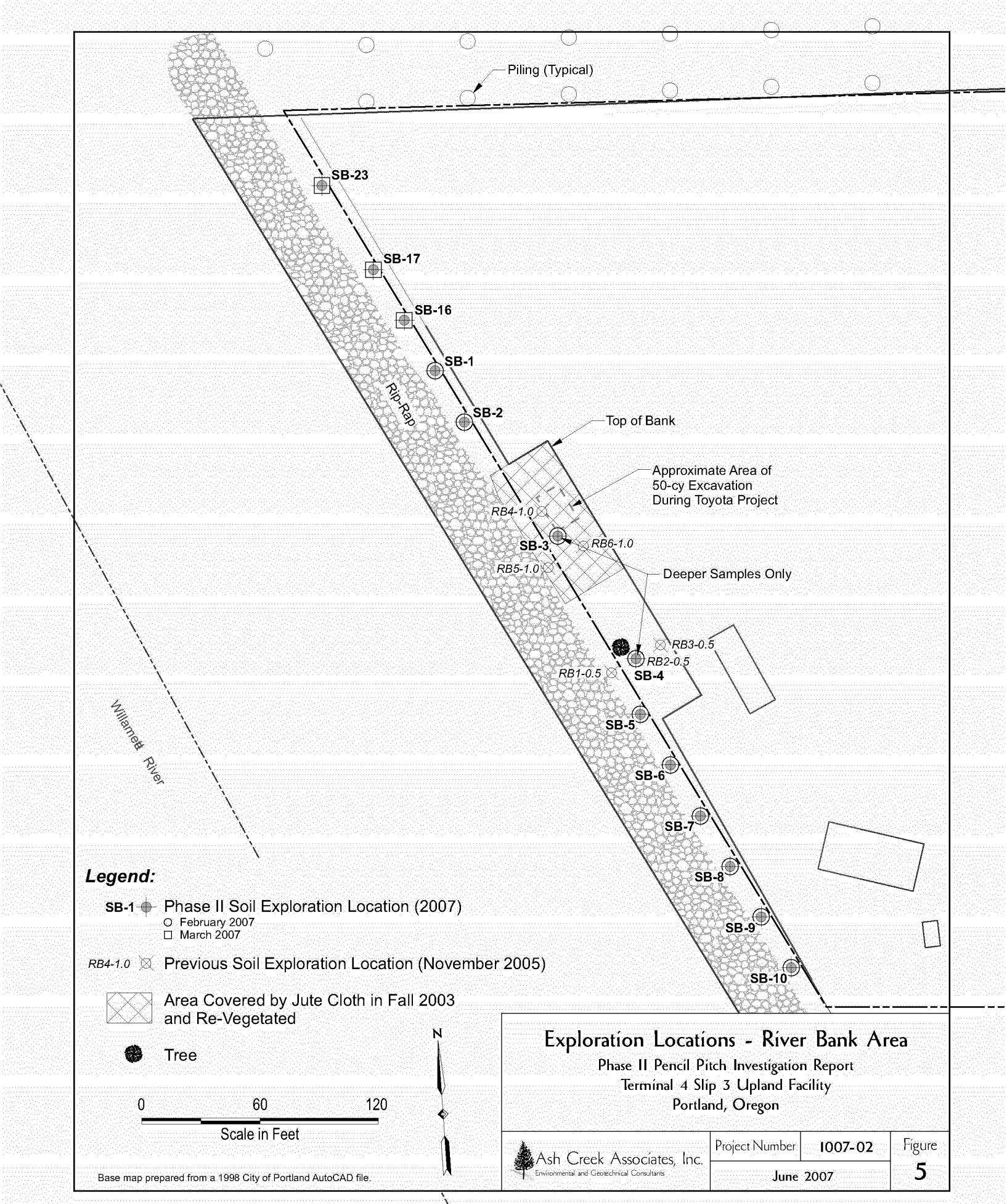
Base map prepared from a 1998 City of Portland AutoCAD file.

Exploration Locations - Slip Bank Area

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number 1007-02	Figure 4
	June 2007	

KMB00006819



Exploration Locations - River Bank Area

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number 1007-02	Figure 5
	June 2007	

KMB00006820

Asphalt Debris and Equipment Storage

Concrete Barrier

Former Quaker State Containment Wall

Former Tank

Former Tank

Former Tank

Reservoir

Slip Bank Area

Jute Matting and Landscaping Border

Top of Bank

BEBRA Extent

Rip Rap

Berth 411

Slip No. 3

Terminal 4 Slip 3 Upland Facility

SB-18D* 79 (0.5) 0.12 (5.0)

SB-18 79.2 (0.5)

SB-11 298 (0.5) 393 (2.5)

SB-12 60.1 (0.5) 613 (2.5)

SB-13 139 (0.5) 33.3 (2.5)

SB-12D* 0.98 (5.0)

SB6-2.0 192 (2.0)

SB2-2.0 88.8 (2.0)

SB4-2.0 26.1 (2.0)

SB1-2.0 212 (2.0)

SB3-2.0 3.28 (2.0)

SB5-2.0 43.8 (2.0)

SB-14 77.2 (0.5) 136 (2.4)

SB-15 66.8 (0.5) 0.80 (2.8)

SB-21 42.7 (0.5)

SB-19 70.5 (0.5) 2.46 (2.5)

SB-20 53.7 (0.5) 22.1 (2.5)

SB-22 122 (0.5)

SB-24 25.6 (1.0) 22.6 (2.0)

SB-25* 21.8 (1.0) 1.25 (2.0)

SB-26* 6.65 (1.0) 5.71 (2.0)

SB-27 15.4 (1.0) 19.0 (2.0)

#1 3.3 (0.5-3)

#2 12.22 (0.5-3) 1.84 (1.5-2)

#13 0.93 (1-1.5)

#14 6.28 (1-1.5)

#15 2.4 (1-1.5)

#16 1.31 (3-3.5)

#17 7.14 (0-1)

#18 14.1 (0-1)

#19 7.67 (0-1)

#20 6.17 (0-1)

#21 7.83 (0-1)

#22 3.03 (0-1)

#23 1.78 (0-1)

#24 3.43 (0-1)

#25 0.93 (0-1)

Legend:

SB-1 — Soil Exploration Location (March 2007)

15.6 (0.5) — Total PAHS in mg/kg and (Depth in Feet)

3.3 (0-1) — Total PAHS (Former Quaker State Area) in mg/kg and (Depth in Feet)

RB4-1.0 — Soil Exploration Location (November 2005)

#2 — Historical Surface Soil Exploration Location

#16 — Historical Subsurface Soil Exploration Location

Paved Area

Color in Symbol Reflects Number of Constituents Exceeding PEC/RBC (Based on Color Code Below)
(Locations at which two depths were sampled is coded such that the Upper Half is for Shallow Sample and Lower Half is for Deeper Sample)

Highlight	Number of PECs/RBCs Exceeded
●	13-16
●	9-12
○	6-8
●	3-5
●	1-2
○	0

Notes:
PECs Applied to All Samples West of Top of Bank.
PEC = JSCS Probable Effect Concentration
RBC = DEQ Risk Based Concentration

N

0 40 80
Scale in Feet

Base map prepared from a 1998 City of Portland AutoCAD file.

PAH Concentrations - Slip Bank Area

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

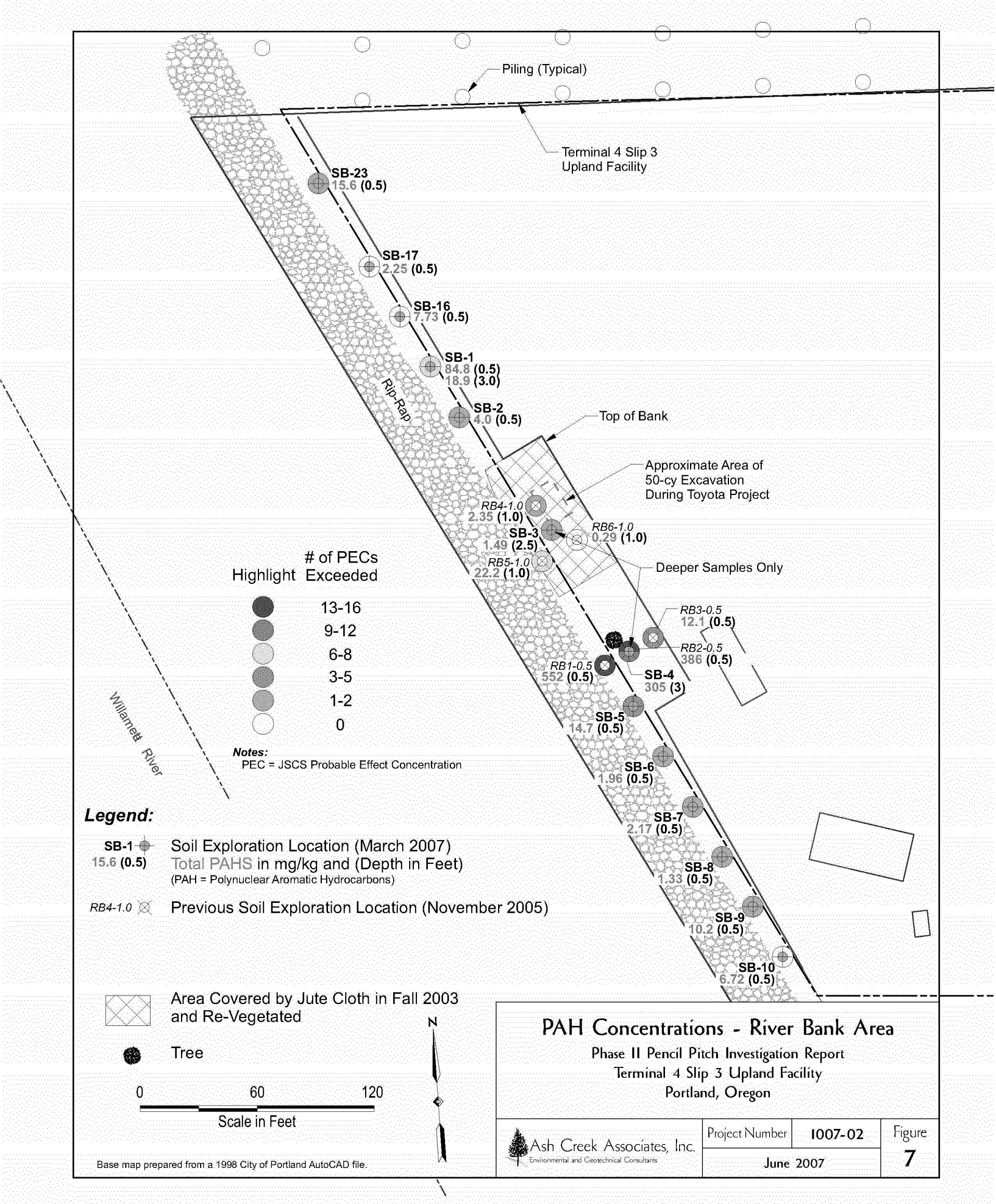
Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Project Number 1007-02

June 2007

Figure 6

KMB00006821



PAH Concentrations - River Bank Area

Phase II Pencil Pitch Investigation Report
Terminal 4 Slip 3 Upland Facility
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number 1007-02	Figure 7
	June 2007	

KMB00006822

Appendix A

Sampling and Analysis Plan

1. Introduction

The Sampling and Analysis Plan (SAP) presents the field and sampling procedures for the Terminal 4 Slip 3 Upland Facility (the Facility) Pencil Pitch Investigation.

1.1 Project Site Description

The Facility is part of the Port of Portland (Port) Marine Terminal 4 facility located at 11040 North Lombard Street in Portland, Oregon (Figure 1 of the Report).

2. Pencil Pitch Investigation Work Plan

The objective of the investigation is to further assess the horizontal and vertical extent of pencil pitch in Facility soils to determine whether source control measures and/or further remedial work are required. Sample collection methods included hand collection of surface samples (less than 2 feet deep) and using push-probe equipment to collect near-surface samples (between 2 and 5 feet deep). Chemical analysis of the collected samples included total petroleum hydrocarbons (TPH) and polynuclear aromatic hydrocarbons (PAHs).

The field and sampling procedures described in this SAP include the following:

- Utility locating;
- Soil sampling;
- Sample management (e.g., containers, storage, and shipment);
- Decontamination procedures; and
- Handling of investigation-derived waste (IDW).

2.1 Preparatory Activities

Utilities. Underground utilities were located and marked prior to beginning the field investigation work. The Oregon Utility Notification Center and the Port internal utility locate point of contact were notified to mark any underground installations in the vicinity of the Facility. Sample locations were adjusted as necessary to avoid conflict with utilities.

2.2 Soil Sampling

Soil samples were collected during three separate sampling events (each completed as needed based on the results of the prior event until the extent of pencil pitch was delineated). The sample events occurred on February 1, March 6, and April 16, 2007.

Locations. Soil samples were collected from 28 locations (13 along the River Bank area and 15 samples across the Slip Bank area). The sample locations are indicated on Figures 4 and 5 of the Report. The locations of each sample are based on hand-taped measurements to fixed reference points.

Shallow Soil Sampling (0 to 2 Feet Below Ground Surface). Shallow (0 to 2 feet) soil samples were collected using properly decontaminated hand tools unless coincident with a deeper soil sample collected with push-probe equipment as described below. Prior to obtaining the sample, surficial gravel was removed with a shovel or stainless steel spoon to expose the surface soil. Collected soil was placed in a stainless steel bowl and transferred to laboratory-supplied sample jars. Each exploration was then backfilled in reverse order (last out, first in) with the removed soil augmented with hydrated bentonite.

Deeper Soil Sampling (2 to 5 Feet Below Ground Surface). The deeper soil samples (and any coincident shallow samples) were collected using truck-mounted push-probe drilling equipment in accordance with Oregon Water Resources Department (OWRD) requirements. The direct-push drilling method uses a 2-inch outside-diameter by 5-foot-long core sampler, which is driven into the ground to the desired depth to retrieve a 5-foot-long soil core sample. During each sample interval, a new, clean polyethylene liner is placed inside the sample barrel to prevent cross-contamination and to facilitate removal of the soil sample from the sampling device. Soil cores are collected continuously as the boring is advanced. Upon retrieval of each core, the polyethylene liner is removed from the core barrel and cut in half lengthwise to expose the soil core for observation and sample collection. Samples were collected from the soil core, generally at the surface, 2-foot below surface, and 5-foot below surface. Upon completion of each boring, the borehole was abandoned by placing hydrated bentonite chips in the borehole (as the push-probe rods were removed).

Sample Containers, Labeling, and Locations. All containers used to collect soil samples for chemical analysis were clean containers supplied by the analytical laboratory. Sample containers were fully filled leaving minimal headspace. All containers were marked with the project number, a sample number, depth, date and time of collection, and sampler's initials.

Sample Storage and Shipment. All samples were stored in a cooler chilled with ice or blue ice to nominally 4 degrees Celsius (°C). The samples were delivered to the analytical laboratory for chemical analysis within 48 hours of collection. Chain-of-custody was maintained and documented at all times.

2.3 Decontamination

To prevent cross-contamination between sampling for chemical analyses, clean, dedicated sampling equipment (e.g., gloves) were used when possible for each sampling event and discarded after use. Cleaning of non-disposable items (e.g., sieves, bowls, sample spoons) consisted of washing in a detergent (e.g., Alconox®) solution, rinsing with tap water, and followed with a deionized water rinse.

Appendix B

Data QA/QC Review

Appendix B – Data QA/QC Review

This appendix documents the results of a quality assurance (QA) review of the analytical data for soil samples collected during the pencil pitch sampling events between February and April 2007. TestAmerica (formerly North Creek Analytical) in Beaverton, Oregon, performed the analyses. Copies of the analytical laboratory reports are included in this appendix.

The QA review included examination and validation of the laboratory summary report, including:

- Analytical methods;
- Detection limits;
- Sample holding times;
- Custody records;
- Surrogates, spikes, and blanks; and
- Duplicates.

The QA review did not include a review of raw data.

Analytical Methods and Detection Limits

Collected soil samples were analyzed for the following:

- Diesel-range and oil-range total petroleum hydrocarbons (TPH) by Method NWTPH-Dx with Silica Gel Cleanup; and
- Polynuclear aromatic hydrocarbons (PAHs) by Environmental Protection Agency (EPA) Method 8270M-SIM.

Quality Assurance Objectives and Review

The general QA objectives for this project were to develop and implement procedures for obtaining and evaluating data of a quality that could be used for fulfilling the scope of work, and potentially such uses as a risk assessment for the site. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must

be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain-of-custody procedures.

Reporting limits and analytical results were compared to action levels for each parameter in the media of concern. Precision, accuracy, representativeness, completeness, and comparability parameters used to indicate data quality are defined below.

Holding Times. All samples were analyzed within the holding times specified for the requested analyses, except for sample SB-1-3 (report PQB0100), which was analyzed 6 days past the holding time for TPH and PAHs. The potential exists for the data to have been affected, so these results were marked as being estimated values.

Reporting Limits. Detection limits are set by the laboratory and are based on instrumentation abilities, sample matrix, and suggested detection limits by the EPA or the Department of Environmental
Quality (DEQ). In some cases, the detection limit has been raised due to high concentrations of analytes in the samples or matrix interferences. Detection limits were generally consistent with industry standards, but were consistently above the relevant Probable Effect Concentrations (PECs).

Reporting limits were reviewed and are generally acceptable for this project, and all samples with non-detect values above PECs also had detected concentrations of analytes above PECs. Reporting limits for individual samples varied based on the magnitude of the chemical impact. The maximum sample dilution was 200 times (in samples SB-1-0.5, SB-4-3.0, SB-11-0.5, SB-11-2.5, SB-12-2.5, SB-13-0.5, SB-13-2.5, SB-14-0.5, SB-14-2.4, SB-15-0.5, SB-18D-0.5, and SB-22-0.5) due to high levels of the reported analyte or matrix interference. The raised detection limits did not compromise the usability of the data.

Precision. Precision measures the reproducibility of data under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average values. Analytical precision is measured through matrix spike/matrix spike duplicate (MS/MSD) samples for volatile organic compound (VOC) analyses. Analytical precision is quantitatively expressed as the relative percent difference (RPD) between the MS/MSD. The laboratory also prepares a batch laboratory control sample and duplicate (LCS and LCSD). All LCS/LCSD results were within acceptable ranges.

All MS/MSD results were within acceptable ranges except for the MS/MSD for QC batches 7020833 and 7030326. The MS/MSD results in these batches were outside of the acceptance limits due to sample matrix interference. However, as the LCS/LCSD results for these same batches were acceptable, they do not represent an out-of-control condition for each batch.

Accuracy. Accuracy is the measure of error between the reported test results and the true sample concentration. “Perfect” accuracy is 100 percent recovery. True sample concentration is never known due to analytical limitations and error. Consequently, accuracy is inferred from the recovery data from spiked samples. The laboratory performed sufficient spike samples of a similar matrix (i.e., water) to allow the computation of the accuracy.

The accuracy measurements were carried out in accordance with SW-846 method requirements. All surrogate spike results were within acceptable ranges except for:

- TPH surrogate recoveries from samples SB-13-0.5, SB-13-2.5, and SB-26-2, where the surrogate recoveries could not be calculated due to matrix interferences; and

- PAH surrogate recoveries from samples SB-1-0.5, SB-4-3.0, SB-4-3.0, SB-10-0.5, SB-11-0.5, SB-11-2.5, SB-12-0.5, SB-12-2.5, SB-13-0.5, SB-13-2.5, SB-14-0.5, SB-14-2.4, SB-15-0.5, SB-16-0.5, SB-18D-0.5, SB-19-0.5, SB-20-0.5, SB-20-2.5, SB-21-0.5, SB-22-0.5, SB-24-1, SB-26-1, and SB-26-2, where dilution of the sample reduced the surrogate spike concentration to a level where the recovery calculation is not useful.

Neither of these conditions are expected to compromise the usability of the data and the data are considered acceptable.

No field duplicate was collected.

Representativeness. Representativeness is a measure of how closely the results reflect the actual concentration of the chemical parameters in the medium sampled. Sampling procedures, as well as sample-handling protocols for storage, preservation, and transportation, are designed to preserve the representativeness of the samples collected. Laboratory method blanks are run in accordance with established laboratory protocols.

All samples for this project were received by the laboratory in good condition and in the proper, laboratory-supplied containers. No target compounds were detected in the laboratory method blanks.

Completeness. Completeness is defined as the percentage of measurements made which are judged to be valid measurements. The completeness of the data is the number of acceptable data points divided by the total number of data points multiplied by 100. The completeness goal is essentially that a sufficient amount of valid data can be generated to allow for the evaluation of the site investigation.

No data collected during the site investigation were rejected for this project; therefore, the completeness for this phase of the project is 100 percent.

Comparability. Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Based on this QA review, the quality of the data collected during this site investigation is similar to that of previously collected data and is, therefore, comparable.

Conclusion. In conclusion, the overall QA objectives have been met, and the data (as qualified) are of adequate quality for use in this project.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

March 07, 2007

Mike Stevens
Ash Creek Associates, Inc.
9615 SW Allen Blvd. Suite 106
Beaverton, OR 97005

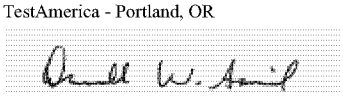
RE: T4S3 - Pencil Pitch

Enclosed are the results of analyses for samples received by the laboratory on 02/02/07 15:07. The following list is a summary of the Work Orders contained in this report, generated on 03/07/07 09:44.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PQB0100	T4S3 - Pencil Pitch	1007-03

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1-0.5	PQB0100-01	Soil	02/01/07 13:50	02/02/07 15:07
SB-2-0.5	PQB0100-02	Soil	02/01/07 14:35	02/02/07 15:07
SB-3-2.5	PQB0100-03	Soil	02/01/07 16:10	02/02/07 15:07
SB-4-3.0	PQB0100-04	Soil	02/01/07 15:30	02/02/07 15:07
SB-5-0.5	PQB0100-05	Soil	02/01/07 15:45	02/02/07 15:07
SB-6-0.5	PQB0100-06	Soil	02/02/07 09:07	02/02/07 15:07
SB-7-0.5	PQB0100-07	Soil	02/02/07 09:30	02/02/07 15:07
SB-8-0.5	PQB0100-08	Soil	02/02/07 09:50	02/02/07 15:07
SB-9-0.5	PQB0100-09	Soil	02/02/07 10:20	02/02/07 15:07
SB-10-0.5	PQB0100-10	Soil	02/02/07 10:55	02/02/07 15:07
SB-11-0.5	PQB0100-11	Soil	02/01/07 09:17	02/02/07 15:07
SB-11-2.5	PQB0100-12	Soil	02/01/07 10:05	02/02/07 15:07
SB-12-0.5	PQB0100-13	Soil	02/01/07 09:30	02/02/07 15:07
SB-12-2.5	PQB0100-14	Soil	02/01/07 11:22	02/02/07 15:07
SB-13-0.5	PQB0100-15	Soil	02/01/07 09:35	02/02/07 15:07
SB-13-2.5	PQB0100-16	Soil	02/01/07 10:57	02/02/07 15:07
SB-14-0.5	PQB0100-17	Soil	02/01/07 09:40	02/02/07 15:07
SB-14-2.4	PQB0100-18	Soil	02/01/07 12:01	02/02/07 15:07
SB-15-0.5	PQB0100-19	Soil	02/01/07 09:45	02/02/07 15:07
SB-15-2.8	PQB0100-20	Soil	02/01/07 12:46	02/02/07 15:07
SB-1-3	PQB0100-21	Soil	02/01/07 14:15	02/02/07 15:07

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-01 (SB-1-0.5)		**Soil**			**Sampled: 02/01/07 13:50**					
Diesel Range Organics	NWTPH-Dx	**108**	-----	13.6	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 13:16	**Q9**
Heavy Oil Range Hydrocarbons	"	**496**	-----	27.3	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*122%*		*50 - 150 %*	"			"	
PQB0100-02 (SB-2-0.5)		**Soil**			**Sampled: 02/01/07 14:35**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.5	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 12:05	
Heavy Oil Range Hydrocarbons	"	ND	-----	27.0	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*115%*		*50 - 150 %*	"			"	
PQB0100-03 (SB-3-2.5)		**Soil**			**Sampled: 02/01/07 16:10**					
Diesel Range Organics	NWTPH-Dx	ND	-----	14.7	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 01:56	
Heavy Oil Range Hydrocarbons	"	ND	-----	29.3	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*119%*		*50 - 150 %*	"			"	
PQB0100-04 (SB-4-3.0)		**Soil**			**Sampled: 02/01/07 15:30**					
Diesel Range Organics	NWTPH-Dx	**297**	-----	14.5	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 14:54	**Q9**
Heavy Oil Range Hydrocarbons	"	**520**	-----	29.0	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*135%*		*50 - 150 %*	"			"	
PQB0100-05 (SB-5-0.5)		**Soil**			**Sampled: 02/01/07 15:45**					
Diesel Range Organics	NWTPH-Dx	ND	-----	14.7	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 12:46	
Heavy Oil Range Hydrocarbons	"	**147**	-----	29.3	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*129%*		*50 - 150 %*	"			"	
PQB0100-06 (SB-6-0.5)		**Soil**			**Sampled: 02/02/07 09:07**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.7	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 13:19	
Heavy Oil Range Hydrocarbons	"	**60.2**	-----	27.4	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*121%*		*50 - 150 %*	"			"	
PQB0100-07 (SB-7-0.5)		**Soil**			**Sampled: 02/02/07 09:30**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.8	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 02:28	
Heavy Oil Range Hydrocarbons	"	ND	-----	27.6	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*116%*		*50 - 150 %*	"			"	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-08 (SB-8-0.5)		**Soil**			**Sampled: 02/02/07 09:50**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.9	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 03:01	
Heavy Oil Range Hydrocarbons	"	ND	-----	27.8	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*116%*		*50 - 150 %*	"			"	
PQB0100-09 (SB-9-0.5)		**Soil**			**Sampled: 02/02/07 10:20**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.9	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 12:38	
Heavy Oil Range Hydrocarbons	"	**37.6**	-----	27.8	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*114%*		*50 - 150 %*	"			"	
PQB0100-10 (SB-10-0.5)		**Soil**			**Sampled: 02/02/07 10:55**					
Diesel Range Organics	NWTPH-Dx	**19.8**	-----	13.3	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 13:49	**Q6**
Heavy Oil Range Hydrocarbons	"	**221**	-----	26.6	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*123%*		*50 - 150 %*	"			"	
PQB0100-11 (SB-11-0.5)		**Soil**			**Sampled: 02/01/07 09:17**					
Diesel Range Organics	NWTPH-Dx	**173**	-----	13.8	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 14:22	**Q9**
Heavy Oil Range Hydrocarbons	"	**402**	-----	27.5	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*119%*		*50 - 150 %*	"			"	
PQB0100-12 (SB-11-2.5)		**Soil**			**Sampled: 02/01/07 10:05**					
Diesel Range Organics	NWTPH-Dx	**353**	-----	14.6	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 11:03	**Q10**
Heavy Oil Range Hydrocarbons	"	**1160**	-----	29.1	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*144%*		*50 - 150 %*	"			"	
PQB0100-13 (SB-12-0.5)		**Soil**			**Sampled: 02/01/07 09:30**					
Diesel Range Organics	NWTPH-Dx	**73.4**	-----	13.9	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 13:49	**Q9**
Heavy Oil Range Hydrocarbons	"	**151**	-----	27.7	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*130%*		*50 - 150 %*	"			"	
PQB0100-14 (SB-12-2.5)		**Soil**			**Sampled: 02/01/07 11:22**					
Diesel Range Organics	NWTPH-Dx	**517**	-----	14.1	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 15:27	**Q9**
Heavy Oil Range Hydrocarbons	"	**853**	-----	28.1	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*144%*		*50 - 150 %*	"			"	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

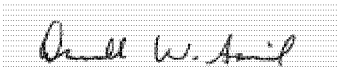
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-15 (SB-13-0.5)		**Soil**			**Sampled: 02/01/07 09:35**					
Diesel Range Organics	NWTPH-Dx	**204**	-----	14.3	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 11:35	**Q9**
Heavy Oil Range Hydrocarbons	"	**680**	-----	28.7	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*189%*		*50 - 150 %*	"			"	***Z9***
PQB0100-16 (SB-13-2.5)		**Soil**			**Sampled: 02/01/07 10:57**					
Diesel Range Organics	NWTPH-Dx	**2090**	-----	137	mg/kg dry	10x	7020220	02/06/07 15:35	02/08/07 19:24	**A-01**
Heavy Oil Range Hydrocarbons	"	**4410**	-----	273	"	"	"	"	"	**A-01**
Surrogate(s): 1-Chlorooctadecane			*155%*		*50 - 150 %*	"			"	***Z9***
PQB0100-17 (SB-14-0.5)		**Soil**			**Sampled: 02/01/07 09:40**					
Diesel Range Organics	NWTPH-Dx	**39.7**	-----	14.0	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 15:27	**Q9**
Heavy Oil Range Hydrocarbons	"	**88.8**	-----	28.0	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*122%*		*50 - 150 %*	"			"	
PQB0100-18 (SB-14-2.4)		**Soil**			**Sampled: 02/01/07 12:01**					
Diesel Range Organics	NWTPH-Dx	**78.9**	-----	14.5	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 17:14	**Q9**
Heavy Oil Range Hydrocarbons	"	**176**	-----	29.1	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*112%*		*50 - 150 %*	"			"	
PQB0100-19 (SB-15-0.5)		**Soil**			**Sampled: 02/01/07 09:45**					
Diesel Range Organics	NWTPH-Dx	**29.0**	-----	14.3	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 13:16	**Q9**
Heavy Oil Range Hydrocarbons	"	**85.8**	-----	28.6	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*103%*		*50 - 150 %*	"			"	
PQB0100-20 (SB-15-2.8)		**Soil**			**Sampled: 02/01/07 12:46**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.9	mg/kg dry	1x	7020220	02/06/07 15:35	02/08/07 03:34	
Heavy Oil Range Hydrocarbons	"	ND	-----	27.9	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*111%*		*50 - 150 %*	"			"	
PQB0100-21 (SB-1-3)		**Soil**			**Sampled: 02/01/07 14:15**					
Diesel Range Organics	NWTPH-Dx	ND	-----	69.9	mg/kg dry	5x	7020752	02/20/07 15:50	02/21/07 17:37	**H8, RL7**
Heavy Oil Range Hydrocarbons	"	**388**	-----	140	"	"	"	"	"	**H8**
Surrogate(s): 1-Chlorooctadecane			*117%*		*50 - 150 %*	"			"	***H8***

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

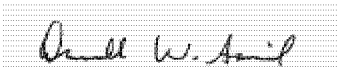
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-01 (SB-1-0.5)		**Soil**			**Sampled: 02/01/07 13:50**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	2830	ug/kg dry	200x	7020180	02/06/07 11:00	02/06/07 18:53	
Acenaphthylene	"	ND	-----	2830	"	"	"	"	"	
Anthracene	"	ND	-----	2830	"	"	"	"	"	
Benzo (a) anthracene	"	**6360**	-----	2830	"	"	"	"	"	
Benzo (a) pyrene	"	**7600**	-----	2830	"	"	"	"	"	
Benzo (b) fluoranthene	"	**5570**	-----	2830	"	"	"	"	"	
Benzo (ghi) perylene	"	**7710**	-----	2830	"	"	"	"	"	
Benzo (k) fluoranthene	"	**5590**	-----	2830	"	"	"	"	"	
Chrysene	"	**7850**	-----	2830	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	2830	"	"	"	"	"	
Fluoranthene	"	**11800**	-----	2830	"	"	"	"	"	
Fluorene	"	ND	-----	2830	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**5680**	-----	2830	"	"	"	"	"	
Naphthalene	"	ND	-----	2830	"	"	"	"	"	
Phenanthrene	"	ND	-----	2830	"	"	"	"	"	
Pyrene	"	**16700**	-----	2830	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-02 (SB-2-0.5)		**Soil**			**Sampled: 02/01/07 14:35**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	73.8	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 19:29	
Acenaphthylene	"	ND	-----	73.8	"	"	"	"	"	
Anthracene	"	ND	-----	73.8	"	"	"	"	"	
Benzo (a) anthracene	"	**300**	-----	73.8	"	"	"	"	"	
Benzo (a) pyrene	"	**383**	-----	73.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	**379**	-----	73.8	"	"	"	"	"	
Benzo (ghi) perylene	"	**467**	-----	73.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	**335**	-----	73.8	"	"	"	"	"	
Chrysene	"	**380**	-----	73.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**94.0**	-----	73.8	"	"	"	"	"	
Fluoranthene	"	**468**	-----	73.8	"	"	"	"	"	
Fluorene	"	ND	-----	73.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**373**	-----	73.8	"	"	"	"	"	
Naphthalene	"	ND	-----	73.8	"	"	"	"	"	
Phenanthrene	"	**165**	-----	73.8	"	"	"	"	"	
Pyrene	"	**474**	-----	73.8	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*73.6%*		*24 - 125 %*	"			"	
Pyrene-d10			*94.9%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*86.9%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

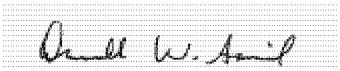
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-03 (SB-3-2.5)		**Soil**			**Sampled: 02/01/07 16:10**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	77.0	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 20:04	
Acenaphthylene	"	ND	-----	77.0	"	"	"	"	"	
Anthracene	"	ND	-----	77.0	"	"	"	"	"	
Benzo (a) anthracene	"	**102**	-----	77.0	"	"	"	"	"	
Benzo (a) pyrene	"	**142**	-----	77.0	"	"	"	"	"	
Benzo (b) fluoranthene	"	**120**	-----	77.0	"	"	"	"	"	
Benzo (ghi) perylene	"	**147**	-----	77.0	"	"	"	"	"	
Benzo (k) fluoranthene	"	**96.5**	-----	77.0	"	"	"	"	"	
Chrysene	"	**120**	-----	77.0	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	77.0	"	"	"	"	"	
Fluoranthene	"	**181**	-----	77.0	"	"	"	"	"	
Fluorene	"	ND	-----	77.0	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**107**	-----	77.0	"	"	"	"	"	
Naphthalene	"	ND	-----	77.0	"	"	"	"	"	
Phenanthrene	"	ND	-----	77.0	"	"	"	"	"	
Pyrene	"	**202**	-----	77.0	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*76.3%*		*24 - 125 %*	"			"	
Pyrene-d10			*102%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*97.8%*		*38 - 143 %*	"			"	
PQB0100-04 (SB-4-3.0)		**Soil**			**Sampled: 02/01/07 15:30**					**RL3**
Acenaphthene	EPA 8270m	**4480**	-----	3030	ug/kg dry	200x	7020180	02/06/07 11:00	02/06/07 20:39	
Acenaphthylene	"	ND	-----	3030	"	"	"	"	"	
Anthracene	"	**4510**	-----	3030	"	"	"	"	"	
Benzo (a) anthracene	"	**27100**	-----	3030	"	"	"	"	"	
Benzo (a) pyrene	"	**28500**	-----	3030	"	"	"	"	"	
Benzo (b) fluoranthene	"	**29600**	-----	3030	"	"	"	"	"	
Benzo (ghi) perylene	"	**20300**	-----	3030	"	"	"	"	"	
Benzo (k) fluoranthene	"	**23300**	-----	3030	"	"	"	"	"	
Chrysene	"	**30800**	-----	3030	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**7430**	-----	3030	"	"	"	"	"	
Fluoranthene	"	**46900**	-----	3030	"	"	"	"	"	
Fluorene	"	ND	-----	3030	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**19100**	-----	3030	"	"	"	"	"	
Naphthalene	"	ND	-----	3030	"	"	"	"	"	
Phenanthrene	"	**24800**	-----	3030	"	"	"	"	"	
Pyrene	"	**33700**	-----	3030	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

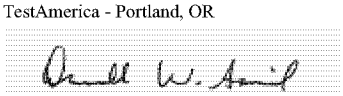
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-04 (SB-4-3.0)		**Soil**			**Sampled: 02/01/07 15:30**					**RL3**
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	*200x*			*02/06/07 20:39*	***Z3***
PQB0100-05 (SB-5-0.5)		**Soil**			**Sampled: 02/01/07 15:45**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	779	ug/kg dry	50x	7020180	02/06/07 11:00	02/08/07 00:03	
Acenaphthylene	"	ND	-----	779	"	"	"	"	"	
Anthracene	"	ND	-----	779	"	"	"	"	"	
Benzo (a) anthracene	"	**1210**	-----	779	"	"	"	"	"	
Benzo (a) pyrene	"	**1390**	-----	779	"	"	"	"	"	
Benzo (b) fluoranthene	"	**1390**	-----	779	"	"	"	"	"	
Benzo (ghi) perylene	"	**1090**	-----	779	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1090**	-----	779	"	"	"	"	"	
Chrysene	"	**1420**	-----	779	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	779	"	"	"	"	"	
Fluoranthene	"	**1870**	-----	779	"	"	"	"	"	
Fluorene	"	ND	-----	779	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**944**	-----	779	"	"	"	"	"	
Naphthalene	"	ND	-----	779	"	"	"	"	"	
Phenanthrene	"	ND	-----	779	"	"	"	"	"	
Pyrene	"	**1600**	-----	779	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*NR*		*24 - 125 %*	"			"	***Z3***
Pyrene-d10			*NR*		*41 - 141 %*	"			"	***Z3***
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	***Z3***
PQB0100-06 (SB-6-0.5)		**Soil**			**Sampled: 02/02/07 09:07**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	73.6	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 21:50	
Acenaphthylene	"	ND	-----	73.6	"	"	"	"	"	
Anthracene	"	ND	-----	73.6	"	"	"	"	"	
Benzo (a) anthracene	"	**134**	-----	73.6	"	"	"	"	"	
Benzo (a) pyrene	"	**181**	-----	73.6	"	"	"	"	"	
Benzo (b) fluoranthene	"	**173**	-----	73.6	"	"	"	"	"	
Benzo (ghi) perylene	"	**188**	-----	73.6	"	"	"	"	"	
Benzo (k) fluoranthene	"	**147**	-----	73.6	"	"	"	"	"	
Chrysene	"	**209**	-----	73.6	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	73.6	"	"	"	"	"	
Fluoranthene	"	**196**	-----	73.6	"	"	"	"	"	
Fluorene	"	ND	-----	73.6	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**149**	-----	73.6	"	"	"	"	"	
Naphthalene	"	ND	-----	73.6	"	"	"	"	"	
Phenanthrene	"	**130**	-----	73.6	"	"	"	"	"	
Pyrene	"	**236**	-----	73.6	"	"	"	"	"	

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-06 (SB-6-0.5)		**Soil**			**Sampled: 02/02/07 09:07**					**RL3**
Surrogate(s): Fluorene-d10		*78.8%*			*24 - 125 %*	*5x*			*02/06/07 21:50*	
Pyrene-d10		*98.4%*			*41 - 141 %*	"			"	
Benzo (a) pyrene-d12		*92.3%*			*38 - 143 %*	"			"	
PQB0100-07 (SB-7-0.5)		**Soil**			**Sampled: 02/02/07 09:30**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	73.5	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 22:25	
Acenaphthylene	"	ND	-----	73.5	"	"	"	"	"	
Anthracene	"	ND	-----	73.5	"	"	"	"	"	
Benzo (a) anthracene	"	**184**	-----	73.5	"	"	"	"	"	
Benzo (a) pyrene	"	**226**	-----	73.5	"	"	"	"	"	
Benzo (b) fluoranthene	"	**213**	-----	73.5	"	"	"	"	"	
Benzo (ghi) perylene	"	**180**	-----	73.5	"	"	"	"	"	
Benzo (k) fluoranthene	"	**201**	-----	73.5	"	"	"	"	"	
Chrysene	"	**205**	-----	73.5	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	73.5	"	"	"	"	"	
Fluoranthene	"	**256**	-----	73.5	"	"	"	"	"	
Fluorene	"	ND	-----	73.5	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**163**	-----	73.5	"	"	"	"	"	
Naphthalene	"	ND	-----	73.5	"	"	"	"	"	
Phenanthrene	"	**97.4**	-----	73.5	"	"	"	"	"	
Pyrene	"	**227**	-----	73.5	"	"	"	"	"	
Surrogate(s): Fluorene-d10		*68.5%*			*24 - 125 %*	"			"	
Pyrene-d10		*99.2%*			*41 - 141 %*	"			"	
Benzo (a) pyrene-d12		*87.7%*			*38 - 143 %*	"			"	
PQB0100-08 (SB-8-0.5)		**Soil**			**Sampled: 02/02/07 09:50**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	73.2	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 23:00	
Acenaphthylene	"	ND	-----	73.2	"	"	"	"	"	
Anthracene	"	ND	-----	73.2	"	"	"	"	"	
Benzo (a) anthracene	"	**85.7**	-----	73.2	"	"	"	"	"	
Benzo (a) pyrene	"	**121**	-----	73.2	"	"	"	"	"	
Benzo (b) fluoranthene	"	**109**	-----	73.2	"	"	"	"	"	
Benzo (ghi) perylene	"	**180**	-----	73.2	"	"	"	"	"	
Benzo (k) fluoranthene	"	**98.1**	-----	73.2	"	"	"	"	"	
Chrysene	"	**99.4**	-----	73.2	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	73.2	"	"	"	"	"	
Fluoranthene	"	**122**	-----	73.2	"	"	"	"	"	
Fluorene	"	ND	-----	73.2	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**132**	-----	73.2	"	"	"	"	"	
Naphthalene	"	ND	-----	73.2	"	"	"	"	"	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

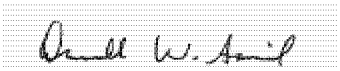
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-08 (SB-8-0.5)		**Soil**			**Sampled: 02/02/07 09:50**					**RL3**
Phenanthrene	EPA 8270m	ND	-----	73.2	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 23:00	
Pyrene	"	**129**	-----	73.2	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*68.0%*		*24 - 125 %*	"			"	
Pyrene-d10			*95.6%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*85.6%*		*38 - 143 %*	"			"	
PQB0100-09 (SB-9-0.5)		**Soil**			**Sampled: 02/02/07 10:20**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	72.0	ug/kg dry	5x	7020180	02/06/07 11:00	02/06/07 23:36	
Acenaphthylene	"	ND	-----	72.0	"	"	"	"	"	
Anthracene	"	**96.6**	-----	72.0	"	"	"	"	"	
Benzo (a) anthracene	"	**891**	-----	72.0	"	"	"	"	"	
Benzo (a) pyrene	"	**1160**	-----	72.0	"	"	"	"	"	
Benzo (b) fluoranthene	"	**1000**	-----	72.0	"	"	"	"	"	
Benzo (ghi) perylene	"	**961**	-----	72.0	"	"	"	"	"	
Benzo (k) fluoranthene	"	**886**	-----	72.0	"	"	"	"	"	
Chrysene	"	**894**	-----	72.0	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**246**	-----	72.0	"	"	"	"	"	
Fluoranthene	"	**1420**	-----	72.0	"	"	"	"	"	
Fluorene	"	ND	-----	72.0	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**856**	-----	72.0	"	"	"	"	"	
Naphthalene	"	ND	-----	72.0	"	"	"	"	"	
Phenanthrene	"	**481**	-----	72.0	"	"	"	"	"	
Pyrene	"	**1190**	-----	72.0	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*76.0%*		*24 - 125 %*	"			"	
Pyrene-d10			*90.5%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*83.9%*		*38 - 143 %*	"			"	
PQB0100-10 (SB-10-0.5)		**Soil**			**Sampled: 02/02/07 10:55**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	573	ug/kg dry	40x	7020180	02/06/07 11:00	02/08/07 00:38	
Acenaphthylene	"	ND	-----	573	"	"	"	"	"	
Anthracene	"	ND	-----	573	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	573	"	"	"	"	"	
Benzo (a) pyrene	"	**688**	-----	573	"	"	"	"	"	
Benzo (b) fluoranthene	"	**710**	-----	573	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	573	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	573	"	"	"	"	"	
Chrysene	"	**643**	-----	573	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	573	"	"	"	"	"	
Fluoranthene	"	**806**	-----	573	"	"	"	"	"	
Fluorene	"	ND	-----	573	"	"	"	"	"	

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

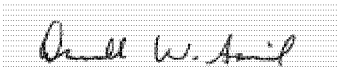
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-10 (SB-10-0.5)		**Soil**			**Sampled: 02/02/07 10:55**					**RL3**
Indeno (1,2,3-cd) pyrene	EPA 8270m	ND	-----	573	ug/kg dry	40x	7020180	02/06/07 11:00	02/08/07 00:38	
Naphthalene	"	ND	-----	573	"	"	"	"	"	
Phenanthrene	"	ND	-----	573	"	"	"	"	"	
Pyrene	"	**717**	-----	573	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-11 (SB-11-0.5)		**Soil**			**Sampled: 02/01/07 09:17**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	2920	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 00:46	
Acenaphthylene	"	ND	-----	2920	"	"	"	"	"	
Anthracene	"	ND	-----	2920	"	"	"	"	"	
Benzo (a) anthracene	"	**27800**	-----	2920	"	"	"	"	"	
Benzo (a) pyrene	"	**34700**	-----	2920	"	"	"	"	"	
Benzo (b) fluoranthene	"	**31700**	-----	2920	"	"	"	"	"	
Benzo (ghi) perylene	"	**25700**	-----	2920	"	"	"	"	"	
Benzo (k) fluoranthene	"	**27200**	-----	2920	"	"	"	"	"	
Chrysene	"	**29600**	-----	2920	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**8260**	-----	2920	"	"	"	"	"	
Fluoranthene	"	**36000**	-----	2920	"	"	"	"	"	
Fluorene	"	ND	-----	2920	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**23900**	-----	2920	"	"	"	"	"	
Naphthalene	"	ND	-----	2920	"	"	"	"	"	
Phenanthrene	"	**13100**	-----	2920	"	"	"	"	"	
Pyrene	"	**32500**	-----	2920	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-12 (SB-11-2.5)		**Soil**			**Sampled: 02/01/07 10:05**					**RL3**
Acenaphthene	EPA 8270m	**5100**	-----	3090	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 01:21	
Acenaphthylene	"	ND	-----	3090	"	"	"	"	"	
Anthracene	"	**4740**	-----	3090	"	"	"	"	"	
Benzo (a) anthracene	"	**36400**	-----	3090	"	"	"	"	"	
Benzo (a) pyrene	"	**40700**	-----	3090	"	"	"	"	"	
Benzo (b) fluoranthene	"	**38200**	-----	3090	"	"	"	"	"	
Benzo (ghi) perylene	"	**28300**	-----	3090	"	"	"	"	"	
Benzo (k) fluoranthene	"	**30200**	-----	3090	"	"	"	"	"	
Chrysene	"	**40400**	-----	3090	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**9570**	-----	3090	"	"	"	"	"	

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

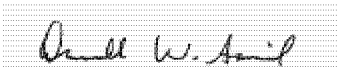
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-12 (SB-11-2.5)		**Soil**			**Sampled: 02/01/07 10:05**					**RL3**
Fluoranthene	EPA 8270m	**57800**	-----	3090	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 01:21	
Fluorene	"	ND	-----	3090	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**25900**	-----	3090	"	"	"	"	"	
Naphthalene	"	ND	-----	3090	"	"	"	"	"	
Phenanthrene	"	**24200**	-----	3090	"	"	"	"	"	
Pyrene	"	**46500**	-----	3090	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-13 (SB-12-0.5)		**Soil**			**Sampled: 02/01/07 09:30**					**RL3**
Acenaphthene	EPA 8270m	**896**	-----	375	ug/kg dry	25x	7020180	02/06/07 11:00	02/07/07 01:57	
Acenaphthylene	"	ND	-----	375	"	"	"	"	"	
Anthracene	"	**820**	-----	375	"	"	"	"	"	
Benzo (a) anthracene	"	**5730**	-----	375	"	"	"	"	"	
Benzo (a) pyrene	"	**6690**	-----	375	"	"	"	"	"	
Benzo (b) fluoranthene	"	**5950**	-----	375	"	"	"	"	"	
Benzo (ghi) perylene	"	**4470**	-----	375	"	"	"	"	"	
Benzo (k) fluoranthene	"	**5140**	-----	375	"	"	"	"	"	
Chrysene	"	**5740**	-----	375	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**1490**	-----	375	"	"	"	"	"	
Fluoranthene	"	**8170**	-----	375	"	"	"	"	"	
Fluorene	"	ND	-----	375	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**4250**	-----	375	"	"	"	"	"	
Naphthalene	"	ND	-----	375	"	"	"	"	"	
Phenanthrene	"	**3400**	-----	375	"	"	"	"	"	
Pyrene	"	**6840**	-----	375	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*78.1%*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*100%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*99.8%*		*38 - 143 %*	"			"	*Z3*

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

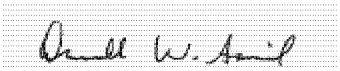
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-14 (SB-12-2.5)		**Soil**			**Sampled: 02/01/07 11:22**					**RL3**
Acenaphthene	EPA 8270m	**9040**	-----	2990	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 02:32	
Acenaphthylene	"	ND	-----	2990	"	"	"	"	"	
Anthracene	"	**7790**	-----	2990	"	"	"	"	"	
Benzo (a) anthracene	"	**55300**	-----	2990	"	"	"	"	"	
Benzo (a) pyrene	"	**67900**	-----	2990	"	"	"	"	"	
Benzo (b) fluoranthene	"	**65300**	-----	2990	"	"	"	"	"	
Benzo (ghi) perylene	"	**47200**	-----	2990	"	"	"	"	"	
Benzo (k) fluoranthene	"	**50200**	-----	2990	"	"	"	"	"	
Chrysene	"	**58800**	-----	2990	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**16200**	-----	2990	"	"	"	"	"	
Fluoranthene	"	**84900**	-----	2990	"	"	"	"	"	
Fluorene	"	**3660**	-----	2990	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**44100**	-----	2990	"	"	"	"	"	
Naphthalene	"	ND	-----	2990	"	"	"	"	"	
Phenanthrene	"	**35300**	-----	2990	"	"	"	"	"	
Pyrene	"	**64300**	-----	2990	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-15 (SB-13-0.5)		**Soil**			**Sampled: 02/01/07 09:35**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	2980	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 03:07	
Acenaphthylene	"	ND	-----	2980	"	"	"	"	"	
Anthracene	"	ND	-----	2980	"	"	"	"	"	
Benzo (a) anthracene	"	**12600**	-----	2980	"	"	"	"	"	
Benzo (a) pyrene	"	**15000**	-----	2980	"	"	"	"	"	
Benzo (b) fluoranthene	"	**13800**	-----	2980	"	"	"	"	"	
Benzo (ghi) perylene	"	**10800**	-----	2980	"	"	"	"	"	
Benzo (k) fluoranthene	"	**12000**	-----	2980	"	"	"	"	"	
Chrysene	"	**13100**	-----	2980	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**3370**	-----	2980	"	"	"	"	"	
Fluoranthene	"	**17600**	-----	2980	"	"	"	"	"	
Fluorene	"	ND	-----	2980	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**9830**	-----	2980	"	"	"	"	"	
Naphthalene	"	ND	-----	2980	"	"	"	"	"	
Phenanthrene	"	**7720**	-----	2980	"	"	"	"	"	
Pyrene	"	**15400**	-----	2980	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

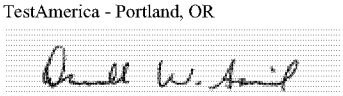
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-16 (SB-13-2.5)		**Soil**			**Sampled: 02/01/07 10:57**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	2940	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 21:06	
Acenaphthylene	"	ND	-----	2940	"	"	"	"	"	
Anthracene	"	ND	-----	2940	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	2940	"	"	"	"	"	
Benzo (a) pyrene	"	**3220**	-----	2940	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2940**	-----	2940	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	2940	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	2940	"	"	"	"	"	
Chrysene	"	**3110**	-----	2940	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	2940	"	"	"	"	"	
Fluoranthene	"	**4290**	-----	2940	"	"	"	"	"	
Fluorene	"	ND	-----	2940	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	2940	"	"	"	"	"	
Naphthalene	"	ND	-----	2940	"	"	"	"	"	
Phenanthrene	"	ND	-----	2940	"	"	"	"	"	
Pyrene	"	**3560**	-----	2940	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-17 (SB-14-0.5)		**Soil**			**Sampled: 02/01/07 09:40**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	3020	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 21:41	
Acenaphthylene	"	ND	-----	3020	"	"	"	"	"	
Anthracene	"	ND	-----	3020	"	"	"	"	"	
Benzo (a) anthracene	"	**6840**	-----	3020	"	"	"	"	"	
Benzo (a) pyrene	"	**8010**	-----	3020	"	"	"	"	"	
Benzo (b) fluoranthene	"	**7080**	-----	3020	"	"	"	"	"	
Benzo (ghi) perylene	"	**5960**	-----	3020	"	"	"	"	"	
Benzo (k) fluoranthene	"	**6320**	-----	3020	"	"	"	"	"	
Chrysene	"	**7020**	-----	3020	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	3020	"	"	"	"	"	
Fluoranthene	"	**9200**	-----	3020	"	"	"	"	"	
Fluorene	"	ND	-----	3020	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**5400**	-----	3020	"	"	"	"	"	
Naphthalene	"	ND	-----	3020	"	"	"	"	"	
Phenanthrene	"	**3910**	-----	3020	"	"	"	"	"	
Pyrene	"	**8380**	-----	3020	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

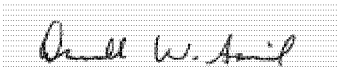
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-18 (SB-14-2.4)		**Soil**			**Sampled: 02/01/07 12:01**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	3030	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 22:17	
Acenaphthylene	"	ND	-----	3030	"	"	"	"	"	
Anthracene	"	ND	-----	3030	"	"	"	"	"	
Benzo (a) anthracene	"	**12900**	-----	3030	"	"	"	"	"	
Benzo (a) pyrene	"	**14700**	-----	3030	"	"	"	"	"	
Benzo (b) fluoranthene	"	**12700**	-----	3030	"	"	"	"	"	
Benzo (ghi) perylene	"	**10600**	-----	3030	"	"	"	"	"	
Benzo (k) fluoranthene	"	**11300**	-----	3030	"	"	"	"	"	
Chrysene	"	**12800**	-----	3030	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**3360**	-----	3030	"	"	"	"	"	
Fluoranthene	"	**17600**	-----	3030	"	"	"	"	"	
Fluorene	"	ND	-----	3030	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**9810**	-----	3030	"	"	"	"	"	
Naphthalene	"	ND	-----	3030	"	"	"	"	"	
Phenanthrene	"	**7720**	-----	3030	"	"	"	"	"	
Pyrene	"	**15000**	-----	3030	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQB0100-19 (SB-15-0.5)		**Soil**			**Sampled: 02/01/07 09:45**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	3040	ug/kg dry	200x	7020180	02/06/07 11:00	02/07/07 22:52	
Acenaphthylene	"	ND	-----	3040	"	"	"	"	"	
Anthracene	"	ND	-----	3040	"	"	"	"	"	
Benzo (a) anthracene	"	**5710**	-----	3040	"	"	"	"	"	
Benzo (a) pyrene	"	**7040**	-----	3040	"	"	"	"	"	
Benzo (b) fluoranthene	"	**6740**	-----	3040	"	"	"	"	"	
Benzo (ghi) perylene	"	**5650**	-----	3040	"	"	"	"	"	
Benzo (k) fluoranthene	"	**5550**	-----	3040	"	"	"	"	"	
Chrysene	"	**6040**	-----	3040	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	3040	"	"	"	"	"	
Fluoranthene	"	**7500**	-----	3040	"	"	"	"	"	
Fluorene	"	ND	-----	3040	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**4960**	-----	3040	"	"	"	"	"	
Naphthalene	"	ND	-----	3040	"	"	"	"	"	
Phenanthrene	"	ND	-----	3040	"	"	"	"	"	
Pyrene	"	**6970**	-----	3040	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

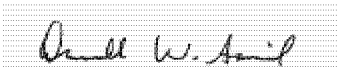
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-19 (SB-15-0.5)		**Soil**			**Sampled: 02/01/07 09:45**					**RL3**
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	*200x*			*02/07/07 22:52*	***Z3***
PQB0100-20 (SB-15-2.8)		**Soil**			**Sampled: 02/01/07 12:46**					
Acenaphthene	EPA 8270m	ND	-----	14.7	ug/kg dry	1x	7020180	02/06/07 11:00	02/07/07 23:28	
Acenaphthylene	"	ND	-----	14.7	"	"	"	"	"	
Anthracene	"	ND	-----	14.7	"	"	"	"	"	
Benzo (a) anthracene	"	**68.6**	-----	14.7	"	"	"	"	"	
Benzo (a) pyrene	"	**86.5**	-----	14.7	"	"	"	"	"	
Benzo (b) fluoranthene	"	**80.3**	-----	14.7	"	"	"	"	"	
Benzo (ghi) perylene	"	**73.7**	-----	14.7	"	"	"	"	"	
Benzo (k) fluoranthene	"	**67.1**	-----	14.7	"	"	"	"	"	
Chrysene	"	**77.4**	-----	14.7	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**19.9**	-----	14.7	"	"	"	"	"	
Fluoranthene	"	**100**	-----	14.7	"	"	"	"	"	
Fluorene	"	ND	-----	14.7	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**62.4**	-----	14.7	"	"	"	"	"	
Naphthalene	"	ND	-----	14.7	"	"	"	"	"	
Phenanthrene	"	**39.4**	-----	14.7	"	"	"	"	"	
Pyrene	"	**90.6**	-----	14.7	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*57.8%*		*24 - 125 %*	"			"	
Pyrene-d10			*88.1%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*88.1%*		*38 - 143 %*	"			"	
PQB0100-21 (SB-1-3)		**Soil**			**Sampled: 02/01/07 14:15**					**H1, A-01a, RL3**
Acenaphthene	EPA 8270m	ND	-----	75.0	ug/kg dry	1x	7020833	02/22/07 13:45	02/23/07 22:06	
Acenaphthylene	"	**141**	-----	75.0	"	"	"	"	"	
Anthracene	"	**165**	-----	75.0	"	"	"	"	"	
Benzo (a) anthracene	"	**1730**	-----	75.0	"	"	"	"	"	
Benzo (a) pyrene	"	**2050**	-----	75.0	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2150**	-----	75.0	"	"	"	"	"	
Benzo (ghi) perylene	"	**1570**	-----	75.0	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1340**	-----	75.0	"	"	"	"	"	
Chrysene	"	**1760**	-----	75.0	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**283**	-----	75.0	"	"	"	"	"	
Fluoranthene	"	**2720**	-----	75.0	"	"	"	"	"	
Fluorene	"	ND	-----	75.0	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**1280**	-----	75.0	"	"	"	"	"	
Naphthalene	"	**76.3**	-----	75.0	"	"	"	"	"	
Phenanthrene	"	**462**	-----	75.0	"	"	"	"	"	
Pyrene	"	**3100**	-----	375	"	5x	"	"	02/27/07 16:48	

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03
Beaverton, OR 97005	Project Manager:	Mike Stevens
		Report Created: 03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-21	**(SB-1-3)**		**Soil**			**Sampled: 02/01/07 14:15**					**H1, A-01a, RL3**
Surrogate(s):	*Fluorene-d10*		*99.9%*			*24 - 125 %*	*1x*			*02/23/07 22:06*	
	Pyrene-d10		*120%*			*41 - 141 %*	*"*			*"*	
	Benzo (a) pyrene-d12		*114%*			*38 - 143 %*	*"*			*"*	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

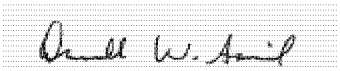
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-01 (SB-1-0.5)		**Soil**				**Sampled: 02/01/07 13:50**				
% Solids	NCA SOP	**93.7**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-02 (SB-2-0.5)		**Soil**				**Sampled: 02/01/07 14:35**				
% Solids	NCA SOP	**90.4**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-03 (SB-3-2.5)		**Soil**				**Sampled: 02/01/07 16:10**				
% Solids	NCA SOP	**86.9**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-04 (SB-4-3.0)		**Soil**				**Sampled: 02/01/07 15:30**				
% Solids	NCA SOP	**87.6**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-05 (SB-5-0.5)		**Soil**				**Sampled: 02/01/07 15:45**				
% Solids	NCA SOP	**86.0**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-06 (SB-6-0.5)		**Soil**				**Sampled: 02/02/07 09:07**				
% Solids	NCA SOP	**91.0**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-07 (SB-7-0.5)		**Soil**				**Sampled: 02/02/07 09:30**				
% Solids	NCA SOP	**90.6**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-08 (SB-8-0.5)		**Soil**				**Sampled: 02/02/07 09:50**				
% Solids	NCA SOP	**90.7**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-09 (SB-9-0.5)		**Soil**				**Sampled: 02/02/07 10:20**				
% Solids	NCA SOP	**91.9**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-10 (SB-10-0.5)		**Soil**				**Sampled: 02/02/07 10:55**				
% Solids	NCA SOP	**92.8**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-11 (SB-11-0.5)		**Soil**				**Sampled: 02/01/07 09:17**				

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-11 (SB-11-0.5)		**Soil**			**Sampled: 02/01/07 09:17**					
% Solids	NCA SOP	**91.9**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-12 (SB-11-2.5)		**Soil**			**Sampled: 02/01/07 10:05**					
% Solids	NCA SOP	**86.5**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-13 (SB-12-0.5)		**Soil**			**Sampled: 02/01/07 09:30**					
% Solids	NCA SOP	**88.0**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-14 (SB-12-2.5)		**Soil**			**Sampled: 02/01/07 11:22**					
% Solids	NCA SOP	**88.8**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-15 (SB-13-0.5)		**Soil**			**Sampled: 02/01/07 09:35**					
% Solids	NCA SOP	**89.2**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-16 (SB-13-2.5)		**Soil**			**Sampled: 02/01/07 10:57**					
% Solids	NCA SOP	**90.8**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-17 (SB-14-0.5)		**Soil**			**Sampled: 02/01/07 09:40**					
% Solids	NCA SOP	**88.5**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-18 (SB-14-2.4)		**Soil**			**Sampled: 02/01/07 12:01**					
% Solids	NCA SOP	**87.8**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-19 (SB-15-0.5)		**Soil**			**Sampled: 02/01/07 09:45**					
% Solids	NCA SOP	**87.2**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-20 (SB-15-2.8)		**Soil**			**Sampled: 02/01/07 12:46**					
% Solids	NCA SOP	**90.7**	-----	0.00	% by Weight	1x	7020122	02/05/07 08:34	02/05/07 08:34	
PQB0100-21 (SB-1-3)		**Soil**			**Sampled: 02/01/07 14:15**					

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQB0100-21 (SB-1-3)		**Soil**			**Sampled: 02/01/07 14:15**					
% Solids	NCA SOP	**89.0**	-----	0.00	% by Weight	1x	7020664	02/19/07 08:29	02/19/07 08:29	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7020220 **Soil Preparation Method: EPA 3550 Fuels**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7020220-BLK1)													**Extracted: 02/06/07 15:35**	
Diesel Range Organics	NWTPH-Dx	ND	---	12.5	mg/kg wet	1x	--	--	--	--	--	--	02/08/07 04:39	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 64.2%*			*Limits: 50-150%*	"							*02/08/07 04:39*	
LCS (7020220-BS1)													**Extracted: 02/06/07 15:35**	
Diesel Range Organics	NWTPH-Dx	128	---	12.5	mg/kg wet	1x	--	128	100%	(50-150)	--	--	02/08/07 04:06	
Heavy Oil Range Hydrocarbons	"	65.8	---	25.0	"	"	--	76.0	86.6%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 94.4%*			*Limits: 50-150%*	"							*02/08/07 04:06*	
Duplicate (7020220-DUP1)						**QC Source: PQB0100-01**							**Extracted: 02/06/07 15:35**	
Diesel Range Organics	NWTPH-Dx	211	---	66.6	mg/kg dry	5x	108	--	--	--	64.6%	(50)	02/08/07 18:51	R2, Q6
Heavy Oil Range Hydrocarbons	"	2130	---	133	"	"	496	--	--	--	124%	"	"	R2, Q10
Surrogate(s): 1-Chlorooctadecane		*Recovery: 121%*			*Limits: 50-150%*	"							*02/08/07 18:51*	
Duplicate (7020220-DUP2)						**QC Source: PQB0100-02**							**Extracted: 02/06/07 15:35**	
Diesel Range Organics	NWTPH-Dx	ND	---	13.6	mg/kg dry	1x	ND	--	--	--	NR	(50)	02/08/07 11:33	
Heavy Oil Range Hydrocarbons	"	32.5	---	27.2	"	"	ND	--	--	--		"	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 110%*			*Limits: 50-150%*	"							*02/08/07 11:33*	

QC Batch: 7020752 **Soil Preparation Method: EPA 3550 Fuels**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7020752-BLK1)													**Extracted: 02/20/07 15:50**	
Diesel Range Organics	NWTPH-Dx	ND	---	12.5	mg/kg wet	1x	--	--	--	--	--	--	02/21/07 20:02	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 112%*			*Limits: 50-150%*	"							*02/21/07 20:02*	
LCS (7020752-BS1)													**Extracted: 02/20/07 15:50**	
Diesel Range Organics	NWTPH-Dx	134	---	12.5	mg/kg wet	1x	--	128	105%	(50-150)	--	--	02/21/07 19:26	
Heavy Oil Range Hydrocarbons	"	93.3	---	25.0	"	"	--	76.0	123%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 105%*			*Limits: 50-150%*	"							*02/21/07 19:26*	
Duplicate (7020752-DUP1)						**QC Source: PQB0391-04**							**Extracted: 02/20/07 15:50**	
Diesel Range Organics	NWTPH-Dx	244	---	68.1	mg/kg dry	5x	350	--	--	--	35.7%	(50)	02/21/07 18:50	
Heavy Oil Range Hydrocarbons	"	2560	---	136	"	"	4010	--	--	--	44.1%	"	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 92.9%*			*Limits: 50-150%*	"							*02/21/07 18:50*	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7020180 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7020180-BLK1)							**Extracted: 02/06/07 11:00**							
Acenaphthene	EPA 8270m	ND	---	13.3	ug/kg wet	1x	--	--	--	--	--	--	02/06/07 17:42	
Acenaphthylene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.3	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 54.7%*			*Limits: 24-125%*	"							*02/06/07 17:42*	
Pyrene-d10		*108%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*97.7%*			*38-143%*	"							"	
LCS (7020180-BS1)							**Extracted: 02/06/07 11:00**							MNR
Acenaphthene	EPA 8270m	141	---	13.3	ug/kg wet	1x	--	165	85.5%	(33-139)	--	--	02/06/07 18:18	
Benzo (a) pyrene	"	168	---	13.3	"	"	--	"	102%	(45-149)	--	--	"	
Pyrene	"	161	---	13.3	"	"	--	"	97.6%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 54.7%*			*Limits: 24-125%*	"							*02/06/07 18:18*	
Pyrene-d10		*90.7%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*90.9%*			*38-143%*	"							"	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7020833 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7020833-BLK1)							**Extracted: 02/22/07 13:45**							
Acenaphthene	EPA 8270m	ND	---	13.2	ug/kg wet	1x	--	--	--	--	--	--	02/23/07 21:10	
Acenaphthylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 64.7%*			*Limits: 24-125%*	"							*02/23/07 21:10*	
Pyrene-d10		*112%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*110%*			*38-143%*	"							"	
LCS (7020833-BS1)							**Extracted: 02/22/07 13:45**							
Acenaphthene	EPA 8270m	113	---	13.2	ug/kg wet	1x	--	164	68.9%	(33-139)	--	--	02/23/07 21:38	
Benzo (a) pyrene	"	158	---	13.2	"	"	--	"	96.3%	(45-149)	--	--	"	
Pyrene	"	186	---	13.2	"	"	--	"	113%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 71.0%*			*Limits: 24-125%*	"							*02/23/07 21:38*	
Pyrene-d10		*118%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*108%*			*38-143%*	"							"	
Matrix Spike (7020833-MS1)					**QC Source: PQB0100-21**		**Extracted: 02/22/07 13:45**							RL3
Acenaphthene	EPA 8270m	182	---	370	ug/kg dry	5x	31.3	184	81.9%	(33-139)	--	--	02/27/07 17:16	
Benzo (a) pyrene	"	3300	---	370	"	"	2050	"	679%	(45-149)	--	--	"	M1
Pyrene	"	6480	---	370	"	"	3100	"	1840%	(39-138)	--	--	"	M1
Surrogate(s): Fluorene-d10		*Recovery: 97.1%*			*Limits: 24-125%*	"							*02/27/07 17:16*	*Z3*
Pyrene-d10		*92.4%*			*41-141%*	"							"	*Z3*
Benzo (a) pyrene-d12		*108%*			*38-143%*	"							"	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7020833 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (7020833-MSD1)					**QC Source: PQB0100-21**				**Extracted: 02/22/07 13:45**					RL3
Acenaphthene	EPA 8270m	186	---	376	ug/kg dry	5x	31.3	187	82.7%	(33-139)	2.17%	(60)	02/27/07 17:45	
Benzo (a) pyrene	"	1590	---	376	"	"	2050	"	-246%	(45-149)	69.9%	"	"	M2, R3
Pyrene	"	2560	---	376	"	"	3100	"	-289%	(39-138)	86.7%	"	"	M2, R3
Surrogate(s): Fluorene-d10		*Recovery: 84.1%*			*Limits: 24-125%*	"							*02/27/07 17:45*	*Z3*
Pyrene-d10		*92.5%*			*41-141%*	"							"	*Z3*
Benzo (a) pyrene-d12		*105%*			*38-143%*	"							"	

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Percent Dry Weight (Solids) per Standard Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

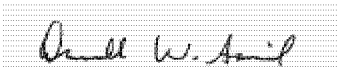
QC Batch: 7020122 **Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (7020122-DUP1)					**QC Source: PQB0100-16**				**Extracted: 02/05/07 08:34**					
% Solids	NCA SOP	89.7	---	0.00	% by Weight	1x	90.8	--	--	--	1.22%	(20)	02/05/07 08:34	

QC Batch: 7020664 **Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (7020664-DUP1)					**QC Source: PQB0624-07**				**Extracted: 02/19/07 08:14**					
% Solids	NCA SOP	93.5	---	0.00	% by Weight	1x	93.1	--	--	--	0.429%	(20)	02/19/07 08:14	

TestAmerica - Portland, OR



Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Notes and Definitions

Report Specific Notes:

A-01	-	Detected hydrocarbons appear to be due to a lighter weight oil.
A-01a	-	MS/MSD performed on his sample indicates a non-homogeneous matrix.
H1	-	Sample analysis performed past the method-specified holding time per client's approval.
H8	-	The sample was extracted past the holding time.
M1	-	The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
M2	-	The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
MNR	-	No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
Q10	-	Hydrocarbon pattern most closely resembles a blend of creosote or similar product as well as oil.
Q6	-	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
Q9	-	Hydrocarbon pattern most closely resembles creosote or similar product.
R2	-	The RPD exceeded the acceptance limit.
R3	-	The RPD exceeded the acceptance limit due to sample matrix effects.
RL3	-	Reporting limit raised due to high concentrations of non-target analytes.
RL7	-	Sample required dilution due to high concentrations of target analyte.
Z3	-	The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.
Z9	-	Unable to calculate surrogate recovery due to matrix interference.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
Dil	-	Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-03	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/07/07 09:44

Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica - Portland, OR

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

PAGE 1 of 3

Work Order #: PQB0100

CLIENT: Ash Creek Associates

REPORT TO: [illegible]
ADDRESS: 4615 SW Allen Blvd, Suite 100
Beaverton, OR 97005

PHONE: 503.924.4704 FAX: 503.924.4707

PROJECT NAME: T453 - Pearl Pitch

PROJECT NUMBER: 1007-03

SAMPLED BY: A. Schmidt / M. Drouin

INVOICE TO: SAME

P.O. NUMBER: 1007-03

TURNAROUND REQUEST
in Business Days *

Organic & Inorganic Analyses: 10 (STD.) 7 5 4 3 2 1 <1

Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		TPH-D Residual Range	NW TPH-DX	PAHs 8270 SX/SS-SM										MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	TA WO ID
1	SB-1-0.5	2/1/07	1350	x		x													
2	SB-2-0.5	↓	1435	x		x													
3	SB-3-2.5	↓	1610	x		x													
4	SB-4-3.0	↓	1530	x		x													
5	SB-5-0.5	↓	1545	x		x													
6	SB-6-0.5	2/2/07	907	x		x													
7	SB-7-0.5	↓	930	x		x													
8	SB-8-0.5	↓	950	x		x													
9	SB-9-0.5	↓	1020	x		x													
10	SB-10-0.5	↓	1055	x		x													

RELEASED BY: A. Schmidt		DATE: 2/2/07	RECEIVED BY: [signature]		DATE: 2/2/07
PRINT NAME: A. Schmidt	FIRM: Ash Creek	TIME: 1507	PRINT NAME: [signature]	FIRM: TAP	TIME: 1507
RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:

TEMP:

COC REV 05/2006

PAGE OF

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and for any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice unless otherwise contracted. Sample(s) will be disposed of after 30 days unless otherwise contracted.

1.5

KMB00006857

TestAmerica
ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: Ash Creek

REPORT TO: M. Stevens
ADDRESS: 9615 SW Allen Blvd, Suite 106
Beaverton, OR 97005

PHONE: 503.924.4704 FAX: 503.924.4727

PROJECT NAME: T453 - Purcell Patch

PROJECT NUMBER: 1007-03

SAMPLED BY: A. Schmidt

INVOICE TO:

P.O. NUMBER:

TURNAROUND REQUEST
in Business Days *

Organic & Inorganic Analyses: 10 (STD.) 7 5 4 3 2 1 <1

Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		TPH-D + Residual Range	NWTPH-Dx	PAHs-8270 GC/MS-SIM											MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	TA WO ID
1	SB-11-0.5	2/1/07	917	X		X														
2	SB-11-2.5		1005	X		X														
3	SB-12-0.5		930	X		X														
4	SB-12-2.5		1122	X		X														
5	SB-13-0.5		935	X		X														
6	SB-13-2.5		1057	X		X														
7	SB-14-0.5		940	X		X														
8	SB-14-2.4		1201	X		X														
9	SB-15-0.5		945	X		X														
10	SB-15-2.0		1246	X		X														

RELEASED BY: A. Schmidt DATE: 2/2/07
PRINT NAME: A. Schmidt FIRM: Ash Creek TIME: 1507

RECEIVED BY: [signature] DATE: 2/2/07
PRINT NAME: AH FIRM: TAP TIME: 1507

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

TEMP:

COC REV 05/2006

PAGE OF

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and for any additional analyses performed on this project.
Payment for services is due within 30 days from the date of invoice unless otherwise contracted. Sample(s) will be disposed of after 30 days unless otherwise contracted.

TestAmerica
ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

82

PAGE 3 OF 3

CHAIN OF CUSTODY REPORT

Work Order #: PQB0100

CLIENT: Ash Creek

REPORT TO: 4 Stevens
ADDRESS: 9615 SW Allen Blvd, Suite 100
Beaverton, OR 97005

PHONE: 503.924.4204 FAX: 503.924.4707

PROJECT NAME: TGS3 - Powell Pitch

PROJECT NUMBER: 1007-03

SAMPLED BY: A.Schmidt

INVOICE TO:

P.O. NUMBER:

TURNAROUND REQUEST
in Business Days *

Organic & Inorganic Analyses: 10 (STD.) 7 5 4 3 2 1 <1

Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		TPH-D + Residual Range	NWTPH-Dx	PAHs-8270 GC/MS-SIM										MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	TA WO ID
1	SB-1-3	2/1/07	1415															HOLD	
2	SB-2-2.5	↓	1445															SAMPLES	
3	SB-5-2.6 ~~SB-2~~	↓	1605															ON	
4	SB-6-3	2/2/07	915															THIS PAGE	
5	SB-7-3	↓	940															PENDING	
6	SB-8-3	↓	955															OTHER SAMPLE	
7	SB-9-2.3	↓	1045															RESULTS !!	
8	SB-10-3	↓	1105																
9																			
10																			

RELEASED BY: A.Schmidt		DATE: 2/2/07	RECEIVED BY: [signature]		DATE: 2/2/07
PRINT NAME: A.SCHMIDT	FIRM: ASH CREEK	TIME: 1507	PRINT NAME: [signature]	FIRM: TAP	TIME: 1507
RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:

TEMP:

COC REV 05/2006

PAGE OF

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and for any additional analyses performed on this project.
Payment for services is due within 30 days from the date of invoice unless otherwise contracted. Sample(s) will be disposed of after 30 days unless otherwise contracted.

KMB00006859

Circle Y or N
(If Y, see other side)

TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: (applies to temp at receipt)
Date: 2/2/07
Time: 1507
Initials: [illegible]

Logged-in By:
Date: 2/2/07
Initials: [illegible]

Unpacked/Labeled By:
Date: 2/2/07
Initials: [illegible]

Cooler ID: ____ (____ of ____)

Work Order No. PQB0100
Client: HSHCreek
Project: Pencil pitch

Container Type:
1 Cooler
____ Box
____ None/Other ____

COC Seals:
____ Ship. Container
____ On Bottles
X None
____ Sign By
____ Date

Packing Material
____ Bubble Bags
____ Styrofoam
____ Foam Packs
X None/Other Other ____

Refrigerant:
____ Gel Ice Pack ____
X Loose Ice IN B98
____ None/Other ____
____ None

Received Via: Bill#
____ Fed Ex
X Client
____ UPS
____ NCA Courier
____ DHL
____ Mid Valley
____ Senvoy
____ TDP
____ GS
____ Other ____

Cooler Temperature (*IR*): 1.5 °C Plastic Glass (circle one) (Frozen filters, Tedlars and aqueous Metals exempt)

Temperature Blank? ____ °C or NA

Trip Blank? Y or N or NA

Sample Containers:		ID			ID
Intact?	Y or N		Metals Preserved?	Y or N or NA	
Provided by NCA?	Y or N		Client QAPP Preserved?	Y or N or NA	
Correct Type?	Y or N		Adequate Volume? (for tests requested)	Y or N	
#Containers match COC?	Y or N		Water VOAs: Headspace?	Y or N or NA	
IDs/time/date match COC?	Y or N		Comments:		
Hold Times in hold?	Y or N				

PROJECT MANAGEMENT

Is the Chain of Custody complete? Y or N If N, circle the items that were incomplete

Comments,Problems ____

Total access set up? Y or N
Has client been contacted regarding non-conformances? Y or N If Y, ____/____ Date Time

PM Initials: ____ Date: ____ Time: ____

(rev 3, 09/12/05)

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

March 21, 2007

Mike Stevens
Ash Creek Associates, Inc.
9615 SW Allen Blvd. Suite 106
Beaverton, OR 97005

RE: T4S3 - Pencil Pitch

Enclosed are the results of analyses for samples received by the laboratory on 03/07/07 11:06. The following list is a summary of the Work Orders contained in this report, generated on 03/21/07 17:13.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PQC0322	T4S3 - Pencil Pitch	1007-02

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-16-0.5	PQC0322-01	Soil	03/06/07 13:01	03/07/07 11:06
SB-17-0.5	PQC0322-03	Soil	03/06/07 14:05	03/07/07 11:06
SB-18D-0.5	PQC0322-05	Soil	03/06/07 12:01	03/07/07 11:06
SB-18D-5	PQC0322-06	Soil	03/06/07 10:35	03/07/07 11:06
SB-19-0.5	PQC0322-08	Soil	03/06/07 11:55	03/07/07 11:06
SB-19-2.5	PQC0322-09	Soil	03/06/07 11:05	03/07/07 11:06
SB-20-0.5	PQC0322-10	Soil	03/06/07 11:25	03/07/07 11:06
SB-20-2.5	PQC0322-11	Soil	03/06/07 11:17	03/07/07 11:06
SB-21-0.5	PQC0322-12	Soil	03/06/07 10:06	03/07/07 11:06
SB-22-0.5	PQC0322-13	Soil	03/06/07 11:49	03/07/07 11:06
SB-23-0.5	PQC0322-14	Soil	03/06/07 15:00	03/07/07 11:06
SB-12D-5	PQC0322-16	Soil	03/06/07 10:48	03/07/07 11:06

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-01 (SB-16-0.5)		**Soil**			**Sampled: 03/06/07 13:01**					
Diesel Range Organics	NWTPH-Dx	**59.9**	-----	17.7	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 21:02	**Q10**
Heavy Oil Range Hydrocarbons	"	**378**	-----	35.3	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*101%*		*50 - 150 %*	"			"	
PQC0322-03 (SB-17-0.5)		**Soil**			**Sampled: 03/06/07 14:05**					
Diesel Range Organics	NWTPH-Dx	ND	-----	14.0	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 23:10	
Heavy Oil Range Hydrocarbons	"	ND	-----	28.0	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*104%*		*50 - 150 %*	"			"	
PQC0322-05 (SB-18D-0.5)		**Soil**			**Sampled: 03/06/07 12:01**					
Diesel Range Organics	NWTPH-Dx	**166**	-----	14.2	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 21:34	**Q10**
Heavy Oil Range Hydrocarbons	"	**366**	-----	28.4	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*111%*		*50 - 150 %*	"			"	
PQC0322-06 (SB-18D-5)		**Soil**			**Sampled: 03/06/07 10:35**					
Diesel Range Organics	NWTPH-Dx	**44.4**	-----	14.3	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 23:10	**Q4**
Heavy Oil Range Hydrocarbons	"	**97.8**	-----	28.5	"	"	"	"	"	**Q4**
Surrogate(s): 1-Chlorooctadecane			*106%*		*50 - 150 %*	"			"	
PQC0322-08 (SB-19-0.5)		**Soil**			**Sampled: 03/06/07 11:55**					
Diesel Range Organics	NWTPH-Dx	**107**	-----	14.4	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 19:27	**Q9**
Heavy Oil Range Hydrocarbons	"	**233**	-----	28.9	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*119%*		*50 - 150 %*	"			"	
PQC0322-09 (SB-19-2.5)		**Soil**			**Sampled: 03/06/07 11:05**					
Diesel Range Organics	NWTPH-Dx	**82.6**	-----	13.7	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 19:59	**Q9**
Heavy Oil Range Hydrocarbons	"	**167**	-----	27.3	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*120%*		*50 - 150 %*	"			"	
PQC0322-10 (SB-20-0.5)		**Soil**			**Sampled: 03/06/07 11:25**					
Diesel Range Organics	NWTPH-Dx	**17.9**	-----	13.8	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 22:06	**Q9**
Heavy Oil Range Hydrocarbons	"	**43.3**	-----	27.5	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*111%*		*50 - 150 %*	"			"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-11 (SB-20-2.5)		**Soil**			**Sampled: 03/06/07 11:17**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.9	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 22:39	
Heavy Oil Range Hydrocarbons	"	ND	-----	27.8	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*117%*		*50 - 150 %*	"			"	
PQC0322-12 (SB-21-0.5)		**Soil**			**Sampled: 03/06/07 10:06**					
Diesel Range Organics	NWTPH-Dx	**34.2**	-----	14.7	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 22:06	**Q10**
Heavy Oil Range Hydrocarbons	"	**71.9**	-----	29.3	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*106%*		*50 - 150 %*	"			"	
PQC0322-13 (SB-22-0.5)		**Soil**			**Sampled: 03/06/07 11:49**					
Diesel Range Organics	NWTPH-Dx	**126**	-----	13.9	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 19:27	**Q9**
Heavy Oil Range Hydrocarbons	"	**200**	-----	27.8	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*116%*		*50 - 150 %*	"			"	
PQC0322-14 (SB-23-0.5)		**Soil**			**Sampled: 03/06/07 15:00**					
Diesel Range Organics	NWTPH-Dx	**91.3**	-----	14.0	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 19:59	**Q6**
Heavy Oil Range Hydrocarbons	"	**569**	-----	27.9	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*109%*		*50 - 150 %*	"			"	
PQC0322-16 (SB-12D-5)		**Soil**			**Sampled: 03/06/07 10:48**					
Diesel Range Organics	NWTPH-Dx	**39.4**	-----	14.2	mg/kg dry	1x	7030416	03/12/07 15:45	03/13/07 21:34	**Q9**
Heavy Oil Range Hydrocarbons	"	**59.1**	-----	28.4	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*101%*		*50 - 150 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-01 (SB-16-0.5)		**Soil**			**Sampled: 03/06/07 13:01**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	480	ug/kg dry	25x	7030326	03/09/07 06:40	03/13/07 23:52	
Acenaphthylene	"	ND	-----	480	"	"	"	"	"	
Anthracene	"	ND	-----	480	"	"	"	"	"	
Benzo (a) anthracene	"	**658**	-----	480	"	"	"	"	"	
Benzo (a) pyrene	"	**663**	-----	480	"	"	"	"	"	
Benzo (b) fluoranthene	"	**1150**	-----	480	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	480	"	"	"	"	"	
Benzo (k) fluoranthene	"	**596**	-----	480	"	"	"	"	"	
Chrysene	"	**829**	-----	480	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	480	"	"	"	"	"	
Fluoranthene	"	**847**	-----	480	"	"	"	"	"	
Fluorene	"	ND	-----	480	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	480	"	"	"	"	"	
Naphthalene	"	ND	-----	480	"	"	"	"	"	
Phenanthrene	"	ND	-----	480	"	"	"	"	"	
Pyrene	"	**829**	-----	480	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*74.2%*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*84.0%*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*84.0%*		*38 - 143 %*	"			"	*Z3*
PQC0322-03 (SB-17-0.5)		**Soil**			**Sampled: 03/06/07 14:05**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	146	ug/kg dry	10x	7030326	03/09/07 06:40	03/14/07 00:20	
Acenaphthylene	"	ND	-----	146	"	"	"	"	"	
Anthracene	"	ND	-----	146	"	"	"	"	"	
Benzo (a) anthracene	"	**187**	-----	146	"	"	"	"	"	
Benzo (a) pyrene	"	**205**	-----	146	"	"	"	"	"	
Benzo (b) fluoranthene	"	**242**	-----	146	"	"	"	"	"	
Benzo (ghi) perylene	"	**147**	-----	146	"	"	"	"	"	
Benzo (k) fluoranthene	"	**170**	-----	146	"	"	"	"	"	
Chrysene	"	**179**	-----	146	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	146	"	"	"	"	"	
Fluoranthene	"	**261**	-----	146	"	"	"	"	"	
Fluorene	"	ND	-----	146	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	146	"	"	"	"	"	
Naphthalene	"	ND	-----	146	"	"	"	"	"	
Phenanthrene	"	ND	-----	146	"	"	"	"	"	
Pyrene	"	**271**	-----	146	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*60.6%*		*24 - 125 %*	"			"	
Pyrene-d10			*74.4%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*68.2%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-05 (SB-18D-0.5)		**Soil**			**Sampled: 03/06/07 12:01**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	2950	ug/kg dry	200x	7030326	03/09/07 06:40	03/14/07 00:48	
Acenaphthylene	"	ND	-----	2950	"	"	"	"	"	
Anthracene	"	ND	-----	2950	"	"	"	"	"	
Benzo (a) anthracene	"	**7400**	-----	2950	"	"	"	"	"	
Benzo (a) pyrene	"	**8520**	-----	2950	"	"	"	"	"	
Benzo (b) fluoranthene	"	**10700**	-----	2950	"	"	"	"	"	
Benzo (ghi) perylene	"	**5150**	-----	2950	"	"	"	"	"	
Benzo (k) fluoranthene	"	**5470**	-----	2950	"	"	"	"	"	
Chrysene	"	**6620**	-----	2950	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	2950	"	"	"	"	"	
Fluoranthene	"	**9000**	-----	2950	"	"	"	"	"	
Fluorene	"	ND	-----	2950	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**5090**	-----	2950	"	"	"	"	"	
Naphthalene	"	ND	-----	2950	"	"	"	"	"	
Phenanthrene	"	**3340**	-----	2950	"	"	"	"	"	
Pyrene	"	**9030**	-----	2950	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQC0322-06 (SB-18D-5)		**Soil**			**Sampled: 03/06/07 10:35**					
Acenaphthene	EPA 8270m	ND	-----	15.3	ug/kg dry	1x	7030326	03/09/07 06:40	03/14/07 02:11	
Acenaphthylene	"	ND	-----	15.3	"	"	"	"	"	
Anthracene	"	ND	-----	15.3	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	15.3	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	15.3	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	15.3	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	15.3	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	15.3	"	"	"	"	"	
Chrysene	"	ND	-----	15.3	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	15.3	"	"	"	"	"	
Fluoranthene	"	ND	-----	15.3	"	"	"	"	"	
Fluorene	"	ND	-----	15.3	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	15.3	"	"	"	"	"	
Naphthalene	"	ND	-----	15.3	"	"	"	"	"	
Phenanthrene	"	ND	-----	15.3	"	"	"	"	"	
Pyrene	"	ND	-----	15.3	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*64.3%*		*24 - 125 %*	"			"	
Pyrene-d10			*79.2%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*76.8%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-08 (SB-19-0.5)		**Soil**			**Sampled: 03/06/07 11:55**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	779	ug/kg dry	50x	7030326	03/09/07 06:40	03/14/07 02:39	
Acenaphthylene	"	ND	-----	779	"	"	"	"	"	
Anthracene	"	ND	-----	779	"	"	"	"	"	
Benzo (a) anthracene	"	**7060**	-----	779	"	"	"	"	"	
Benzo (a) pyrene	"	**7950**	-----	779	"	"	"	"	"	
Benzo (b) fluoranthene	"	**9780**	-----	779	"	"	"	"	"	
Benzo (ghi) perylene	"	**4770**	-----	779	"	"	"	"	"	
Benzo (k) fluoranthene	"	**5060**	-----	779	"	"	"	"	"	
Chrysene	"	**6400**	-----	779	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**1910**	-----	779	"	"	"	"	"	
Fluoranthene	"	**8900**	-----	779	"	"	"	"	"	
Fluorene	"	ND	-----	779	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**4800**	-----	779	"	"	"	"	"	
Naphthalene	"	ND	-----	779	"	"	"	"	"	
Phenanthrene	"	**3170**	-----	779	"	"	"	"	"	
Pyrene	"	**8730**	-----	779	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*73.1%*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*91.0%*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*93.6%*		*38 - 143 %*	"			"	*Z3*
PQC0322-09 (SB-19-2.5)		**Soil**			**Sampled: 03/06/07 11:05**					
Acenaphthene	EPA 8270m	**34.3**	-----	14.9	ug/kg dry	1x	7030326	03/09/07 06:40	03/14/07 03:07	
Acenaphthylene	"	ND	-----	14.9	"	"	"	"	"	
Anthracene	"	**31.7**	-----	14.9	"	"	"	"	"	
Benzo (a) anthracene	"	**256**	-----	14.9	"	"	"	"	"	
Benzo (a) pyrene	"	**277**	-----	14.9	"	"	"	"	"	
Benzo (b) fluoranthene	"	**296**	-----	14.9	"	"	"	"	"	
Benzo (ghi) perylene	"	**150**	-----	14.9	"	"	"	"	"	
Benzo (k) fluoranthene	"	**204**	-----	14.9	"	"	"	"	"	
Chrysene	"	**215**	-----	14.9	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**56.3**	-----	14.9	"	"	"	"	"	
Fluoranthene	"	**315**	-----	14.9	"	"	"	"	"	
Fluorene	"	ND	-----	14.9	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**152**	-----	14.9	"	"	"	"	"	
Naphthalene	"	ND	-----	14.9	"	"	"	"	"	
Phenanthrene	"	**134**	-----	14.9	"	"	"	"	"	
Pyrene	"	**317**	-----	14.9	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*64.5%*		*24 - 125 %*	"			"	
Pyrene-d10			*78.8%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*74.5%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-10 (SB-20-0.5)		**Soil**			**Sampled: 03/06/07 11:25**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	743	ug/kg dry	50x	7030326	03/09/07 06:40	03/14/07 03:35	
Acenaphthylene	"	ND	-----	743	"	"	"	"	"	
Anthracene	"	ND	-----	743	"	"	"	"	"	
Benzo (a) anthracene	"	**3230**	-----	743	"	"	"	"	"	
Benzo (a) pyrene	"	**3700**	-----	743	"	"	"	"	"	
Benzo (b) fluoranthene	"	**4120**	-----	743	"	"	"	"	"	
Benzo (ghi) perylene	"	**2240**	-----	743	"	"	"	"	"	
Benzo (k) fluoranthene	"	**2820**	-----	743	"	"	"	"	"	
Chrysene	"	**2950**	-----	743	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**822**	-----	743	"	"	"	"	"	
Fluoranthene	"	**4040**	-----	743	"	"	"	"	"	
Fluorene	"	ND	-----	743	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**2250**	-----	743	"	"	"	"	"	
Naphthalene	"	ND	-----	743	"	"	"	"	"	
Phenanthrene	"	**1470**	-----	743	"	"	"	"	"	
Pyrene	"	**4010**	-----	743	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQC0322-11 (SB-20-2.5)		**Soil**			**Sampled: 03/06/07 11:17**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	752	ug/kg dry	50x	7030326	03/09/07 06:40	03/14/07 04:03	
Acenaphthylene	"	ND	-----	752	"	"	"	"	"	
Anthracene	"	ND	-----	752	"	"	"	"	"	
Benzo (a) anthracene	"	**2110**	-----	752	"	"	"	"	"	
Benzo (a) pyrene	"	**2420**	-----	752	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2720**	-----	752	"	"	"	"	"	
Benzo (ghi) perylene	"	**1380**	-----	752	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1730**	-----	752	"	"	"	"	"	
Chrysene	"	**1910**	-----	752	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	752	"	"	"	"	"	
Fluoranthene	"	**2590**	-----	752	"	"	"	"	"	
Fluorene	"	ND	-----	752	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**1410**	-----	752	"	"	"	"	"	
Naphthalene	"	ND	-----	752	"	"	"	"	"	
Phenanthrene	"	**999**	-----	752	"	"	"	"	"	
Pyrene	"	**2590**	-----	752	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-11 (SB-20-2.5)		**Soil**			**Sampled: 03/06/07 11:17**					**RL3**
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	*50x*			*03/14/07 04:03*	***Z3***
PQC0322-12 (SB-21-0.5)		**Soil**			**Sampled: 03/06/07 10:06**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	1530	ug/kg dry	100x	7030326	03/09/07 06:40	03/14/07 04:31	
Acenaphthylene	"	ND	-----	1530	"	"	"	"	"	
Anthracene	"	ND	-----	1530	"	"	"	"	"	
Benzo (a) anthracene	"	**4060**	-----	1530	"	"	"	"	"	
Benzo (a) pyrene	"	**4330**	-----	1530	"	"	"	"	"	
Benzo (b) fluoranthene	"	**5340**	-----	1530	"	"	"	"	"	
Benzo (ghi) perylene	"	**2590**	-----	1530	"	"	"	"	"	
Benzo (k) fluoranthene	"	**3170**	-----	1530	"	"	"	"	"	
Chrysene	"	**3600**	-----	1530	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	1530	"	"	"	"	"	
Fluoranthene	"	**5180**	-----	1530	"	"	"	"	"	
Fluorene	"	ND	-----	1530	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**2650**	-----	1530	"	"	"	"	"	
Naphthalene	"	ND	-----	1530	"	"	"	"	"	
Phenanthrene	"	**2150**	-----	1530	"	"	"	"	"	
Pyrene	"	**5050**	-----	1530	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*NR*		*24 - 125 %*	"			"	***Z3***
Pyrene-d10			*NR*		*41 - 141 %*	"			"	***Z3***
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	***Z3***
PQC0322-13 (SB-22-0.5)		**Soil**			**Sampled: 03/06/07 11:49**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	2900	ug/kg dry	200x	7030326	03/09/07 06:40	03/14/07 04:59	
Acenaphthylene	"	ND	-----	2900	"	"	"	"	"	
Anthracene	"	ND	-----	2900	"	"	"	"	"	
Benzo (a) anthracene	"	**11500**	-----	2900	"	"	"	"	"	
Benzo (a) pyrene	"	**13700**	-----	2900	"	"	"	"	"	
Benzo (b) fluoranthene	"	**16700**	-----	2900	"	"	"	"	"	
Benzo (ghi) perylene	"	**9130**	-----	2900	"	"	"	"	"	
Benzo (k) fluoranthene	"	**9310**	-----	2900	"	"	"	"	"	
Chrysene	"	**10200**	-----	2900	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**3280**	-----	2900	"	"	"	"	"	
Fluoranthene	"	**13300**	-----	2900	"	"	"	"	"	
Fluorene	"	ND	-----	2900	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**8800**	-----	2900	"	"	"	"	"	
Naphthalene	"	ND	-----	2900	"	"	"	"	"	
Phenanthrene	"	**5010**	-----	2900	"	"	"	"	"	
Pyrene	"	**14200**	-----	2900	"	"	"	"	"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-13 (SB-22-0.5)		**Soil**			**Sampled: 03/06/07 11:49**					**RL3**
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	*200x*			*03/14/07 04:59*	***Z3***
Pyrene-d10			*NR*		*41 - 141 %*	"			"	***Z3***
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	***Z3***
PQC0322-14 (SB-23-0.5)		**Soil**			**Sampled: 03/06/07 15:00**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	1480	ug/kg dry	100x	7030326	03/09/07 06:40	03/14/07 14:45	
Acenaphthylene	"	ND	-----	1480	"	"	"	"	"	
Anthracene	"	ND	-----	1480	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	1480	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	1480	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2220**	-----	1480	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	1480	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	1480	"	"	"	"	"	
Chrysene	"	**1510**	-----	1480	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	1480	"	"	"	"	"	
Fluoranthene	"	**1480**	-----	1480	"	"	"	"	"	
Fluorene	"	ND	-----	1480	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	1480	"	"	"	"	"	
Naphthalene	"	ND	-----	1480	"	"	"	"	"	
Phenanthrene	"	ND	-----	1480	"	"	"	"	"	
Pyrene	"	**1510**	-----	1480	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	***Z3***
Pyrene-d10			*NR*		*41 - 141 %*	"			"	***Z3***
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	***Z3***
PQC0322-16 (SB-12D-5)		**Soil**			**Sampled: 03/06/07 10:48**					
Acenaphthene	EPA 8270m	ND	-----	14.8	ug/kg dry	1x	7030326	03/09/07 06:40	03/14/07 05:55	
Acenaphthylene	"	ND	-----	14.8	"	"	"	"	"	
Anthracene	"	ND	-----	14.8	"	"	"	"	"	
Benzo (a) anthracene	"	**95.7**	-----	14.8	"	"	"	"	"	
Benzo (a) pyrene	"	**106**	-----	14.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	**124**	-----	14.8	"	"	"	"	"	
Benzo (ghi) perylene	"	**64.7**	-----	14.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	**71.2**	-----	14.8	"	"	"	"	"	
Chrysene	"	**84.5**	-----	14.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**20.4**	-----	14.8	"	"	"	"	"	
Fluoranthene	"	**128**	-----	14.8	"	"	"	"	"	
Fluorene	"	ND	-----	14.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**61.0**	-----	14.8	"	"	"	"	"	
Naphthalene	"	ND	-----	14.8	"	"	"	"	"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-16 (SB-12D-5)		**Soil**			**Sampled: 03/06/07 10:48**					
Phenanthrene	EPA 8270m	**55.4**	-----	14.8	ug/kg dry	1x	7030326	03/09/07 06:40	03/14/07 05:55	
Pyrene	"	**132**	-----	14.8	"	"	"	"	"	
Surrogate(s):	*Fluorene-d10*		*56.7%*		*24 - 125 %*	"			"	
	Pyrene-d10		*77.2%*		*41 - 141 %*	"			"	
	Benzo (a) pyrene-d12		*69.5%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

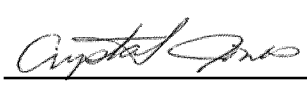
Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-01 (SB-16-0.5)		**Soil**				**Sampled: 03/06/07 13:01**				
% Solids	NCA SOP	**69.1**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-03 (SB-17-0.5)		**Soil**				**Sampled: 03/06/07 14:05**				
% Solids	NCA SOP	**90.5**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-05 (SB-18D-0.5)		**Soil**				**Sampled: 03/06/07 12:01**				
% Solids	NCA SOP	**89.8**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-06 (SB-18D-5)		**Soil**				**Sampled: 03/06/07 10:35**				
% Solids	NCA SOP	**86.4**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-08 (SB-19-0.5)		**Soil**				**Sampled: 03/06/07 11:55**				
% Solids	NCA SOP	**85.8**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-09 (SB-19-2.5)		**Soil**				**Sampled: 03/06/07 11:05**				
% Solids	NCA SOP	**89.6**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-10 (SB-20-0.5)		**Soil**				**Sampled: 03/06/07 11:25**				
% Solids	NCA SOP	**89.7**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-11 (SB-20-2.5)		**Soil**				**Sampled: 03/06/07 11:17**				
% Solids	NCA SOP	**87.9**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-12 (SB-21-0.5)		**Soil**				**Sampled: 03/06/07 10:06**				
% Solids	NCA SOP	**86.4**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-13 (SB-22-0.5)		**Soil**				**Sampled: 03/06/07 11:49**				
% Solids	NCA SOP	**92.4**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-14 (SB-23-0.5)		**Soil**				**Sampled: 03/06/07 15:00**				

TestAmerica - Portland, OR



Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

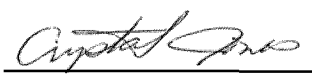
PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQC0322-14 (SB-23-0.5)		**Soil**			**Sampled: 03/06/07 15:00**					
% Solids	NCA SOP	**90.1**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	
PQC0322-16 (SB-12D-5)		**Soil**			**Sampled: 03/06/07 10:48**					
% Solids	NCA SOP	**90.1**	-----	0.00	% by Weight	1x	7030386	03/12/07 07:39	03/12/07 07:39	



Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7030416 **Soil Preparation Method: EPA 3550 Fuels**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7030416-BLK1)							**Extracted: 03/12/07 15:45**							
Diesel Range Organics	NWTPH-Dx	ND	---	12.5	mg/kg wet	1x	--	--	--	--	--	--	03/13/07 17:14	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 106%*			*Limits: 50-150%*	"							*03/13/07 17:14*	
LCS (7030416-BS1)							**Extracted: 03/12/07 15:45**							
Diesel Range Organics	NWTPH-Dx	128	---	12.5	mg/kg wet	1x	--	128	100%	(50-150)	--	--	03/13/07 16:43	
Heavy Oil Range Hydrocarbons	"	79.5	---	25.0	"	"	--	76.0	105%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 115%*			*Limits: 50-150%*	"							*03/13/07 16:43*	
Duplicate (7030416-DUP1)					**QC Source: PQC0322-01**		**Extracted: 03/12/07 15:45**							
Diesel Range Organics	NWTPH-Dx	50.2	---	17.9	mg/kg dry	1x	59.9	--	--	--	17.6%	(50)	03/13/07 20:31	Q10
Heavy Oil Range Hydrocarbons	"	433	---	35.8	"	"	378	--	--	--	13.6%	"	"	Q10
Surrogate(s): 1-Chlorooctadecane		*Recovery: 106%*			*Limits: 50-150%*	"							*03/13/07 20:31*	
Duplicate (7030416-DUP2)					**QC Source: PQC0322-03**		**Extracted: 03/12/07 15:45**							
Diesel Range Organics	NWTPH-Dx	ND	---	14.0	mg/kg dry	1x	ND	--	--	--	NR	(50)	03/13/07 22:39	
Heavy Oil Range Hydrocarbons	"	ND	---	28.1	"	"	ND	--	--	--	NR	"	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 101%*			*Limits: 50-150%*	"							*03/13/07 22:39*	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7030326 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7030326-BLK1)							**Extracted: 03/09/07 06:40**							
Acenaphthene	EPA 8270m	ND	---	13.4	ug/kg wet	1x	--	--	--	--	--	--	03/12/07 21:58	
Acenaphthylene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 64.4%*			*Limits: 24-125%*	"							*03/12/07 21:58*	
Pyrene-d10		*79.6%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*73.6%*			*38-143%*	"							"	
LCS (7030326-BS1)							**Extracted: 03/09/07 06:40**							
Acenaphthene	EPA 8270m	116	---	13.4	ug/kg wet	1x	--	166	69.9%	(33-139)	--	--	03/12/07 22:26	
Benzo (a) pyrene	"	123	---	13.4	"	"	--	"	74.1%	(45-149)	--	--	"	
Pyrene	"	131	---	13.4	"	"	--	"	78.9%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 66.9%*			*Limits: 24-125%*	"							*03/12/07 22:26*	
Pyrene-d10		*80.0%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*80.6%*			*38-143%*	"							"	
Matrix Spike (7030326-MS1)					**QC Source: PQB0983-04**		**Extracted: 03/09/07 06:40**							
Acenaphthene	EPA 8270m	552	---	371	ug/kg dry	20x	ND	231	239%	(33-139)	--	--	03/14/07 01:15	M1
Benzo (a) pyrene	"	138	---	371	"	"	ND	"	59.7%	(45-149)	--	--	"	
Pyrene	"	365	---	371	"	"	248	"	50.6%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 102%*			*Limits: 24-125%*	"							*03/14/07 01:15*	
Pyrene-d10		*107%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*64.3%*			*38-143%*	"							"	*Z3*

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7030326 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (7030326-MSD1)					**QC Source: PQB0983-04**				**Extracted: 03/09/07 06:40**					
Acenaphthene	EPA 8270m	434	---	369	ug/kg dry	20x	ND	229	190%	(33-139)	23.9%	(60)	03/14/07 01:43	M1
Benzo (a) pyrene	"	98.8	---	369	"	"	ND	"	43.1%	(45-149)	33.1%	"	"	M2
Pyrene	"	268	---	369	"	"	248	"	8.73%	(39-138)	30.6%	"	"	M2
Surrogate(s): Fluorene-d10		*Recovery: 80.4%*			*Limits: 24-125%*	"							*03/14/07 01:43*	
Pyrene-d10		*77.4%*			*41-141%*	"							*"*	*Z3*
Benzo (a) pyrene-d12		*48.5%*			*38-143%*	"							*"*	*Z3*

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Percent Dry Weight (Solids) per Standard Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7030386 **Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (7030386-DUP1)					**QC Source: PQC0322-10**				**Extracted: 03/12/07 07:39**					
% Solids	NCA SOP	89.9	---	0.00	% by Weight	1x	89.7	--	--	--	0.223%	(20)	03/12/07 07:39	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007-02	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	03/21/07 17:13

Notes and Definitions

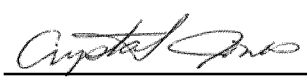
Report Specific Notes:

M1	-	The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
M2	-	The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
Q10	-	Hydrocarbon pattern most closely resembles a blend of creosote or similar product as well as oil.
Q4	-	The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
Q6	-	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
Q9	-	Hydrocarbon pattern most closely resembles creosote or similar product.
RL3	-	Reporting limit raised due to high concentrations of non-target analytes.
Z3	-	The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
Dil	-	Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
Electronic Signature	-	Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica - Portland, OR



Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

KMB00006878

TestAmerica
ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

156

PQ(03)24 1 of 2

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: Ash Creek

REPORT TO: Mike Stevens
ADDRESS: 9615 SW Allen Blvd Suite 106
Beaverton, OR 97005

PHONE: 503.924.4704 FAX: 503.924.4707

INVOICE TO: SAME

P.O. NUMBER: 1007-02

PROJECT NAME: T453 Pencil Ptch

PROJECT NUMBER: 1007-02

SAMPLED BY: A. Schmidt

TURNAROUND REQUEST

In Business Days *

Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		PRESERVATIVE	REQUESTED ANALYSES: PAHs 8270 SIM	REQUESTED ANALYSES: TPH-D NWTPH-Dx	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	SB-16 -0.5	3/6/07	1301		X	X	S	2		
2	SB-16 - 2.75		1325				S	2	HOLD!	
3	SB-17 - 0.5		1405		X	X	S	2		
4	SB-17 - 2.7		1415				S	2	HOLD!	
5	SB-18D - 0.5		1201		X	X	S	2		
6	SB-18D - 5		1035		X	X	S	2		
7	SB-18D - 8		1038				S	2	HOLD!	
8	SB-19 - 0.5		1155		X	X	S	2		
9	SB-19 - 2.5		1105		X	X	S	2		
10	SB-20 -0.5		1125		X	X	S	2		

RELEASED BY: A. Schmidt		DATE: 3/7/07	RECEIVED BY: Camille Holladay		DATE: 3/7/07
PRINT NAME: A. Schmidt	FIRM: Ash Creek	TIME: 1105	PRINT NAME: Camille Holladay	FIRM: TAP	TIME: 1105
RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:

TEMP: 0.5

COC REV 09/2004

PAGE OF

KMB00006879

TestAmerica
ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

PQC0322 2 of 2

Work Order #:

CHAIN OF CUSTODY REPORT

CLIENT: Ash Creek

REPORT TO: Mike Stevens
ADDRESS: 9615 SW Allen Blvd, Suite 106
Beaverton, OR 97005
PHONE: 503.924.4704 FAX: 503.924.4707

INVOICE TO: SAME

P.O. NUMBER: 1007-02

PROJECT NAME: T453 Pencil Pitch

PROJECT NUMBER: 1007-02

SAMPLED BY: A. Schmidt

PRESERVATIVE

REQUESTED ANALYSES

TURNAROUND REQUEST
In Business Days *
Organic & Inorganic Analyses: 10 (STD.) 7 5 4 3 2 1 <1
Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		PAHs 8270 GC/MS	TPH-D NWTPH-Dx	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	SB-20-2.5	3/6/07	1117	X	X	S	2		
2	SB-21-0.5		1006	X	X	S	2		
3	SB-22-0.5		1149	X	X	S	2		
4	SB-23-0.5		1500	X	X	S	2		
5	SB-23-2.5		1510			S	2	HOLD!	
6	SB-12D-5		1048	X	X	S	2		
7	SB-12D-8		1050			S	2	HOLD!	
8									
9									
10									

RELEASED BY: A. Schmidt DATE: 3/7/07
PRINT NAME: A. Schmidt FIRM: Ash Creek TIME: 1105

RECEIVED BY: Camille Holladay DATE: 3/7/07
PRINT NAME: Camille Holladay FIRM: TAP TIME: 1105

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

TEMP:

PAGE OF

COC REV 09/2004

KMB00006880

TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: (applies to temp at receipt)
Date: 3/7/07
Time: 1106
Initials: CM

Logged-in By:
Date: 3/8
Initials: SM

Unpacked/Labeled By:
Date: 3/8
Initials: SM

Cooler ID: ____ (____ of ____)

Work Order No. PQ(0322
Client: Ash Creek
Project: T453 Pernil Pitch

Container Type:
✓ Cooler
____ Box
____ None/Other ____

COC Seals:
____ Ship. Container ____ Sign By
____ On Bottles ____ Date
✓ None

Packing Material
____ Bubble Bags ____ Styrofoam
____ Foam Packs
✓ None/Other Other ____

Refrigerant:
✓ Gel Ice Pack ____ ____ None
____ Loose Ice
____ None/Other ____

Received Via: Bill#
____ Fed Ex ✓ Client
____ UPS ____ NCA Courier
____ DHL ____ Mid Valley
____ Senvoy ____ TDP
____ GS ____ Other ____

Cooler Temperature (IR): 0.5 °C Plastic (Glass) (Frozen filters, Tedlars and aqueous Metals exempt)
(circle one)

Temperature Blank? ____ °C or (NA)

Trip Blank? Y or N or (NA)

Sample Containers:		ID			ID
Intact?	Y or N	____	Metals Preserved?	Y or N or (NA)	____
Provided by NCA?	Y or N	____	Client QAPP Preserved?	Y or N or (NA)	____
Correct Type?	Y or N	____	Adequate Volume? (for tests requested)	(Y) or N	____
#Containers match COC?	Y or N	____	Water VOAs: Headspace?	Y or N or (NA)	____
IDs/time/date match COC?	Y or N	____	Comments:		
Hold Times in hold?	Y or N	____			

PROJECT MANAGEMENT

Is the Chain of Custody complete? Y or N If N, circle the items that were incomplete

Comments, Problems ____

Total access set up? Y or N
Has client been contacted regarding non-conformances? Y or N If Y ____/____ Date Time

PM Initials: ____ Date: ____ Time: ____

(rev 3, 09/12/05)

KMB00006881

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

April 30, 2007

Mike Stevens
Ash Creek Associates, Inc.
9615 SW Allen Blvd. Suite 106
Beaverton, OR 97005

RE: T4S3 - Pencil Pitch

Enclosed are the results of analyses for samples received by the laboratory on 04/17/07 12:10. The following list is a summary of the Work Orders contained in this report, generated on 04/30/07 12:46.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PQD0638	T4S3 - Pencil Pitch	1007

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-24-1	PQD0638-01	Soil	04/16/07 14:34	04/17/07 12:10
SB-24-2	PQD0638-02	Soil	04/16/07 14:39	04/17/07 12:10
SB-25-1	PQD0638-03	Soil	04/16/07 14:50	04/17/07 12:10
SB-25-2	PQD0638-04	Soil	04/16/07 14:53	04/17/07 12:10
SB-26-1	PQD0638-05	Soil	04/16/07 15:15	04/17/07 12:10
SB-26-2	PQD0638-06	Soil	04/16/07 15:20	04/17/07 12:10
SB-27-1	PQD0638-07	Soil	04/16/07 15:40	04/17/07 12:10
SB-27-2	PQD0638-08	Soil	04/16/07 15:45	04/17/07 12:10

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-01 (SB-24-1)		**Soil**			**Sampled: 04/16/07 14:34**					
Diesel Range Organics	NWTPH-Dx	**38.8**	-----	12.8	mg/kg dry	1x	7040781	04/18/07 15:15	04/19/07 16:27	**Q9**
Heavy Oil Range Hydrocarbons	"	**241**	-----	25.7	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*106%*		*50 - 150 %*	"			"	
PQD0638-02 (SB-24-2)		**Soil**			**Sampled: 04/16/07 14:39**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.6	mg/kg dry	1x	7040781	04/18/07 15:15	04/18/07 19:15	
Heavy Oil Range Hydrocarbons	"	ND	-----	27.1	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*101%*		*50 - 150 %*	"			"	
PQD0638-03 (SB-25-1)		**Soil**			**Sampled: 04/16/07 14:50**					
Diesel Range Organics	NWTPH-Dx	**21.6**	-----	13.5	mg/kg dry	1x	7040781	04/18/07 15:15	04/19/07 17:01	**Q9**
Heavy Oil Range Hydrocarbons	"	**138**	-----	26.9	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*101%*		*50 - 150 %*	"			"	
PQD0638-04 (SB-25-2)		**Soil**			**Sampled: 04/16/07 14:53**					
Diesel Range Organics	NWTPH-Dx	ND	-----	13.3	mg/kg dry	1x	7040781	04/18/07 15:15	04/18/07 19:54	
Heavy Oil Range Hydrocarbons	"	ND	-----	26.7	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*101%*		*50 - 150 %*	"			"	
PQD0638-05 (SB-26-1)		**Soil**			**Sampled: 04/16/07 15:15**					
Diesel Range Organics	NWTPH-Dx	**28.3**	-----	13.8	mg/kg dry	1x	7040781	04/18/07 15:15	04/19/07 17:34	**Q10**
Heavy Oil Range Hydrocarbons	"	**210**	-----	27.6	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*102%*		*50 - 150 %*	"			"	
PQD0638-06 (SB-26-2)		**Soil**			**Sampled: 04/16/07 15:20**					
Diesel Range Organics	NWTPH-Dx	**849**	-----	531	mg/kg dry	40x	7040781	04/18/07 15:15	04/19/07 12:12	**Q6**
Heavy Oil Range Hydrocarbons	"	**5150**	-----	1060	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane			*NR*		*50 - 150 %*	"			"	***Z3***
PQD0638-07 (SB-27-1)		**Soil**			**Sampled: 04/16/07 15:40**					
Diesel Range Organics	NWTPH-Dx	**18.4**	-----	14.3	mg/kg dry	1x	7040781	04/18/07 15:15	04/19/07 18:09	**Q10**
Heavy Oil Range Hydrocarbons	"	**167**	-----	28.5	"	"	"	"	"	**Q10**
Surrogate(s): 1-Chlorooctadecane			*99.1%*		*50 - 150 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

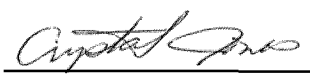
PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-08 (SB-27-2)		**Soil**			**Sampled: 04/16/07 15:45**					
Diesel Range Organics	NWTPH-Dx	**32.2**	-----	13.7	mg/kg dry	1x	7040781	04/18/07 15:15	04/18/07 20:51	**Q9**
Heavy Oil Range Hydrocarbons	"	**111**	-----	27.4	"	"	"	"	"	**Q9**
Surrogate(s): 1-Chlorooctadecane			*111%*		*50 - 150 %*	"			"	



Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-01 (SB-24-1)		**Soil**			**Sampled: 04/16/07 14:34**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	691	ug/kg dry	50x	7040778	04/18/07 15:40	04/25/07 22:50	
Acenaphthylene	"	ND	-----	691	"	"	"	"	"	
Anthracene	"	ND	-----	691	"	"	"	"	"	
Benzo (a) anthracene	"	**1910**	-----	691	"	"	"	"	"	
Benzo (a) pyrene	"	**2750**	-----	691	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2880**	-----	691	"	"	"	"	"	
Benzo (ghi) perylene	"	**2820**	-----	691	"	"	"	"	"	
Benzo (k) fluoranthene	"	**2110**	-----	691	"	"	"	"	"	
Chrysene	"	**2240**	-----	691	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**1010**	-----	691	"	"	"	"	"	
Fluoranthene	"	**2260**	-----	691	"	"	"	"	"	
Fluorene	"	ND	-----	691	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**2490**	-----	691	"	"	"	"	"	
Naphthalene	"	ND	-----	691	"	"	"	"	"	
Phenanthrene	"	**916**	-----	691	"	"	"	"	"	
Pyrene	"	**2530**	-----	691	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*NR*		*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	*Z3*
PQD0638-02 (SB-24-2)		**Soil**			**Sampled: 04/16/07 14:39**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	288	ug/kg dry	20x	7040778	04/18/07 15:40	04/25/07 23:17	
Acenaphthylene	"	ND	-----	288	"	"	"	"	"	
Anthracene	"	ND	-----	288	"	"	"	"	"	
Benzo (a) anthracene	"	**1800**	-----	288	"	"	"	"	"	
Benzo (a) pyrene	"	**2510**	-----	288	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2780**	-----	288	"	"	"	"	"	
Benzo (ghi) perylene	"	**2220**	-----	288	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1770**	-----	288	"	"	"	"	"	
Chrysene	"	**2090**	-----	288	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**660**	-----	288	"	"	"	"	"	
Fluoranthene	"	**2300**	-----	288	"	"	"	"	"	
Fluorene	"	ND	-----	288	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**2000**	-----	288	"	"	"	"	"	
Naphthalene	"	ND	-----	288	"	"	"	"	"	
Phenanthrene	"	**956**	-----	288	"	"	"	"	"	
Pyrene	"	**2770**	-----	288	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*78.9%*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*104%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*91.2%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-03 (SB-25-1)		**Soil**			**Sampled: 04/16/07 14:50**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	293	ug/kg dry	20x	7040778	04/18/07 15:40	04/25/07 23:44	
Acenaphthylene	"	ND	-----	293	"	"	"	"	"	
Anthracene	"	ND	-----	293	"	"	"	"	"	
Benzo (a) anthracene	"	**1720**	-----	293	"	"	"	"	"	
Benzo (a) pyrene	"	**2350**	-----	293	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2630**	-----	293	"	"	"	"	"	
Benzo (ghi) perylene	"	**2040**	-----	293	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1690**	-----	293	"	"	"	"	"	
Chrysene	"	**2010**	-----	293	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**820**	-----	293	"	"	"	"	"	
Fluoranthene	"	**2280**	-----	293	"	"	"	"	"	
Fluorene	"	ND	-----	293	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**1840**	-----	293	"	"	"	"	"	
Naphthalene	"	ND	-----	293	"	"	"	"	"	
Phenanthrene	"	**926**	-----	293	"	"	"	"	"	
Pyrene	"	**2720**	-----	293	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*75.9%*		*24 - 125 %*	"			"	*Z3*
Pyrene-d10			*106%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*90.9%*		*38 - 143 %*	"			"	
PQD0638-04 (SB-25-2)		**Soil**			**Sampled: 04/16/07 14:53**					
Acenaphthene	EPA 8270m	ND	-----	14.2	ug/kg dry	1x	7040778	04/18/07 15:40	04/26/07 00:10	
Acenaphthylene	"	ND	-----	14.2	"	"	"	"	"	
Anthracene	"	ND	-----	14.2	"	"	"	"	"	
Benzo (a) anthracene	"	**89.1**	-----	14.2	"	"	"	"	"	
Benzo (a) pyrene	"	**134**	-----	14.2	"	"	"	"	"	
Benzo (b) fluoranthene	"	**158**	-----	14.2	"	"	"	"	"	
Benzo (ghi) perylene	"	**136**	-----	14.2	"	"	"	"	"	
Benzo (k) fluoranthene	"	**109**	-----	14.2	"	"	"	"	"	
Chrysene	"	**111**	-----	14.2	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**45.2**	-----	14.2	"	"	"	"	"	
Fluoranthene	"	**117**	-----	14.2	"	"	"	"	"	
Fluorene	"	ND	-----	14.2	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**112**	-----	14.2	"	"	"	"	"	
Naphthalene	"	ND	-----	14.2	"	"	"	"	"	
Phenanthrene	"	**51.8**	-----	14.2	"	"	"	"	"	
Pyrene	"	**154**	-----	14.2	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*78.0%*		*24 - 125 %*	"			"	
Pyrene-d10			*112%*		*41 - 141 %*	"			"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-04 (SB-25-2)		**Soil**			**Sampled: 04/16/07 14:53**					
Benzo (a) pyrene-d12		*88.9%*			*38 - 143 %*	*1x*			*04/26/07 00:10*	
PQD0638-05 (SB-26-1)		**Soil**			**Sampled: 04/16/07 15:15**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	370	ug/kg dry	25x	7040778	04/18/07 15:40	04/26/07 22:00	
Acenaphthylene	"	ND	-----	370	"	"	"	"	"	
Anthracene	"	ND	-----	370	"	"	"	"	"	
Benzo (a) anthracene	"	**447**	-----	370	"	"	"	"	"	
Benzo (a) pyrene	"	**670**	-----	370	"	"	"	"	"	
Benzo (b) fluoranthene	"	**630**	-----	370	"	"	"	"	"	
Benzo (ghi) perylene	"	**679**	-----	370	"	"	"	"	"	
Benzo (k) fluoranthene	"	**531**	-----	370	"	"	"	"	"	
Chrysene	"	**548**	-----	370	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	370	"	"	"	"	"	
Fluoranthene	"	**635**	-----	370	"	"	"	"	"	
Fluorene	"	ND	-----	370	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**520**	-----	370	"	"	"	"	"	
Naphthalene	"	ND	-----	370	"	"	"	"	"	
Phenanthrene	"	ND	-----	370	"	"	"	"	"	
Pyrene	"	**699**	-----	370	"	"	"	"	"	
Surrogate(s): Fluorene-d10		*60.0%*			*24 - 125 %*	"			"	*Z3*
Pyrene-d10		*71.6%*			*41 - 141 %*	"			"	*Z3*
Benzo (a) pyrene-d12		*70.5%*			*38 - 143 %*	"			"	*Z3*
PQD0638-06 (SB-26-2)		**Soil**			**Sampled: 04/16/07 15:20**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	714	ug/kg dry	20x	7040778	04/18/07 15:40	04/26/07 22:27	
Acenaphthylene	"	ND	-----	714	"	"	"	"	"	
Anthracene	"	ND	-----	714	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	714	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	714	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	714	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	714	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	714	"	"	"	"	"	
Chrysene	"	ND	-----	714	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	714	"	"	"	"	"	
Fluoranthene	"	ND	-----	714	"	"	"	"	"	
Fluorene	"	ND	-----	714	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	714	"	"	"	"	"	
Naphthalene	"	ND	-----	714	"	"	"	"	"	
Phenanthrene	"	ND	-----	714	"	"	"	"	"	
Pyrene	"	ND	-----	714	"	"	"	"	"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-06 (SB-26-2)		**Soil**			**Sampled: 04/16/07 15:20**					**RL3**
Surrogate(s): Fluorene-d10			*NR*		*24 - 125 %*	*20x*			*04/26/07 22:27*	***Z3***
Pyrene-d10			*NR*		*41 - 141 %*	"			"	***Z3***
Benzo (a) pyrene-d12			*NR*		*38 - 143 %*	"			"	***Z3***
PQD0638-07 (SB-27-1)		**Soil**			**Sampled: 04/16/07 15:40**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	297	ug/kg dry	20x	7040778	04/18/07 15:40	04/26/07 01:31	
Acenaphthylene	"	ND	-----	297	"	"	"	"	"	
Anthracene	"	ND	-----	297	"	"	"	"	"	
Benzo (a) anthracene	"	**1180**	-----	297	"	"	"	"	"	
Benzo (a) pyrene	"	**1690**	-----	297	"	"	"	"	"	
Benzo (b) fluoranthene	"	**1710**	-----	297	"	"	"	"	"	
Benzo (ghi) perylene	"	**1590**	-----	297	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1250**	-----	297	"	"	"	"	"	
Chrysene	"	**1330**	-----	297	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**594**	-----	297	"	"	"	"	"	
Fluoranthene	"	**1550**	-----	297	"	"	"	"	"	
Fluorene	"	ND	-----	297	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**1390**	-----	297	"	"	"	"	"	
Naphthalene	"	ND	-----	297	"	"	"	"	"	
Phenanthrene	"	**651**	-----	297	"	"	"	"	"	
Pyrene	"	**1770**	-----	297	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*77.1%*		*24 - 125 %*	"			"	***Z3***
Pyrene-d10			*99.4%*		*41 - 141 %*	"			"	
Benzo (a) pyrene-d12			*88.2%*		*38 - 143 %*	"			"	
PQD0638-08 (SB-27-2)		**Soil**			**Sampled: 04/16/07 15:45**					**RL3**
Acenaphthene	EPA 8270m	ND	-----	295	ug/kg dry	20x	7040778	04/18/07 15:40	04/26/07 01:58	
Acenaphthylene	"	ND	-----	295	"	"	"	"	"	
Anthracene	"	ND	-----	295	"	"	"	"	"	
Benzo (a) anthracene	"	**1490**	-----	295	"	"	"	"	"	
Benzo (a) pyrene	"	**2100**	-----	295	"	"	"	"	"	
Benzo (b) fluoranthene	"	**2450**	-----	295	"	"	"	"	"	
Benzo (ghi) perylene	"	**1820**	-----	295	"	"	"	"	"	
Benzo (k) fluoranthene	"	**1380**	-----	295	"	"	"	"	"	
Chrysene	"	**1720**	-----	295	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**667**	-----	295	"	"	"	"	"	
Fluoranthene	"	**1960**	-----	295	"	"	"	"	"	
Fluorene	"	ND	-----	295	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**1590**	-----	295	"	"	"	"	"	
Naphthalene	"	ND	-----	295	"	"	"	"	"	

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Crystal Jones For Darrell Auvil, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-08	**(SB-27-2)**		**Soil**			**Sampled: 04/16/07 15:45**					**RL3**
Phenanthrene		EPA 8270m	**769**	-----	295	ug/kg dry	20x	7040778	04/18/07 15:40	04/26/07 01:58	
Pyrene		"	**2330**	-----	295	"	"	"	"	"	
Surrogate(s):	*Fluorene-d10*			*63.7%*		*24 - 125 %*	"			"	*Z3*
	Pyrene-d10			*95.5%*		*41 - 141 %*	"			"	
	Benzo (a) pyrene-d12			*84.3%*		*38 - 143 %*	"			"	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PQD0638-01 (SB-24-1)		**Soil**			**Sampled: 04/16/07 14:34**					
% Solids	NCA SOP	**96.4**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-02 (SB-24-2)		**Soil**			**Sampled: 04/16/07 14:39**					
% Solids	NCA SOP	**92.8**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-03 (SB-25-1)		**Soil**			**Sampled: 04/16/07 14:50**					
% Solids	NCA SOP	**91.4**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-04 (SB-25-2)		**Soil**			**Sampled: 04/16/07 14:53**					
% Solids	NCA SOP	**93.7**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-05 (SB-26-1)		**Soil**			**Sampled: 04/16/07 15:15**					
% Solids	NCA SOP	**90.3**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-06 (SB-26-2)		**Soil**			**Sampled: 04/16/07 15:20**					
% Solids	NCA SOP	**93.8**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-07 (SB-27-1)		**Soil**			**Sampled: 04/16/07 15:40**					
% Solids	NCA SOP	**89.1**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	
PQD0638-08 (SB-27-2)		**Soil**			**Sampled: 04/16/07 15:45**					
% Solids	NCA SOP	**89.4**	-----	0.00	% by Weight	1x	7040739	04/17/07 15:14	04/17/07 15:14	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7040781 **Soil Preparation Method: EPA 3550 Fuels**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7040781-BLK1)								**Extracted: 04/18/07 15:15**						
Diesel Range Organics	NWTPH-Dx	ND	---	12.5	mg/kg wet	1x	--	--	--	--	--	--	04/18/07 17:59	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 99.0%*			*Limits: 50-150%*	"							*04/18/07 17:59*	
LCS (7040781-BS1)								**Extracted: 04/18/07 15:15**						
Diesel Range Organics	NWTPH-Dx	138	---	12.5	mg/kg wet	1x	--	127	109%	(50-150)	--	--	04/18/07 18:18	
Heavy Oil Range Hydrocarbons	"	82.4	---	25.0	"	"	--	78.8	105%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 103%*			*Limits: 50-150%*	"							*04/18/07 18:18*	
Duplicate (7040781-DUP1)						**QC Source: PQD0638-01**		**Extracted: 04/18/07 15:15**						
Diesel Range Organics	NWTPH-Dx	37.6	---	12.8	mg/kg dry	1x	38.8	--	--	--	3.14%	(50)	04/19/07 15:53	Q9
Heavy Oil Range Hydrocarbons	"	216	---	25.6	"	"	241	--	--	--	10.9%	"	"	Q9
Surrogate(s): 1-Chlorooctadecane		*Recovery: 91.6%*			*Limits: 50-150%*	"							*04/19/07 15:53*	
Duplicate (7040781-DUP2)						**QC Source: PQD0646-01**		**Extracted: 04/18/07 15:15**						
Diesel Range Organics	NWTPH-Dx	77.7	---	74.0	mg/kg dry	1x	80.0	--	--	--	2.92%	(50)	04/18/07 18:37	Q10a
Heavy Oil Range Hydrocarbons	"	363	---	148	"	"	397	--	--	--	8.95%	"	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 81.0%*			*Limits: 50-150%*	"							*04/18/07 18:37*	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7040778 **Soil Preparation Method: EPA 3550/600 Series**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7040778-BLK1)							**Extracted: 04/18/07 15:40**							
1-Methylnaphthalene	EPA 8270m	ND	---	13.2	ug/kg wet	1x	--	--	--	--	--	--	04/20/07 19:49	
Benzo (e) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	ID5
2-Methylnaphthalene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Acenaphthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Acenaphthylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	ID4
Chrysene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 67.1%*			*Limits: 24-125%*	"							*04/20/07 19:49*	
Pyrene-d10		*89.5%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*88.6%*			*38-143%*	"							"	
LCS (7040778-BS1)							**Extracted: 04/18/07 15:40**							
Acenaphthene	EPA 8270m	136	---	13.4	ug/kg wet	1x	--	167	81.4%	(33-139)	--	--	04/20/07 20:17	
Benzo (a) pyrene	"	156	---	13.4	"	"	--	"	93.4%	(45-149)	--	--	"	
Pyrene	"	146	---	13.4	"	"	--	"	87.4%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 82.0%*			*Limits: 24-125%*	"							*04/20/07 20:17*	
Pyrene-d10		*86.6%*			*41-141%*	"							"	
Benzo (a) pyrene-d12		*93.2%*			*38-143%*	"							"	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7040778 **Soil Preparation Method: EPA 3550/600 Series**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (7040778-MS1)				QC Source: PQD0668-01				Extracted: 04/18/07 15:40						RL3
Acenaphthene	EPA 8270m	541	---	353	ug/kg dry	20x	307	220	106%	(33-139)	--	--	04/24/07 21:50	
Benzo (a) pyrene	"	170	---	353	"	"	ND	"	77.3%	(45-149)	--	--	"	
Pyrene	"	397	---	353	"	"	164	"	106%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: NR*			*Limits: 24-125%*	"							*04/24/07 21:50*	*Z9*
Pyrene-d10		*NR*			*41-141%*	"							"	*Z9*
Benzo (a) pyrene-d12		*78.7%*			*38-143%*	"							"	*Z3*
Matrix Spike Dup (7040778-MSD1)				QC Source: PQD0668-01				Extracted: 04/18/07 15:40						RL3
Acenaphthene	EPA 8270m	596	---	357	ug/kg dry	20x	307	222	130%	(33-139)	9.67%	(60)	04/24/07 22:17	
Benzo (a) pyrene	"	176	---	357	"	"	ND	"	79.3%	(45-149)	3.47%	"	"	
Pyrene	"	445	---	357	"	"	164	"	127%	(39-138)	11.4%	"	"	
Surrogate(s): Fluorene-d10		*Recovery: NR*			*Limits: 24-125%*	"							*04/24/07 22:17*	*Z9*
Pyrene-d10		*NR*			*41-141%*	"							"	*Z9*
Benzo (a) pyrene-d12		*80.3%*			*38-143%*	"							"	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

Percent Dry Weight (Solids) per Standard Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 7040739 **Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (7040739-DUP1)					**QC Source: PQD0637-01**				**Extracted: 04/17/07 15:14**					
% Solids	NCA SOP	68.8	---	0.00	% by Weight	1x	68.9	--	--	--	0.145%	(20)	04/17/07 15:14	

TestAmerica - Portland, OR

Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

Ash Creek Associates, Inc.	Project Name:	**T4S3 - Pencil Pitch**	
9615 SW Allen Blvd. Suite 106	Project Number:	1007	Report Created:
Beaverton, OR 97005	Project Manager:	Mike Stevens	04/30/07 12:46

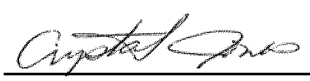
Notes and Definitions

Report Specific Notes:

ID4	-	Benzo(j)fluoranthene coelutes with Benzo(k)fluoranthene. The reported result is a summation of the isomers and the concentration is based on the response factor of Benzo(k)fluoranthene.
ID5	-	Benzo(e)pyrene concentration is based on the response factor of Benzo(a)pyrene, and has not been calibrated independently.
Q10	-	Hydrocarbon pattern most closely resembles a blend of oil as well as creosote or similar product.
Q10a	-	Hydrocarbon pattern most closely resembles a blend of oil overlap as well as possible biogenic interference.
Q6	-	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
Q9	-	Hydrocarbon pattern most closely resembles creosote or similar product.
RL3	-	Reporting limit raised due to high concentrations of non-target analytes.
Z3	-	The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.
Z9	-	Unable to calculate surrogate recovery due to matrix interference.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
Dil	-	Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
Electronic Signature	-	Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.



Crystal Jones For Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E 1st Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
20332 Empire Ave, Ste F1, Bend, OR 97701-5712 541-383-9310 FAX 382-7588
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: 1QP0638

NCA CLIENT: Ash Creek Associates
REPORT TO: Amanda Spencer / Mike Stevens
ADDRESS: 9615 SW Allen Blvd, Suite 106, Beaverton, OR 97005
PHONE: 503.924.4704 FAX: 503.924.4707

INVOICE TO: Same
P.O. NUMBER: 1007

PROJECT NAME: T453 Pencil Pitch
PROJECT NUMBER: 1007
SAMPLED BY: Andrew Schmidt

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (STD.) | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 (STD.) | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		BTEX 8270 SIM PAHs	TPH-Dx	Resubmit Rejected (Unpres)	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	SB-24-1	4/6/07	1434	x	x		S	1		
2	SB-24-2		1439	x	x		S	1		
3	SB-25-1		1450	x	x		S	1		
4	SB-25-2		1453	x	x		S	1		
5	SB-26-1		1515	x	x		S	1		
6	SB-26-2		1520	x	x		S	1		
7	SB-27-1		1540	x	x		S	1		
8	SB-27-2		1545	x	x		S	1		
9										
10										

RELEASED BY: Andrew Schmidt DATE: 4/12/07
PRINT NAME: Andrew Schmidt FIRM: Ash Creek TIME: 1710

RECEIVED BY: Camille Hollad DATE: 4/12/07
PRINT NAME: Camille Hollad FIRM: TAT TIME: 1210

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

TEMP: 2.3

COC REV 09/04

PAGE OF

KMB00006897

TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: (applies to temp at receipt)
Date: 4/17/07
Time: 1210
Initials: CP

Logged-in By:
Date: 4/17/07
Initials: CH

Unpacked/Labeled By:
Date: 4/17/07
Initials: CH

Work Order No. FQD0638
Client: Ash Creek
Project: TH 53 Pencil Pitch

Container Type:
✓ Cooler
___ Box
___ None/Other ___

COC Seals:
___ Ship. Container ___ Name
___ On Bottles ___ Date
✓ None

Packing Material:
___ Bubble Bags ___ Styrofoam
___ Foam Packs
✓ None/Other Other ___

Refrigerant:
✓ Gel Ice Pack ___
___ Loose Ice
___ None/Other ___

Received Via: Bill#
___ Fed Ex ✓ Client
___ UPS ___ TA Courier
___ DHL ___ Mid Valley
___ Senvoy ___ TDP
___ GS ___ Other ___

Cooler Temperature (*IR*): 2.3 °C Plastic (Glass) (Frozen filters, Tedlars and aqueous Metals exempt)
(circle one)

Temperature Blank? ___ °C or (NA)

Trip Blank? Y or N or (NA)

Sample Containers:		ID			ID
Intact?	(Y) or N	___	Metals Preserved?	Y or N or (NA)	___
Provided by NCA?	(Y) or N	___	Client QAPP Preserved?	Y or N or (NA)	___
Correct Type?	(Y) or N	___	Adequate Volume? (for tests requested)	(Y) or N	___
#Containers match COC?	(Y) or N	___	Water VOAs: Headspace?	Y or N or (NA)	___
IDs/time/date match COC?	(Y) or N	___	Comments:		
Hold Times in hold?	(Y) or N	___			

PROJECT MANAGEMENT

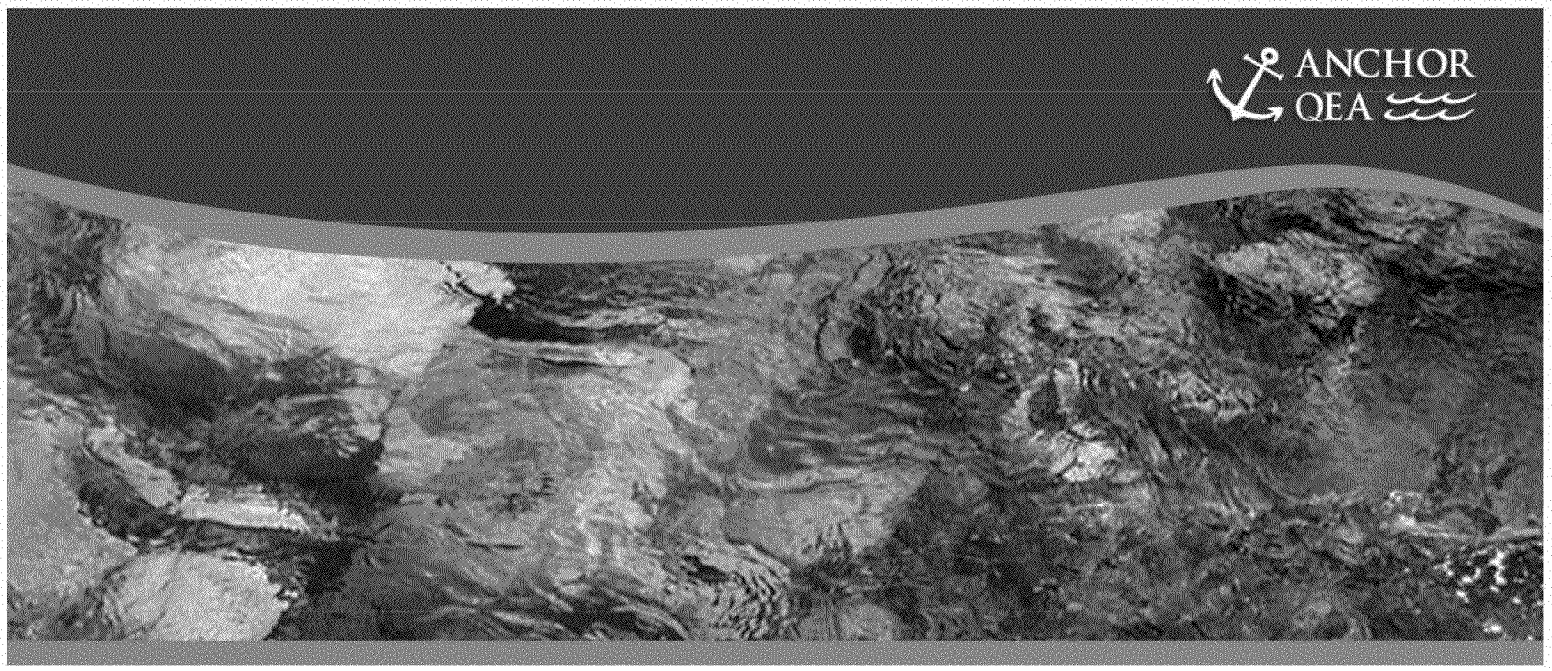
Is the Chain of Custody complete? Y or N If N, circle the items that were incomplete

Comments, Problems ___

Total access set up? Y or N
Has client been contacted regarding non-conformances? Y or N If Y, ___/___ Date Time

PM Initials: ___ Date: ___ Time: ___

(rev 3, 09/12/05)



DATA REPORT
SEDIMENT CHARACTERIZATION RESULTS
FOR
TERMINAL 4 PHASE I REMOVAL ACTION
POST-CONSTRUCTION SAMPLING
PORT OF PORTLAND, PORTLAND, OREGON

Prepared for

Port of Portland

Portland, Oregon

Prepared by

Anchor QEA, LLC

6650 SW Redwood Lane, Suite 333

Portland, Oregon 97224

August 2009

DATA REPORT

SEDIMENT CHARACTERIZATION RESULTS FOR TERMINAL 4 PHASE I REMOVAL ACTION POST-CONSTRUCTION SAMPLING PORT OF PORTLAND, PORTLAND, OREGON

Prepared for

Port of Portland

Portland, Oregon

Prepared by

Anchor QEA, LLC

6650 SW Redwood Lane, Suite 333

Portland, Oregon 97224

August 2009

TABLE OF CONTENTS

1 INTRODUCTION 1

2 POST-CONSTRUCTION SEDIMENT SAMPLING 4

2.1 Sample Collection, Processing, and Handling Procedures 4

2.2 Chemical and Conventional Analyses 4

2.2.1 Laboratory Quality Assurance/Quality Control Summary 5

2.2.2 Chemical and Conventional Analytical Results 6

2.2.3 Interpretation of Results 7

2.2.4 Deviations from the QAPP and SAP 8

3 CONCLUSIONS 10

4 REFERENCES 12

List of Tables

Table 1 Sampling Station Locations and Related Information

Table 2 Summary of Sediment Chemistry Results Compared to PEC Criteria

Table 3 Summary of Equipment Blank Results

Table 4 PEC Exceedance Ratio of Average Sediment Chemistry Results by Dredging Sub-Area

Table 5 Estimated Contaminant Mass Removed during Phase I

List of Figures

Figure 1 Site Plan and Vicinity Map

Figure 2 Post-Construction Actual Surface Sample Sediment Locations

Figure 3 Pre-Construction and Post-Construction Surface Sediment Concentrations and Phase I Boundaries

List of Appendices

Appendix A Surface Sediment Field Sample Records

Appendix B Analytical Laboratory Case Narratives, Chain-of-Custody Forms, and Validation Reports

KMB00006901

1 INTRODUCTION

In 2000, the U.S. Environmental Protection Agency (USEPA) added the Portland Harbor Superfund Site to the National Priorities List. In fall 2001, the USEPA and 10 of the Superfund Site's potentially responsible parties entered into an Administrative Order on Consent (AOC) for a Remedial Investigation/Feasibility Study (RI/FS) of the Superfund Site. The AOC allows Early Actions to be conducted to address known contamination at specific locations within the Superfund Site. Contaminants found in Terminal 4 (T4) sediment samples during a remedial investigation directed by the Oregon Department of Environmental Quality (DEQ) led to a determination that a Removal Action at T4 is warranted. Accordingly, the Port of Portland (Port) is conducting a Non-Time-Critical Removal Action (NTCRA) under an AOC for Removal Action executed by the Port and USEPA in October 2003.

The Port is a port district of the State of Oregon, which owns the T4 uplands between River Miles 4.1 and 4.5 on the Lower Willamette River. The Port also owns a portion of the submersible and submerged lands in Slip 1 and Slip 3 located within the Removal Action Area (RAA; as defined in the AOC). The remainder of the submersible or submerged land is owned by the State of Oregon and managed by the State of Oregon Department of State Lands (DSL). Figure 1 is a vicinity map and site plan locating T4 and the RAA.

The Port completed an engineering evaluation and cost analysis (EE/CA; BBL 2005) in which various Removal Action alternatives were identified, compared, and ranked for their relative performance at meeting specific objectives associated with the evaluation criteria of effectiveness, implementability, and cost. Based on the alternatives evaluated in the EE/CA, the USEPA issued an Action Memorandum (Action Memo) on May 11, 2006 (USEPA 2006) that documented the selection of the Removal Action. The selected Removal Action includes construction of a confined disposal facility (CDF) in Slip 1 and combination of dredging, capping, and monitored natural recovery (MNR) in Slip 3, Wheeler Bay, Berth 401, and North of Berth 414. Dredged material from Slip 3 will be placed in the CDF in Slip 1. The AOC requires the Port to complete a design of the selected Removal Action.

KMB00006902

The Port proceeded down a path to implement the Removal Action, which included several steps (30, 60, and 100 percent design deliverables). The Port submitted the T4 Early Action 60 Percent Design Submittal in December 2006, and from January 2007 through November 2007, the Port and USEPA (including the Tribes, DEQ, and National Oceanic and Atmospheric Administration [NOAA]) entered into an informal dispute resolution (IDR) process to resolve technical questions and issues associated with the design.

As part of the IDR process, it was determined that many of the design issues are linked to the overall harbor-wide RI/FS process. For this reason, the Parties agreed to revise the schedule for implementation of the T4 Removal Action to realign the project with the harbor-wide RI/FS schedule. As a condition of the approval of the schedule realignment, USEPA required the Port to implement an abatement action during the 2008 in-water work window to reduce risks present at the T4 site. Essentially, this action resulted in the division of the Removal Action project into two phases. Phase I (the abatement action) was planned for the 2008 in-water work window and encompassed abatement measures that could be initiated in the near term to reduce risk and address any imminent and substantial endangerment at T4 that may exist. Phase II (including construction of the CDF) will commence once the project is realigned with the harbor-wide RI/FS process. The Port submitted an Abatement Measures Proposal (Phase I remedy) in October 2007 (Anchor 2007). USEPA provided comments on the proposal in November 2007, and based on those comments and their resolution, Phase I of the Removal Action was identified.

Phase I of the Removal Action was completed in October 2008 and included the following components:

- Dredging and off-site disposal of sediment exhibiting the highest chemical concentrations, providing a permanent solution of contaminant mass removal
- Construction of a nearshore cap at the head of Slip 3 to isolate petroleum-contaminated sediments from aquatic receptors and control a potential ongoing source to nearby areas
- Stabilization and capping of the Wheeler Bay bank to minimize contaminant migration to the river

KMB00006903

- Dredging and off-site disposal of contaminated sediments in Slip 3 at Berth 410 to support water-dependent maritime use in a manner consistent with the Action Memo (USEPA 2006) and in support of overall risk reduction in the RAA

The performance standard of the Phase I dredging action was to remove the highest risk sediments, defined as those with surface sediments having exceedance ratios greater than 20 times the Probable Effects Concentration (PEC), down to an elevation coinciding with exceedance ratios of 10 times the PEC or less, as predetermined by the sediment core data. Since full removal was not technically feasible, partial removal was completed, and a 6-inch sand layer was placed in predetermined areas.

The Removal Action's Phase II objective will be to remove impacted sediments as defined by remediation goals as they are developed through the harbor-wide RI/FS process. It is anticipated that the extent of the Phase II sediment removal may encompass portions of the Phase I removal area. This data report presents the post-construction sediment surface results from sediment collected in the RAA for Phase I of the Removal Action.

KMB00006904

2 POST-CONSTRUCTION SEDIMENT SAMPLING

Appendix I to the Removal Action Work Plan (RAWP; Anchor 2008a) presented the post-construction sediment sampling plan. Surface samples were collected after dredging of the Phase I dredge area was completed. Dredging was completed in September 2008 and sampling was conducted in December 2008. Sampling stations were located on a 50-foot grid (10 samples from the Berth 411 area, two samples from the center square dredge area, and two samples from the Berth 414 dredge area). As discussed above, a sand layer was placed in a portion of the Berth 411 area. Two samples were collected from the Berth 411 area where sand was placed, and eight samples were collected from the rest of the Berth 411 area. Actual sediment sampling locations are depicted on Figure 2. Sampling location coordinates, depths, elevations, and related information are provided in Table 1. Surface sediment field records are provided in Appendix A.

2.1 Sample Collection, Processing, and Handling Procedures

The field operations, equipment, sampling, sample handling, and analysis were performed using the previously approved procedures specified in the T4 Phase I Removal Action *Sampling and Analysis Plan* (SAP) and *Quality Assurance Project Plan* (QAPP) (Appendices I and J, respectively, to the RAWP, Anchor 2008a). These procedures were developed in accordance with USEPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA 1988) and USEPA's *Methods for Collection, Storage, and Maintenance of Sediments for Chemical and Toxicological Analyses* (USEPA 2001). This work was also performed in accordance with the T4 Archaeological Monitoring Protocol (Appendix G to the RAWP, Anchor 2008a).

2.2 Chemical and Conventional Analyses

Samples were analyzed for the Slip 3 contaminants of concern (COCs), including:

- Metals (cadmium, lead, zinc)
- Polycyclic aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPH; diesel and motor oil range)

KMB00006905

Four composite samples were analyzed for polychlorinated biphenyls (PCBs) and dichloro-diphenyl-trichloroethanes (DDTs). The four composites were prepared using aliquots from the surface samples that were collected, including:

- One composite prepared with aliquots from the two samples from Berth 414
- One composite prepared with aliquots from the two samples from the center square
- One composite prepared with aliquots from the two samples located within the Berth 411 sand layer
- One composite prepared with aliquots from the remaining eight samples located in the Berth 411 area

Discrete samples used to create the composite samples were archived at the laboratory to ensure availability for later analysis as directed by USEPA (e.g., should elevated levels be detected in the composites).

A rinsate blank sample obtained from the sediment sampling apparatus was analyzed for a subset of the COCs.

2.2.1 Laboratory Quality Assurance/Quality Control Summary

Analytical laboratory case narratives, chain-of-custody forms, and validation reports are provided in Appendix B. Laboratory quality assurance/quality control (QA/QC) was performed by Apex Labs located in Tigard, Oregon. Laboratory Data Consultants (LDC) in Carlsbad, California, performed additional QA/QC and prepared a validation report for the analytical data. A supplementary validation was performed by Anchor QEA on four semivolatile analytes in the rinse blank that were not included in the original report. All of the analytical laboratory test measurements were found acceptable for use with two minor exceptions. The data validation was performed using method or technical criteria and the USEPA national functional guidelines for data review (USEPA 1999, 2004). The data validation reports verified the analytical accuracy and precision of the chemical analyses performed during this sampling event. Validation of the data may have resulted in the qualification of some results as estimated. Data qualified with a "J" indicates that the associated numerical value is the approximate concentration of the analyte. Data qualified with a "UJ" indicates the approximate reporting limit below which the analyte was not

KMB00006906

detected. Diethylphthalate and dimethylphthalate results in the rinse blank were rejected due to low or no recoveries in the laboratory control sample (LCS) and matrix spike/matrix spike duplicate (MS/MSD) analyses. Consequently, these data qualifications are not expected to alter the data quality objectives defined in the QAPP (Appendix J to the RAWP, Anchor 2008a).

Most reporting limit goals were met, as specified in the QAPP, and all reporting limits were below PEC values, with one exception. The 2,4'-DDD reporting limit for sample T4-IM-S3AD-SS-081230 (43.7 micrograms per kilogram [µg/kg]) was above the total DDD PEC value (28 µg/kg). The laboratory indicated that the reporting limit goal exceedance in this case was due to matrix interference. In the future, sample cleanup methods that may help minimize matrix interferences will be discussed with the laboratory prior to analysis. In addition, extra sample material may be collected and archived, where feasible, in case re-extraction and re-analysis is required.

2.2.2 Chemical and Conventional Analytical Results

Per the Final Phase I Design Analysis Report (DAR; Anchor 2008b), Section 2.3, Item 1, first bullet, the performance standard used to guide the design of the Phase I Removal Action construction and verification/monitoring activities with respect to sediment was to:

> "Remove contaminated sediments defined as those with surface sediments having a greater than 20 PEC exceedance ratio down to a specified elevation coinciding with PEC exceedance ratios of 10 or less as predetermined by sediment core data."

The sediment chemistry and conventional analytical results for the sediment quality characterization samples are provided in Table 2. Although the performance standard is based on pre-construction data, the post-construction chemical results were screened against PECs developed by MacDonald et al. (2000). Chemical analytical results from the rinsate blank sample are provided in Table 3. The metals results were below 10 times the PEC at all locations except location T4-IM-09 (15 times the PEC for lead, which was the only exceedance of 10 times the PEC for metals). The PAH results were below 10 times the PEC at all locations except for T4-IM-06 and T4-IM-09 (29 and 30 times the PEC, respectively, for

KMB00006907

benzo(a)anthracene, which was the highest exceedance of the six PAHs that exceeded 10 times the PEC). The total PAH results were below 10 times the PEC at all locations except T4-IM-06 and T4-IM-09 where exceedances of approximately 13 times the PEC were reported.

2.2.3 Interpretation of Results

While the performance standard specified in the Final Phase I DAR (Anchor 2008b) is based on pre-construction sediment core data at discrete locations, it is illustrative to average the chemical analytical results over the entire dredged area as well as the individual sub-areas. The average of the chemical analytical results for metals and PAHs for the entire Phase I removal area, as well as individual sub-areas, are provided in Table 4. The average results for the entire area, as well as the individual sub-areas, were below 20 times the PEC with no exceptions, and below 10 times the PEC with only one exception. The average result for benzo(a)anthracene exceeded 10 times the PEC in the Berth 411 sub-area by approximately 4 percent. These results confirm that the sediment exhibiting the highest chemical concentrations was removed.

The chemical analytical results were used to update the surface sediment exceedance ratio map provided in the Final Phase I DAR (Anchor 2008b, Figure 4). The pre-construction and post-construction surface sediment exceedance ratio maps utilized the exact same interpolation methods. For comparison, both maps are depicted on Figure 3. Note that the post-construction interpolation contours located outside of the Phase I dredge "daylight" boundary where dredging did not occur are the same as the pre-construction interpolation contours.

Based on sediment characterization data used to design the Phase I dredge prism, the approximate amount of COC mass removed during Phase I included:

- 15 kilograms (kg; 33 pounds) of cadmium
- 2,300 kg (5,071 pounds) of lead
- 2,900 kg (6,393 pounds) of zinc
- 1,200 kg (2,645 pounds) of total PAHs

KMB00006908

It is estimated that the mass of sediment removed during Phase I amounted to approximately 11 percent of the total sediment mass for the total project (i.e., combined Phase I and Phase II actions). Average site-wide contaminant concentrations are derived from Anchor 2007[1]. The percentage of total contaminant mass removed during Phase I is approximately:

- 13 percent of the total mass of cadmium
- 18 percent of the total mass of lead
- 16 percent of the total mass of zinc
- 33 percent of the total mass of total PAHs

Information documenting the basis for the estimated COC mass removed and percentage of total early action area COC mass removed during Phase I is provided in Table 5.

2.2.4 Deviations from the QAPP and SAP

Analytical methodologies set forth in the referenced QAPP were followed. Based on the data validation, all of the data were determined to be acceptable for use as reported or as qualified with the exception of results for two semivolatile analytes in the rinse blank. Field activities related to sample collection and handling were generally completed in accordance with the SAP, with the following exceptions:

- Complete penetration was not possible at stations 02, 07, 08, and 10 due to hard sediment, debris, and/or the presence of cobble. However, penetration was still sufficient to collect samples from sediment not in contact with walls of the Van Veen grab sampler.
- Due to the soft nature of the sediment, grabs at stations 06, 13, and 14 were slightly overfilled and in contact with the lid of the Van Veen. Samples were collected only from sediment not in contact with the lid.
- The location of station 01 was relocated 15 feet shoreward (east) due to large amounts of cobble preventing full closure of the Van Veen. Five sampling attempts were conducted at the relocated station. A very small amount of fine-grained material was

[1] The sediment characterization results for the bulk sediment sample used in the modified elutriate testing were used for this analysis. The results were provided to USEPA during the IDR process, and they will be summarized and formally submitted in the upcoming CDF Groundwater Model Input Parameter Memorandum.

KMB00006909

collected during the five sampling attempts. Hence, chemical analytical testing was limited to metals analysis and PAH analysis was not performed.

- Comparison of the corrected sample elevations to post-construction bathymetry at the sample locations showed a uniform difference of approximately 4.5 feet, with the corrected sample elevations deeper than the post-construction bathymetry. The most likely reason for this discrepancy is that the fathometer calibration was incorrect, and/or the fathometer malfunctioned or was knocked out of calibration during the sampling event. As a result, the mudline elevations (top elevations) reported in Table 1 are based on post-construction bathymetry. In the future, it is recommended that fathometer readings be checked more frequently using lead line measurements to better determine if and when the fathometer drifts out of calibration.

KMB00006910

3 CONCLUSIONS

Per the Final Phase I DAR (Anchor 2008b), Section 2.3, Item 1, first bullet, the performance standard used to guide the design of the Phase I Removal Action construction and verification/monitoring activities with respect to sediment was to:

> "Remove contaminated sediments defined as those with surface sediments having a greater than 20 PEC exceedance ratio down to a specified elevation coinciding with PEC exceedance ratios of 10 or less as predetermined by sediment core data."

Phase I dredging and off-site disposal was a success given that sediment exhibiting the highest chemical concentration was effectively targeted and removed, providing a permanent solution of contaminant mass removal. However, given the exceedances noted in Section 2.2.2, the Phase I design process was assessed to determine whether these residual concentrations could have been improved if different design processes or decisions had been followed. In retrospect, the design process was appropriate for meeting the objectives of the abatement action. This conclusion is based on the following:

- There is always some degree of uncertainty in our understanding of contaminant distributions based on inherent physical/chemical variability in the environment. Dredge prism design must manage this uncertainty in a cost-effective manner.
- Additional overdredging beyond the specified 1-foot overdredge allowance could have been specified; however, this would have resulted in more unnecessary dredging of lower concentration materials that would not otherwise require action during Phase I.
- It was recognized during the design process that this was an interim action, and that there was going to be a follow-up phase of remediation (Phase II) to address remaining contamination at T4.
- Post-dredge bathymetric survey data show target dredge elevations were effectively achieved by the contractor.
- Dredging is an imperfect technology, and some amount of residual contamination is expected and nearly always observed (Bridges et al. 2008).

KMB00006911

- Nevertheless, sediment verification goals were met 80 percent of the time on an individual sample basis, and nearly 100 percent of the time on an average concentration basis.

KMB00006912

4 REFERENCES

Anchor Environmental, L.L.C. (Anchor). 2007. Abatement Measures Proposal: Terminal 4 Removal Action Project. Prepared for the Port of Portland. October 25, 2007.

Anchor. 2008a. Final Removal Action Work Plan: Terminal 4 Phase I Removal Action. Prepared for the Port of Portland. August 2008.

Anchor. 2008b. Final Design Analysis Report: Terminal 4 Phase I Removal Action. Prepared for the Port of Portland. June 2008.

BBL. 2005. Terminal 4 Early Action Engineering Evaluation/Cost Analysis, Public Review Draft, Appendix Q—Draft Clean Water Act Section 404(b)(1) Analysis Memorandum, Port of Portland, Portland Oregon.

Bridges, T.S., S. Ells, D. Hayes, D. Mount, S.C. Nadeau, M.R. Palermo, C. Patmont, and P. Schroeder. 2008. The Four Rs of Environmental Dredging: Resuspension, Release, Residual, and Risk. ERDC/EL TR-08-4. Final Report. U.S. Army Corps of Engineers, Engineer Research and Development Center, Washington, D.C.

MacDonald, D., C.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Environmental Contamination and Toxicology, 39, 20-31.

U.S. Environmental Protection Agency (USEPA). 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA.

KMB00006913

USEPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Emergency Response. EPA 540/R-99/008. October.

USEPA. 2001. Methods for Collection, Storage, and Maintenance of Sediments for Chemical and Toxicological Analyses.

USEPA. 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October 2004.

USEPA. 2006. Action Memorandum for Removal Action at the Port of Portland Terminal 4 Site within the Portland Harbor Superfund Site, Portland, Multnomah County, Oregon. May 11.

KMB00006914

TABLES

Table 1
Sampling Station Locations and Related Information

Station	Northing	Easting	Depth	Date	Time	Top Elevation (ft)[1]	Sample Depth	Bottom Elevation (ft)[1]
	NAD 83 OSP N Int. ft.		(ft)			NGVD	(ft)	NGVD
01	713382.13	7620440.4	38.7	12/30/2008	14:25	-38.0	0.3	-38.3
02	713335.6	7620428.1	44.0	12/30/2008	14:40	-40.0	0.2	-40.2
03	713389.3	7620367.1	56.2	12/30/2008	13:00	-47.0	0.5	-47.5
04	713345.7	7620357.9	57.4	12/30/2008	13:30	-47.5	0.6	-48.1
05	713397.4	7620303.1	57.2	12/30/2008	11:30	-49.0	0.5	-49.5
06	713349.6	7620297.7	56.2	12/30/2008	12:15	-47.0	0.6	-47.6
07	713407.4	7620235.9	57.0	12/30/2008	10:15	-47.0	0.2	-47.2
08	713363.5	7620232.6	58.5	12/30/2008	10:45	-49.0	0.1	-49.1
09	713421.2	7620179.2	58.2	12/30/2008	8:45	-47.0	0.3	-47.3
10	713375.9	7620165.7	59.9	12/30/2008	9:15	-50.0	0.3	-50.3
11	713175.5	7620016.3	51.5	12/29/2008	14:45	-42.0	0.5	-42.5
12	713180.6	7619979.2	51.5	12/29/2008	14:25	-42.0	0.5	-42.5
13	712883.8	7619670.9	24.5	12/29/2008	12:20	-19.0	0.5	-19.5
14	712874.3	7619641.6	30.5	12/29/2008	11:40	-24.0	0.5	-24.5
414	Composite of 13, 14							
S3C	Composite of 11, 12							
S3AC	Composite of 01, 02							
S3AD	Composite of 03, 04, 05, 06, 07, 08, 09, 10							

Notes:

1. Elevation data taken from post-construction bathymetry.

Table 2
Summary of Sediment Chemistry Results Compared to PEC Criteria

Station Location:		Composite	Composite	Composite	Composite	Composite	T4-IM-01
Top of Interval Elevation:		--	--	--	--	--	34.5
Bottom of Interval Elevation:		--	--	--	--	--	-34.9
Sample Matrix:		SE	SE	SE	SE	SE	SE
Sample Date:		12/29/08	12/29/08	12/30/08	12/30/08	12/30/08	12/30/08
Sample Name:		T4-IM-414-SS-081229	T4-IM-S3C-SS-081229	T4-IM-S3AD-SS-081230	T4-IM-S3AD-SS-081230-DUP	T4-IM-S3AC-SS-081230	T4-IM-01-SS-081230
	PEC						
Conventional Parameters (pct)							
Total solids	--	**53.8**	**67.9**	**65.3**	**65.8**	**85.7**	**98.8**
Metals (mg/kg)							
Cadmium	4.98	--	--	--	--	--	0.0705 U
Lead	128	--	--	--	--	--	**1.1 J**
Zinc	459	--	--	--	--	--	**3.68 J**
Aromatic Hydrocarbons (µg/kg)							
1-Methylnaphthalene	--	--	--	--	--	--	--
2,3,5-Trimethylnaphthalene	--	--	--	--	--	--	--
2,6-Dimethylnaphthalene	--	--	--	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--
Anthracene	845	--	--	--	--	--	--
Benzo(a)anthracene	1050	--	--	--	--	--	--
Benzo(a)pyrene	1450	--	--	--	--	--	--
Benzo(b,k)fluoranthene	--	--	--	--	--	--	--
Benzo(e)pyrene	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--	--
Chrysene	1290	--	--	--	--	--	--
Dibenzo(a,h)anthracene	--	--	--	--	--	--	--
Fluoranthene	2230	--	--	--	--	--	--
Fluorene	536	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	--	--	--	--	--	--	--
Naphthalene	561	--	--	--	--	--	--
Perylene	--	--	--	--	--	--	--
Phenanthrene	1170	--	--	--	--	--	--
Pyrene	1520	--	--	--	--	--	--
Total PAH	22800	--	--	--	--	--	--
PCB Aroclors (µg/kg)							
Aroclor 1016	--	6.35 U	4.86 U	5.24 U	4.95 U	3.78 U	--
Aroclor 1221	--	6.35 U	4.86 U	5.24 U	4.95 U	3.78 U	--
Aroclor 1232	--	6.35 U	4.86 U	5.24 U	4.95 U	3.78 U	--
Aroclor 1242	--	6.35 U	4.86 U	5.24 U	4.95 U	3.78 U	--
Aroclor 1248	--	**11.7**	**4.08 J**	**11.9**	**7.19**	3.78 U	--
Aroclor 1254	--	**14.2**	**6.92**	**14.4**	**12.4**	3.78 U	--
Aroclor 1260	--	6.35 U	4.86 U	**13.4**	**13.2**	3.78 U	--
Aroclor 1262	--	6.35 U	4.86 U	5.24 U	4.95 U	3.78 U	--
Aroclor 1268	--	6.35 U	4.86 U	5.24 U	4.95 U	3.78 U	--
Total PCB	676	**25.9**	**11**	**39.7**	**32.79**	3.78 U	--
Pesticides (µg/kg)							
2,4'-DDD (o,p'-DDD)	--	**0.588 J**	**1.97 J**	43.7 U	**1.47 J**	0.897 U	--
2,4'-DDE (o,p'-DDE)	--	1.48 UJ	2.2 UJ	2.47 UJ	**0.935 J**	0.897 UJ	--
2,4'-DDT (o,p'-DDT)	--	1.48 U	**2.82**	46.6 U	**0.751 J**	0.897 U	--
4,4'-DDD (p,p'-DDD)	--	**2.17**	**8.62**	2.47 U	**2.58 J**	0.897 U	--
4,4'-DDE (p,p'-DDE)	--	**2.94 J**	**2.38 J**	2.47 UJ	**1.78 J**	0.897 UJ	--
4,4'-DDT (p,p'-DDT)	--	**1.14 J**	**8.41**	29.1 U	**1.51 J**	0.897 U	--
Sum DDD	28	**2.758**	**10.59**	43.7 U	**4.05 J**	0.897 U	--
Sum DDE	31.3	**2.94**	**2.38**	2.47 UJ	**2.715 J**	0.897 UJ	--
Sum DDT	62.9	**1.14**	**11.23**	46.6 U	**2.261 J**	0.897 U	--
Total DDT	572	**6.838**	**24.2**	46.6 U	**9.026 J**	0.897 U	--
Semi-Volatile Organics (µg/kg)							
Biphenyl (1,1'-Biphenyl)	--	--	--	--	--	--	--
Phthalates (µg/kg)							
Bis(2-ethylhexyl) phthalate	--	--	--	--	--	--	--
Butylbenzyl phthalate	--	--	--	--	--	--	--
Diethyl phthalate	--	--	--	--	--	--	--
Dimethyl phthalate	--	--	--	--	--	--	--
Di-n-butyl phthalate	--	--	--	--	--	--	--
Di-n-octyl phthalate	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons (mg/kg)							
Diesel Range	--	--	--	--	--	--	2 U
Residual Range	--	--	--	--	--	--	3.99 U

Table 2
Summary of Sediment Chemistry Results Compared to PEC Criteria

Station Location:		T4-IM-02	T4-IM-03	T4-IM-04	T4-IM-05	T4-IM-05	T4-IM-06	T4-IM-07
Top of Interval Elevation:		39.8	51.7	53.0	52.4	52.4	51.6	52.0
Bottom of Interval Elevation:		-40.1	-52.2	-53.5	-52.9	-52.9	-52.1	-52.1
Sample Matrix:		SE	SE	SE	SE	SE	SE	SE
Sample Date:		12/30/08	12/30/08	12/30/08	12/30/08	12/30/08	12/30/08	12/30/08
Sample Name:		T4-IM-02-SS-081230	T4-IM-03-SS-081230	T4-IM-04-SS-081230	T4-IM-05-SS-081230	T4-IM-05-SS-081230-DUP	T4-IM-06-SS-081230	T4-IM-07-SS-081230
	PEC							
Conventional Parameters (pct)								
Total solids	--	80.2	70	68.8	62.9	64.5	64.9	76.6
Metals (mg/kg)								
Cadmium	4.98	0.3	1.53	1.41	4.19	6.04	1.61	2.55
Lead	128	58.2 J	191 J	209 J	743 J	700 J	144 J	474 J
Zinc	459	60 J	279 J	265 J	731 J	842 J	314 J	481 J
Aromatic Hydrocarbons (µg/kg)								
1-Methylnaphthalene	--	20.1 U	85.3 U	92.2 UJ	64 J	62.9 J	124 J	205 UJ
2,3,5-Trimethylnaphthalene	--	20.1 U	85.3 U	92.2 UJ	103 U	96 U	238 U	205 UJ
2,6-Dimethylnaphthalene	--	20.1 U	50.4 J	65.4 J	80.2 J	73.1 J	158 J	205 UJ
2-Methylnaphthalene	--	20.1 U	85.3 U	76 J	117	128 J	256	107 J
Acenaphthene	--	20.1 U	214	961 J	1150	1340 J	5350	603 J
Acenaphthylene	--	20.1 U	85.3 U	92.2 UJ	103 U	96 U	238 U	205 UJ
Anthracene	845	11.4 J	333	1470 J	1390	1420 J	6230	669 J
Benzo(a)anthracene	1050	55.8	1760	9160 J	6840	7150 J	30700	6050 J
Benzo(a)pyrene	1450	74.1	2520	11900 J	9160	9590 J	41100	7930 J
Benzo(b,k)fluoranthene	--	114	4180	21100 J	16200	16900 J	70900	15700 J
Benzo(e)pyrene	--	46.1	1560	7700 J	5930	6190	25500	5720 J
Benzo(g,h,i)perylene	--	43.4	1320	6470 J	4540	5020 J	19300	4030 J
Chrysene	1290	59.8 J	1960	9960 J	7560	7800 J	30800	7970 J
Dibenzo(a,h)anthracene	--	23.5	389	1880 J	1400	1480 J	5940	1430 J
Fluoranthene	2230	104	2770	12600 J	10900	11000 J	43200	11800 J
Fluorene	536	20.1 U	95.4	426 J	483	575 J	1580	314 J
Indeno(1,2,3-c,d)pyrene	--	49.3	2120	10400 J	7910	8190 J	33900	6700 J
Naphthalene	561	20.1 U	73.1 J	166 J	277	237 J	537	216 J
Perylene	--	19.7 J	677	3530 J	2610	2750	11900	2190 J
Phenanthrene	1170	56.1 U	1090	4850 J	4860	5020 J	18900	3660 J
Pyrene	1520	108	2740	11300 J	9770	9700 J	38900	9470 J
Total PAH	22800	527.1	17735.5	83893	68590	70732	288197	64382
PCB Aroclors (µg/kg)								
Aroclor 1016	--	--	--	--	--	--	--	--
Aroclor 1221	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--	--	--
Aroclor 1268	--	--	--	--	--	--	--	--
Total PCB	676	--	--	--	--	--	--	--
Pesticides (µg/kg)								
2,4'-DDD (o,p'-DDD)	--	--	--	--	--	--	--	--
2,4'-DDE (o,p'-DDE)	--	--	--	--	--	--	--	--
2,4'-DDT (o,p'-DDT)	--	--	--	--	--	--	--	--
4,4'-DDD (p,p'-DDD)	--	--	--	--	--	--	--	--
4,4'-DDE (p,p'-DDE)	--	--	--	--	--	--	--	--
4,4'-DDT (p,p'-DDT)	--	--	--	--	--	--	--	--
Sum DDD	28	--	--	--	--	--	--	--
Sum DDE	31.3	--	--	--	--	--	--	--
Sum DDT	62.9	--	--	--	--	--	--	--
Total DDT	572	--	--	--	--	--	--	--
Semi-Volatile Organics (µg/kg)								
Biphenyl (1,1'-Biphenyl)	--	20.1 U	54.3 J	60.5 J	68.3 J	65.2 J	160 J	205 UJ
Phthalates (µg/kg)								
Bis(2-ethylhexyl) phthalate	--	66.5 U	255 U	275 UJ	307 U	287 UJ	710 U	612 UJ
Butylbenzyl phthalate	--	60 U	255 U	275 UJ	307 U	287 U	710 U	612 UJ
Diethyl phthalate	--	60 U	255 U	275 UJ	307 U	287 U	710 U	612 UJ
Dimethyl phthalate	--	60 U	255 U	275 UJ	307 U	287 U	710 U	612 UJ
Di-n-butyl phthalate	--	60 U	255 U	275 UJ	307 U	287 U	710 U	612 UJ
Di-n-octyl phthalate	--	34.7 J	255 U	275 UJ	307 U	287 U	710 U	385 J
Total Petroleum Hydrocarbons (mg/kg)								
Diesel Range	--	2.82	37.8	68.8	87.7	100	77.1	68
Residual Range	--	8.39	133	233	320	365	272	195

KMB00006918

Table 2
Summary of Sediment Chemistry Results Compared to PEC Criteria

Station Location:		T4-IM-08	T4-IM-09	T4-IM-10	T4-IM-11	T4-IM-12	T4-IM-13	T4-IM-14
Top of Interval Elevation:		53.6	52.9	54.7	47.4	47.5	20.6	26.3
Bottom of Interval Elevation:		-53.7	-53.2	-54.9	-47.8	-48.0	-21.1	-26.8
Sample Matrix:		SE	SE	SE	SE	SE	SE	SE
Sample Date:		12/30/08	12/30/08	12/30/08	12/29/08	12/29/08	12/29/08	12/29/08
Sample Name:		T4-IM-08-SS-081230	T4-IM-09-SS-081230	T4-IM-10-SS-081230	T4-IM-11-SS-081229	T4-IM-12-SS-081229	T4-IM-13-SS-081229	T4-IM-14-SS-081229
	PEC							
Conventional Parameters (pct)								
Total solids	--	**63.1**	**58.6**	**64.6**	**73.7**	**65.1**	**53.8**	**52.4**
Metals (mg/kg)								
Cadmium	4.98	**0.56**	**8.36**	**1.69**	**1.13**	**0.812**	**0.544**	**0.495**
Lead	128	**36.6 J**	**1850 J**	**213 J**	**55.2 J**	**35.8 J**	**15.1 J**	**19.4 J**
Zinc	459	**118 J**	**1300 J**	**308 J**	**190 J**	**143 J**	**106 J**	**112 J**
Aromatic Hydrocarbons (µg/kg)								
1-Methylnaphthalene	--	25.7 U	**184 J**	94.6 U	**11.3 J**	95.1 U	28.8 U	30.5 U
2,3,5-Trimethylnaphthalene	--	25.7 U	276 UJ	94.6 U	**16.2 J**	95.1 U	28.8 U	30.5 U
2,6-Dimethylnaphthalene	--	25.7 U	**210 J**	**55.9 J**	21.9 U	**75.1 J**	28.8 U	30.5 U
2-Methylnaphthalene	--	25.7 U	**370 J**	94.6 U	**27.8**	**105**	28.8 U	30.5 U
Acenaphthene	--	**17.6 J**	**4360 J**	**135**	**40.3**	**121**	28.8 U	30.5 U
Acenaphthylene	--	25.7 U	276 UJ	94.6 U	**58.8**	**322**	28.8 U	30.5 U
Anthracene	845	**20.4 J**	**6400 J**	**175**	**142**	**914**	28.8 U	30.5 U
Benzo(a)anthracene	1050	**137**	**31600 J**	**1220**	**567**	**3530**	**23.8 J**	**86.4**
Benzo(a)pyrene	1450	**173**	**39700 J**	**1690**	**797**	**4700**	**40.8**	**103**
Benzo(b,k)fluoranthene	--	**298**	**73100 J**	**2990**	**1120**	**6290**	**46.2 J**	**203**
Benzo(e)pyrene	--	**109**	**26700 J**	**1110**	**498**	**2880**	**19.5 J**	**74.6**
Benzo(g,h,i)perylene	--	**108**	**22200 J**	**1070**	**669**	**3720**	**34**	**59.6**
Chrysene	1290	**166**	**34100 J**	**1570**	**704**	**3890**	**20.7 J**	**122**
Dibenzo(a,h)anthracene	--	**36.5**	**6470 J**	**282**	**81.2**	**471**	28.8 U	**35.4**
Fluoranthene	2230	**230**	**48200 J**	**2120**	**1350**	**7980**	**38.5**	**163**
Fluorene	536	**14.6 J**	**2070 J**	**65.3 J**	**48.9**	**186**	28.8 U	30.5 U
Indeno(1,2,3-c,d)pyrene	--	**133**	**34500 J**	**1380**	**686**	**3850**	**24.8 J**	**79.5**
Naphthalene	561	25.7 U	**518 J**	**82.1 J**	**130**	**527**	28.8 U	30.5 U
Perylene	--	**87.2**	**11900 J**	**460**	**207**	**1210**	**16.5 J**	**31.4**
Phenanthrene	1170	**113**	**22500 J**	**721**	**419**	**2580**	31.5 U	**79.4**
Pyrene	1520	**224**	**40500 J**	**2000**	**1600**	**9680**	**33.9**	**135**
Total PAH	22800	**1393.6**	**303048**	**12768.4**	**6977**	**40720**	**203.9**	**891.8**
PCB Aroclors (µg/kg)								
Aroclor 1016	--	--	--	--	--	--	--	--
Aroclor 1221	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--	--	--
Aroclor 1268	--	--	--	--	--	--	--	--
Total PCB	676	--	--	--	--	--	--	--
Pesticides (µg/kg)								
2,4'-DDD (o,p'-DDD)	--	--	--	--	--	--	--	--
2,4'-DDE (o,p'-DDE)	--	--	--	--	--	--	--	--
2,4'-DDT (o,p'-DDT)	--	--	--	--	--	--	--	--
4,4'-DDD (p,p'-DDD)	--	--	--	--	--	--	--	--
4,4'-DDE (p,p'-DDE)	--	--	--	--	--	--	--	--
4,4'-DDT (p,p'-DDT)	--	--	--	--	--	--	--	--
Sum DDD	28	--	--	--	--	--	--	--
Sum DDE	31.3	--	--	--	--	--	--	--
Sum DDT	62.9	--	--	--	--	--	--	--
Total DDT	572	--	--	--	--	--	--	--
Semi-Volatile Organics (µg/kg)								
Biphenyl (1,1'-Biphenyl)	--	25.7 U	**173 J**	**57.1 J**	**27.1**	**100**	28.8 U	30.5 U
Phthalates (µg/kg)								
Bis(2-ethylhexyl) phthalate	--	131 U	825 UJ	282 U	74.8 U	284 U	86 U	96 U
Butylbenzyl phthalate	--	76.6 U	825 UJ	282 U	65.2 U	284 U	86 U	91.2 U
Diethyl phthalate	--	76.6 U	825 UJ	282 U	65.2 U	284 U	86 U	91.2 U
Dimethyl phthalate	--	76.6 U	825 UJ	282 U	65.2 U	284 U	86 U	91.2 U
Di-n-butyl phthalate	--	76.6 U	825 UJ	282 U	65.2 U	284 U	86 U	91.2 U
Di-n-octyl phthalate	--	76.6 U	825 UJ	282 U	**37.3 J**	284 U	86 U	91.2 U
Total Petroleum Hydrocarbons (mg/kg)								
Diesel Range	--	**2.66 J**	**565**	**68.6**	**22.8**	**72.3**	**3.08 J**	**1.96 J**
Residual Range	--	**9.5**	**2260**	**290**	**69.8**	**233**	**12.1**	**8.34**

Table 2
Summary of Sediment Chemistry Results Compared to PEC Criteria

Notes:

Result 10-20 times PEC

Result ≥ 20 times PEC

ND value exceeds PEC

Bold = Detected result

J = Estimated value

U = Compound analyzed, but not detected above detection limit

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

pct = percent

Total PCB is the sum of aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268

Total PAH is the sum of Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b,k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, and Pyrene

Sum DDD is the sum of 2,4'-DDD (o,p'-DDD) and 4,4'-DDD (p,p'-DDD)

Sum DDE is the sum of 2,4'-DDE (o,p'-DDE) and 4,4'-DDE (p,p'-DDE)

Sum DDT is the sum of 2,4'-DDT (o,p'-DDT) and 4,4'-DDT (p,p'-DDT)

Total DDT is the sum of all 6 analytes

Nondetects are treated as zero in summations unless all results are not detected; then the maximum reporting limit is reported

KMB00006920

Table 3
Summary of Equipment Blank Results

Station Location:	Rinsate Blank
Sample Matrix:	WQ
Sample Date:	12/30/08
Sample Name:	T4-IM-RB-081230
Metals (mg/L)	
Cadmium	0.0002 U
Lead	**0.000267 J**
Zinc	**0.00141 J**
Aromatic Hydrocarbons (µg/L)	
1-Methylnaphthalene	0.0381 UJ
2-Methylnaphthalene	0.0381 UJ
Naphthalene	0.0381 UJ
Acenaphthylene	0.0381 UJ
Acenaphthene	0.0381 UJ
Fluorene	0.0381 UJ
Phenanthrene	0.0381 UJ
Anthracene	0.0381 UJ
Fluoranthene	0.0381 UJ
Pyrene	0.0381 UJ
Benzo(a)anthracene	0.0381 UJ
Chrysene	0.0381 UJ
Benzo(b)fluoranthene	0.0381 UJ
Benzo(k)fluoranthene	0.0381 UJ
Benzo(a)pyrene	0.0381 UJ
Indeno(1,2,3-c,d)pyrene	0.0381 UJ
Dibenzo(a,h)anthracene	0.0381 UJ
Benzo(g,h,i)perylene	0.0381 UJ
Phthalates (µg/L)	
Bis(2-ethylhexyl) phthalate	0.952 UJ
Butylbenzyl phthalate	0.952 UJ
Diethyl phthalate	R
Dimethyl phthalate	R
Di-n-butyl phthalate	0.952 UJ
Di-n-octyl phthalate	0.952 UJ
Semi-Volatile Organics (µg/L)	
Dibenzofuran	0.0381 UJ
Total Petroleum Hydrocarbons (mg/L)	
Diesel Range	0.236 U
Residual Range	0.472 U

Notes:

Bold = Detected result

J = Estimated value

U = Compound analyzed, but not detected above detection limit

R = Rejected result

mg/L = milligrams per liter

µg/L = micrograms per liter

Table 4

PEC Exceedance Ratio of Average Sediment Chemistry Results by Dredging Sub-Area[1]

Station Location: Area: Number of Samples:		T4-IM-01 thru T4-IM-14 All Areas 14	T4-IM-03 thru T4-IM-10 B411 8	T4-IM-01 and T4-IM-02 B411 Sand Layer 2	T4-IM-11 and T4-IM-12 Center Square 2	T4-IM-13 and T4-IM-14 B414 2
	PEC					
Metals (mg/kg)						
Cadmium	4.98	0.4	0.5	0.0	0.2	0.1
Lead	128	2.3	3.8	0.2	0.4	0.1
Zinc	459	0.7	1.0	0.1	0.4	0.2
Aromatic Hydrocarbons (µg/kg)[2]						
1-Methylnaphthalene	--	--	--	--	--	--
2,3,5-Trimethylnaphthalene	--	--	--	--	--	--
2,6-Dimethylnaphthalene	--	--	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--
Anthracene	845	1.5	2.5	0.0	0.6	0.0
Benzo(a)anthracene	1050	6.2	**10.4**	0.1	2.0	0.1
Benzo(a)pyrene	1450	5.9	9.8	0.1	1.9	0.0
Benzo(b,k)fluoranthene	--	--	--	--	--	--
Benzo(e)pyrene	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--
Chrysene	1290	5.5	9.1	0.0	1.8	0.1
Dibenzo(a,h)anthracene	--	--	--	--	--	--
Fluoranthene	2230	4.5	7.4	0.0	2.1	0.0
Fluorene	536	0.7	1.2	0.0	0.2	0.1
Indeno(1,2,3-c,d)pyrene	--	--	--	--	--	--
Naphthalene	561	0.3	0.4	0.0	0.6	0.1
Perylene	--	--	--	--	--	--
Phenanthrene	1170	3.7	6.1	0.0	1.3	0.0
Pyrene	1520	5.9	9.4	0.1	3.7	0.1
Total PAH	22800	2.8	4.6	0.0	1.0	0.0
PCB Aroclors (µg/kg)[4]						
Aroclor 1016	--	--	--	--	--	--
Aroclor 1221	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--
Aroclor 1268	--	--	--	--	--	--
Total PCB	676	0.03	0.1	0.01	0.02	0.04
Pesticides (µg/kg)[4]						
2,4'-DDD (o,p'-DDD)	--	--	--	--	--	--
2,4'-DDE (o,p'-DDE)	--	--	--	--	--	--
2,4'-DDT (o,p'-DDT)	--	--	--	--	--	--
4,4'-DDD (p,p'-DDD)	--	--	--	--	--	--
4,4'-DDE (p,p'-DDE)	--	--	--	--	--	--
4,4'-DDT (p,p'-DDT)	--	--	--	--	--	--
Sum DDD	28	0.4	1.6	0.03	0.4	0.1
Sum DDE	31.3	0.1	0.1	0.03	0.1	0.1
Sum DDT	62.9	0.2	0.7	0.01	0.2	0.02
Total DDT	572	0.03	0.1	0.002	0.04	0.01

Notes:

1. For results below the limits of detection, the detection limit was used to calculate the average.
2. PAH results for Location 01 were assumed to be the same as PAH results for Location 02 when calculating the average for the All Areas and the B411 Sand Layer.
3. **Bold** values indicate that the PEC exceedance ratio was exceeded by 10 times.
4. PCB and Pesticide ratios were calculated using composite sample results.

Table 5
Estimated Contaminant Mass Removed during Phase I

	COCs:	Cadmium	Lead	Zinc	Total PAH

Description	Mass Removed (Tons)	Phase I Average Concentrations (mg/kg)			
Phase I Berth 411	6,580	2.28	360	421	188
Phase I Berth 414	464	1.78	110	269	121
Phase I Center Square	1,504	0.6	95	169	3.9
Phase I Total	***8,548***				

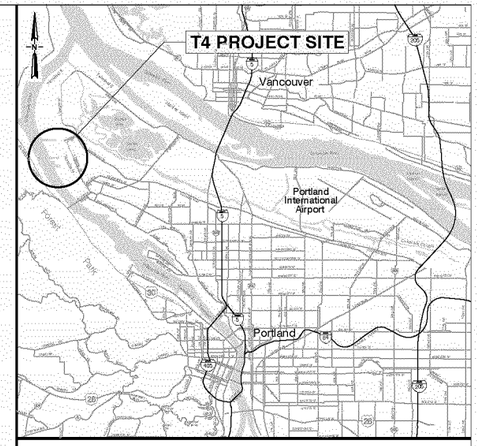
Description	Total Project Mass (Tons)	Total Project Average Concentrations (mg/kg)			
T4 Project Dredge Prism[1]	78,000	1.6	184	250	51

Description		Mass Removed (kg)			
Berth 411		13.6	2146	2513	1119
Berth 414		0.75	46	113	51
Center Square		0.82	130	230	5.4
Estimated Phase I COC Mass[2]		**15**	**2300**	**2900**	**1200**
Estimated Total Project COC Mass[3]		113	13017	17686	3597
Estimated Percent Mass Removed	***11%***	***13%***	***18%***	***16%***	***33%***

Notes:

1. Total estimated tons and total volume-weighted average concentrations based on core interval lengths and Thiessen polygon areas unless otherwise noted from Proposed Sampling and Analysis Plan for Additional Modified Elutriate Testing Port of Portland - Terminal 4 Early Action, May 25, 2007.
2. Rounded to 2 significant figures.
3. Based on total project mass and total project average concentrations.

FIGURES



VICINITY MAP
SCALE: N.T.S.

0 150 300
SCALE IN FEET

Figure 1
Site Plan and Vicinity Map
Terminal 4 Phase I Removal Action
Portland, Oregon

ANCHOR QEA

KMB00006925

K:\Jobs\050332-PORT OF PORTLAND\060332201 TERMINAL 4\ Phase 1\PH 1-GI-1 GI-2.dwg DAR FIG 1
Apr 13, 2009 6:37pm tgriga

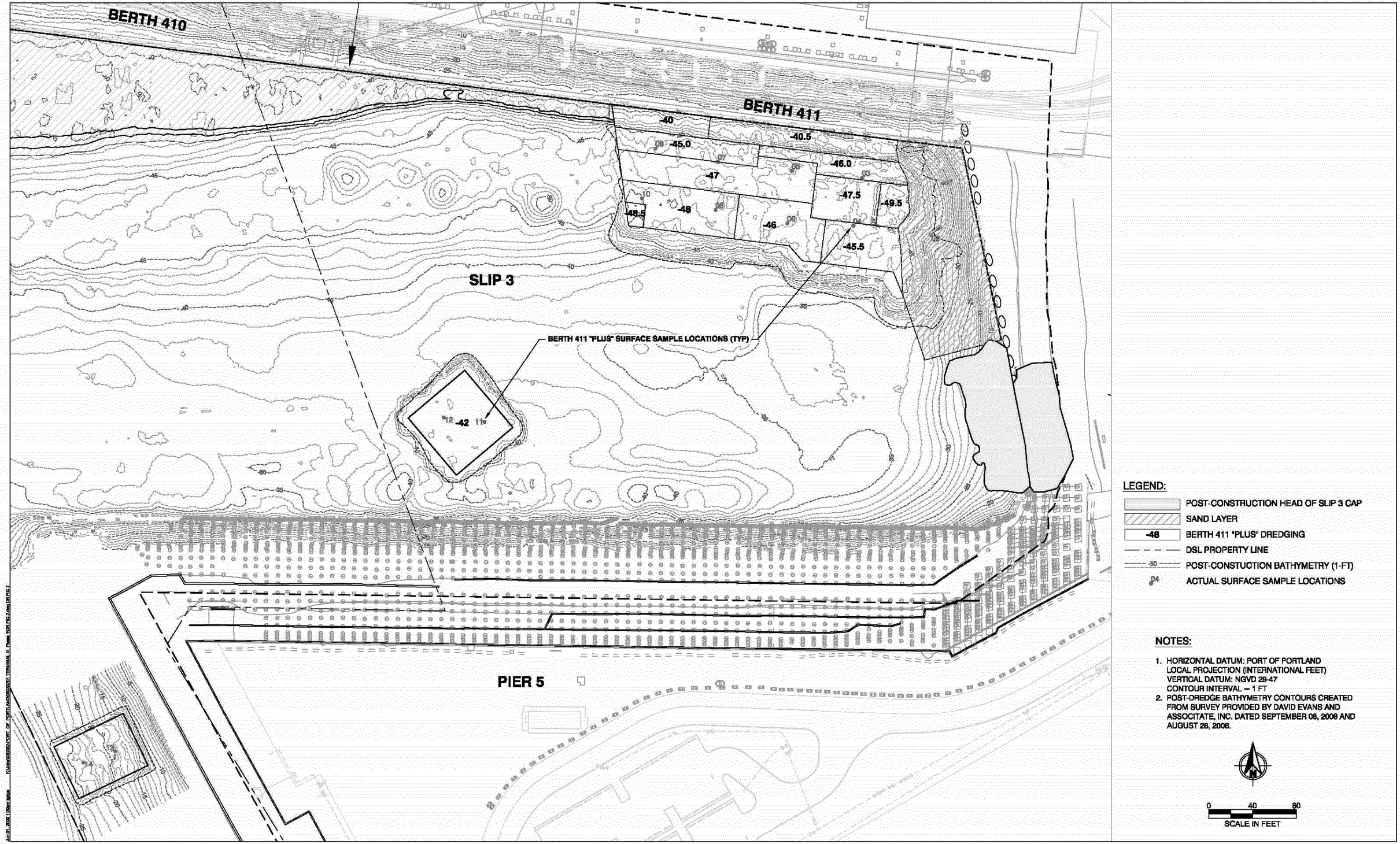
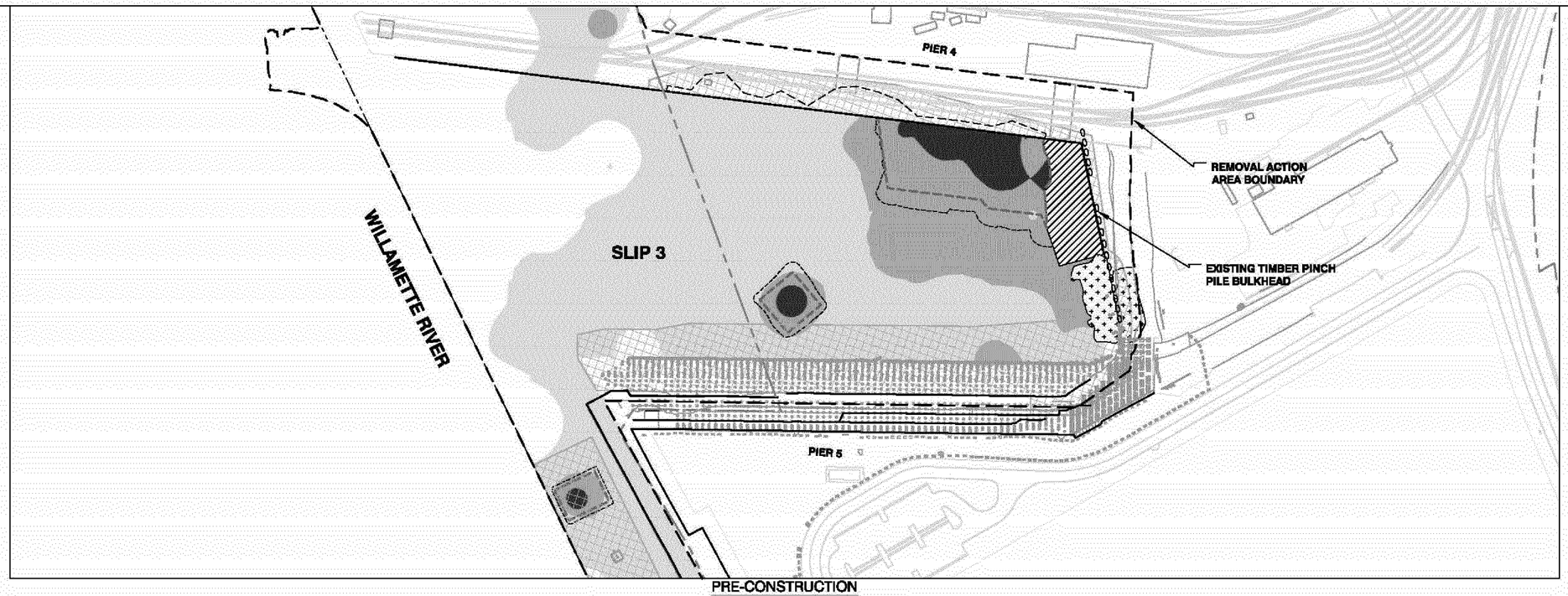
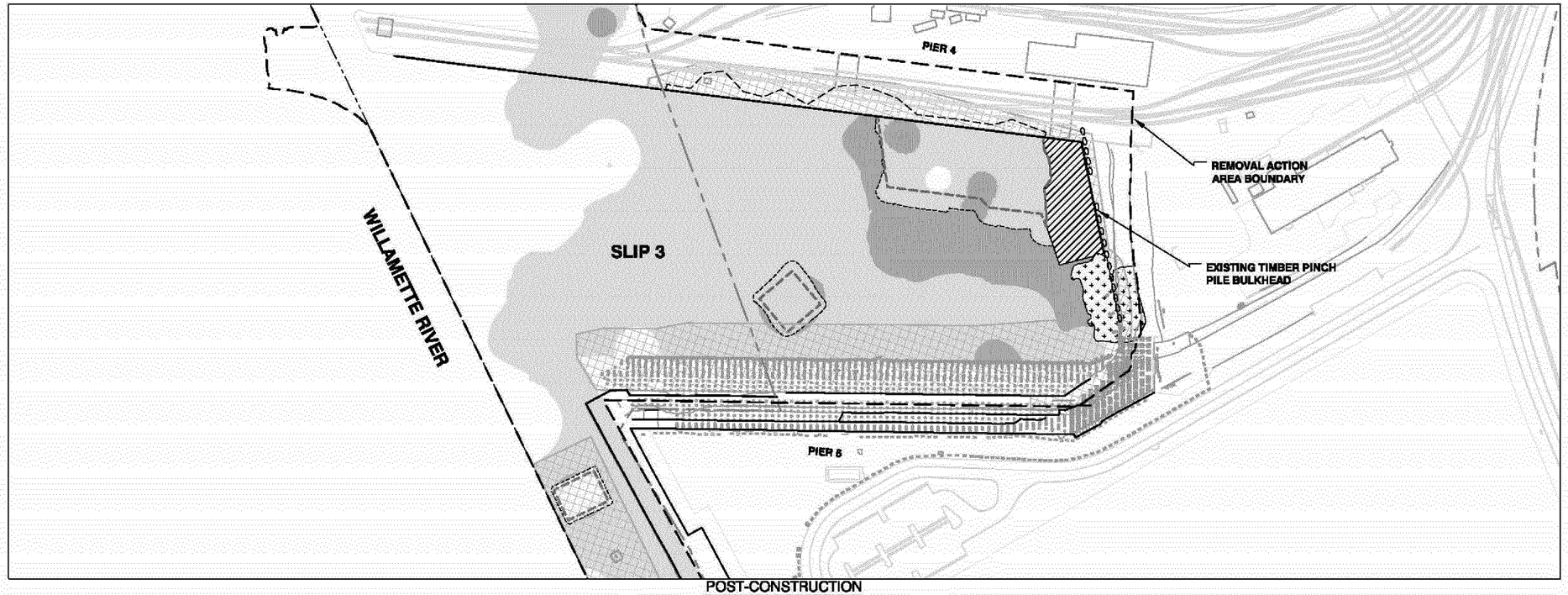


Figure 2
Post-Construction Actual Surface Sample Sediment Locations
Terminal 4 Phase I Removal Action
Portland, Oregon

ANCHOR QEA



PRE-CONSTRUCTION



POST-CONSTRUCTION

LEGEND:

- <1 PEC SURFACE EXCEEDANCE RATIO
- 1-10 PEC SURFACE EXCEEDANCE RATIO
- 10.1-20 PEC SURFACE EXCEEDANCE RATIO
- 20.1-30 PEC SURFACE EXCEEDANCE RATIO
- >30 PEC SURFACE EXCEEDANCE RATIO
- PHASE I DREDGE BOUNDARY
- PHASE I DAYLIGHT BOUNDARY
- PHASE I SAND LAYER
- PHASE I HEAD OF SLIP 3 CAP BOUNDARY
- REMOVAL ACTION AREA BOUNDARY
- DSL PROPERTY LINE
- HARBOR LINE
- TERMINAL 4 PHASE II CAP BOUNDARIES IN SLIP 3 AND BERTH 414

NOTES:

1. HORIZONTAL DATUM: PORT OF PORTLAND LOCAL PROJECTION (INTERNATIONAL FEET)
   VERTICAL DATUM: NGVD 29-47
   CONTOUR INTERVAL = 1FT

N

0 100 200
SCALE IN FEET

Aug 13, 2009 3:14pm dholmer K:\Jobs\050332-PORT OF PORTLAND\050332\01 TERMINAL 4\ Phase 1\DR FIG 3.dwg DR FIG 3

ANCHOR QEA

Figure 3
Pre-Construction and Post-Construction Surface Sediment Concentrations and Phase I Boundaries
Terminal 4 Phase I Removal Action
Portland, Oregon

KMB00006927

APPENDICES

(Previously Submitted)