Brix Maritime Company Response to EPA's 104(e) Information Request

Entire response Releasable

EPA Region 10 Superfund
RELEASABLE
Date 11-23-09
Initial MAS.

882287

# National Response Center - Query Results

**Click on a NRC Report # to display the Incident Report**

| NRC Report # | Incident Date | City | State | Incident Location |
|---|---|---|---|---|
| 407383 | 10/14/97 | PORTLAND | OR | WILLAMETTE RIVER MILE 5.5 |
| 407542 | 10/15/97 | GRAYS HARBOR | WA | WEYERHAUSER CARGO DOCK |
| 411270 | 11/12/97 | RICHMOND | CA | UNOCAL 1148 CANAL BLVD |
| 411273 | 11/12/97 | RICHMOND | CA | 1300 CANAL BLVD TOSCO DOCK |
| ✓ 419418 | 01/12/98 | PORTLAND | OR | 9030 NW ST HELENS ROAD MP6 WILLAMETTE RIVER DOCK |
| ✓ 419463 | 01/12/98 | PORTLAND | OR | 9030 NW ST HELENS ROAD |
| ✓ 429204 | 03/20/98 | PORTLAND | OR | 9030 NORTHWEST ST HELENS RD |
| ✓ 436221 | 05/11/98 | SAN PEDRO | CA | SIGNAL STREET GATX WESTWAY TERMINAL BERTH 70-71 |
| ✓ 437898 | 05/20/98 | OAKLAND | CA | BERTH 33 OAKLAND HARBOR |
| ✓ 439403 | 05/31/98 | PORTLAND | OR | UNICAL AT WILBRIDGE PLANT |
| ✓ 439410 | 05/31/98 | PORTLAND | OR | TOSCO MARINE DOCK |
| ✓ 440037 | 06/04/98 | RAINIER | OR | 611 EAST A STREET |
| ✓ 442369 | 06/19/98 | LONGVIEW | WA | COLUMBIA RIVER RM 67 PORT OF LONGVIEW BERTH 6 |
| ✓ 456054 | 09/18/98 | PORTLAND | OR | 9030 NW ST HELENS ROAD |
| ✓ 457020 | 09/24/98 | SAN FRANCISCO | CA | ANCHORAGE 9 |
| ✓ 457770 | 09/30/98 | PORTLAND | OR | 9030 NW ST HELENS ROAD |
| ✓ 468694 | 12/23/98 | PORTLAND | OR | 9030 NW ST HELENS ROAD |

Records 41 to 57 of 57

First Page | Previous Page

<!C-□var msg2="At last ro

RECEIVED
JAN - 7 1999
Foss Maritime

COPY



Confidential Business Information

# National Response Center - Incident Report

| | |
|---|---|
| **NRC Report #:** | **468694** |
| **Date Call Received:** | **12/23/98** |
| **Type of Call:** | **STANDARD REPORT** |
| **This Incident** | |
| **Date:** | 12/23/98 |
| **Time:** | 03:00 pm **(Local)** |
| **Type of Incident:** | FIXED |
| **Location:** | 9030 NW ST HELENS ROAD |
| **Milepost:** | |
| **County:** | MULTNOMAH |
| **City:** | PORTLAND |
| **State:** | OR |
| **Zip:** | 97267 |
| **Suspected Responsible Party:** | FOSS MARITIME |
| **Address:** | 9030 NW ST HELENS ROAD |
| **City:** | PORTLAND |
| **State:** | OR |
| **Zip:** | 97267 |
| **Reported Cause:** | OTHER |
| **Incident Description:** | GROUND HOSE WHICH TRANSFERS DIRTY BILGE WATER TO SHORE STORAGE<br>LINE RUPTURED DUE TO FREEZING |
| **Medium Description:** | WILLAMETTE RIVER |
| **Medium Affected:** | WATER |
| **Deaths Reported:** | |
| **Injuries Reported:** | |
| **Damages:** | No |
| **Evacuations:** | No |
| **Number Evacuated:** | |
| **Airway Closure:** | No |
| **Road Closure:** | No |
| **Reported Damages:** | |

EXAMPLE 1 REPORT

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Confidential Business Information

# Materials Involved

| CHRIS Code | Material | Qty Spilled/ | Units | Qty in Water/ | Units |
|---|---|---|---|---|---|
| BSS | BILGE SLOPS | 5 | GAL | 5 | GAL |

*** This report is based solely on initial information reported to the National Response Center*

Go Back

*Return to NRC Home Page*

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Confidential Business Information

# RECORD OF OIL SPILLS

## FOSS MARITIME COMPANY

| VESSEL / FACILITY | DATE NRC # (*) | EST. AMOUNT / TYPE OF OIL | COMMENTS |
|---|---|---|---|
| 1998 | 1998 | 1998 | 1998 |
| D/B BMC-13 <facility> | 1-12-98 419418 | 1 gal. oily water | Mechanical failure. Foss moorings, Portland, OR. |
| D/B BMC-13 <facility> | 1-16-98 419463 | 3 gals. oily water | Personnel error. Foss moorings, Portland, OR. |
| PACIFIC KING, tug | 2-13-98 424393 | 1 pint (in water) diesel fuel | Personnel error <PSW crew / deck spill>. Pier 90, Seattle, WA (internal fuel transfer) |
| ** BENJAMIN FOSS, tug | ** 2-23-98 n/a | ** leak on deck, none in water | ** Mechanical failure. <linseed oil> Crack in stbd bullrail cap amidships. |
| FAIRWIND, tug | 3-20-98 429204 | 5 gals. lube oil | Personnel error. Portland, OR (w / D/B FOSS 286-1) |
| ** DANIEL FOSS, tug | ** 3-29-98 n/a | ** deck spill, none in water | ** Personnel error (10 gals. diesel fuel). Rainier Petroleum, Pier 15, Seattle, WA. |
| ** T/B SITKA | ** 5-11-98 436221 | ** unk. amount UAN32 (fert.) | ** Equipment failure <not an oil spill> GATX Berth 70-71, San Pedro, CA. |
| T/B SAN PEDRO | 5-20-98 437898 | 1 tsp. bunker fuel | Personnel error. <disconnecting transfer hose> Berth 33, Oakland, CA |
| ** T/B SEA-76 | ** 5-28-98 n/a | ** (unknown) diesel fuel | ** Lightering from T/B PUGET SOUNDER at Petro-Alaska Dock, Ketchikan, AK |
| HOWARD OLSEN, tug | 5-31-98 439403 / 10 | 20 gals. diesel fuel | Personnel error (taking on fuel). Portland, OR (Tosco / Unocal dock) |
| Foss Yard Rainier, OR | 6-4-98 440037 | 02 quarts diesel fuel | Personnel error (retain from unflushed garden hose) |
| CATHERINE FOSS, tug | 6-19-98 442369 | 5 gals. diesel fuel | Personnel error (taking on fuel) Longview, WA (Pier 7). |
| FAIRWIND, tug <underway> | 6-21-98 n/a | 5 gals. diesel fuel | Personnel error (overfilled day-tank). Sabine Channel, British Columbia, Canada |
| ** Foss Moorings Tacoma, WA | ** 7-2-98 n/a | ** 10 gals diesel/hydraulic | ** Sunnen crane tipped over loading fireworks barge (not a Foss barge / operation) |
| IVER FOSS, tug | 7-6-98 444581 | 1 pint diesel fuel | Personnel error (did not flush line) Red Dog, AK (discharging ballast) |
| ** Foss Yard Rainier, OR | ** 7-15-98 n/a | ** 100 gals. oily bilge water | ** Customer Tug HELEN G (not Foss) responsible for spill (per USCG). |
| JOSEPH T, tug <underway> | 8-27-98 452738 | 10 gals. hydraulic fluid | Equipment (winch hose) failure. Off New Dungeness (WA) |
| T/B FOSS 208 Portland, OR | 9-18-98 456054 | 1 gal. slop oil | Equipment (design) failure (corrected) associated with rain water run-off |
| ** T/B SAN PEDRO San Francisco, CA | ** 9-24-98 457020 | ** 30 bbls bunker fuel | ** Spill came from T/V COMMAND while being bunkered at Anchorage 9. |
| ** <mystery spill> vicinity FMC-CSR Portland, OR | ** 9-30-98 457770 | ** oily sheen <unknown> | ** FMC-CSR (with FEIS assist) responded to mystery spill for USCG <not a Foss spill> |
| LINDSEY FOSS, tug | 11-4-98 462645 | 01 cup diesel fuel | Equipment failure Foss (Ballard), Seattle, WA |
| ** T/B FOSS 185-P1 Portland, OR | ** 11-19-98 n/a | ** leak on ship, none in water | ** Piping leak on OCEAN KOYO at Terminal 5 while being bunkered <not a Foss spill> |
| D/B BMC-13 <facility> | 12-23-98 468694 | 5 gals. bilge slops | Equipment failure (line froze / burst) Foss moorings, Portland, OR. |
| | | | |
| 1998 | 1998 | 1998 | 1998 |
| continued, next page.... | 1999 | 1999 | 1999 |

** not counted against Foss totals (included for reference only)



(*) I added NRC # for cross-reference purposes jcc

57% = CSR

Larry Johnson

# LETTER OF WARNING

## United States Coast Guard

MARINE SAFETY OFFICE
RESPONSE BRANCH
(503)240-9379

6767 N. BASIN AVENUE
PORTLAND, OREGON
97217

On or about 23 JAN 99, U. S. Coast Guard Marine Safety Office Portland, Oregon investigated a pollution incident involving your vessel/facility at FOSS MARITIME. It has been determined that you are responsible for this incident, associated removal costs and any damages resulting from your discharge of oil.

A discharge of oil into a navigable waterway of the United States is a violation of Section 311 of the Clean Water Act. A violation of the Act can result in a civil penalty of up to $25,000 for each violation.

Under the Oil Spill Liability Act of 1990, the responsible party is liable for, among other things, removal costs and damages resulting from this incident. As long as the OSC determines that you are taking adequate actions in this matter, Federal removal action will usually be limited to monitoring the progress of your actions and providing guidance as necessry.

In consideration of this incident and the absence of recent similar violations, I am issuing this Letter of Warning in lieu of initiating an administrative penalty action. I currently do not intend to pursue this matter further. However, this incident may be considered or processed as a violation, if further information is uncovered. I urge your cooperation in preventing repetition of such violations.

A record of this incident will be maintained by the Coast Guard and this violation may be considered in the event future violations occur.

### RESPONSIBLE PARTY

Name: BILL BURNETT
Address: FOSS MARITIME
9070 NW ST. HELENS
PO BOX 18018
PORTLAND OR 97218-0018
Phone #: (503) 286-0631

Vsl/Fac Name: SARA BRIX
VIN/FIN: 1265175
Other Source Info:

RP violation history NONE

### DISCHARGE INFORMATION

A violation of 33 USC 1321(b)(3) has been determined in that, there was a discharge of an oil or designated hazardous substance, in a harmful quantity, into a navigable waterway or adjoining shoreline of the United States, from your vessel, onshore or offshore facility, and you are the responsible party.

Incident Description: ON 23 JAN 99 AT 1000 THE TUG SARA BRIX SPILLED APPROX 1 GAL OF DIESEL FUEL INTO THE WILLAMETTE RIVER. CLEANUP WAS PERFORMED BY FOSS MARITIME

Issued by [signature] Date/Time 25 JAN 99 1400
Pollution Investigator

Received by _____ Date/Time _____

Confidential Business Information

U.S. Department of Transportation

United States Coast Guard

COMMANDING OFFICER

NOTICE OF FEDERAL INTEREST FOR AN OIL POLLUTION INCIDENT

BILL BURNETT
FOSS MARITIME
PO BOX 83018
PORTLAND OR 97283-0018

PORT OPERATIONS
USCG MARINE SAFETY OFFICE
6767 N. BASIN AVENUE
PORTLAND, OR 97217-3992

Gentlemen:

On or about 23 JAN 99, an oil pollution incident occurred or threatens to occur at FOSS MARITIME PORTLAND OR. You may be financially responsible for that incident. Under Federal Statutes, the United States Government may take action to minimize or mitigate damage to the public health or welfare that is threatened or that may be caused by this incident.

Under the Oil Pollution Act of 1990, the responsible party is liable for, among other things, removal costs and damages resulting from this incident. The failure or refusal of the responsible party to provide all reasonable cooperation and assistance requested by the Federal On-Scene Coordinator (OSC) will eliminate any defense or entitlement to limited liability which otherwise might be available under the Act.

You are advised that your failure to properly carry out the removal of the discharge as ordered by the OSC or to comply with any administrative orders necessary to protect the public health and welfare, may subject you to additional penalties. For such failure, owners, operators, or persons in charge of the vessel or facility from which the oil is discharged are subject under the Federal Water Pollution Control Act (FWPCA), as amended, to a civil penalty of up to $25,000 per day of violation or up to 3 times the costs incurred by the Oil Spill Liability Trust Fund. Should you require further information concerning this matter, please contact MST7 AARON FOSTER at the above address and telephone number.

As long as the OSC determines that you are taking adequate actions in this matter, Federal removal action will usually be limited to monitoring the progress of your actions and providing guidance as necessary. Under the FWPCA, as amended, your response actions may be taken into account in determining the amount of any penalty assessed as a result of the discharge.

Sincerely,

MST3

Received and Acknowledged: _____

Witness(es): _____

_____

DEPT. OF TRANSP., USCG, CG-5549 (5-92) ★U.S.GPO:1992-0-622-727 SN 7530-01-GF3-2620

# COLUMBIA SNAKE RIVER DIVISION
## POLLUTION INCIDENT REPORT

Person receiving report LINDA JACOBSON Time 0915 Date 1/23

** Fill in as much information as is known at the time of receiving notification, complete additional information as obtained.

Person reporting incident(title/telephone no.) DAVE NICHOLLS

Incident location FOSS PDX BOAT SLIP Time 0915 Date 1/23

Vessel(s)/Facility involved SARAH BRIX

Employee(s) involved

Spill contained on deck Appx Qty gallons

Source (if known) SARA BRIX - SHAFT ALLEY Product type DIESEL

Is cargo continuing to escape from vessel/barge

At what rate From

Direction of movement of spill

wind tides

Potential threat to environment or public/any know

Is there a fire or threat of fire NO

ACCIDENT REPORT ROUTE:
DEAN HUNTER: ORIG
CC: L.JONNSON/ WHIT O.
P.CAMPBELL
SAFETY: MIKE SUTTON
K.ANDERSON
D. FARRIER
CHECK ONE OF THE FOLLOWING:
BURNETT, COMSTOCK, BRANCH
ANDERSON,COMSTOCK,BRANCH
TROUTMAN, WORLEY

Vessel condition/stable

Containment or clean up efforts underway absorbant PADS

Foss containment boom deployed ft Absorbents

## NOTIFICATIONS TO BE MADE - IN ORDER OF PRIORITY

**"Orphan" or "mystery" spills need to be reported to the local Coast Guard Only.**

Response Duty Coordinator: pager #903-9799 Who LARRY JOHNSON Time 0935
(Ron Worley 452-1890, Comstock 360-687-3684) CALLED BACK 1040

**The duty coordinator is responsible for ensuring that all Company & Customer notifications are completed.**

Oil Spill response contractors - (MUST BE NOTIFIED WITHIN 30 MINUTES)

Foss Environmental 283-1150 Who MIKE FAY Time 0940

Alternate contractors: 1). Tidewater 289-4274 Who Time
2). Riedel 800-334-0004 Who Time

National Response Center - Case # Time
phone #1-800-424-8802 Who
→ 240-9301-0950 - TALKED TO Duty PERSON

US Coast Guard PDX 240-9370 Who MESSAGE Time 0940

Oregon Response system 1-800-452-0311 Case # 990201 Time 0945 - HE called DEQ
JOSEPH
OREGON DEQ - MIKE RENZ called 0955

Washington Response System 1-800-258-5990 Case # Time

Response equipment dispatched

Response personnel dispatched

Comments: CALLED Bill Burnett, STEVE BRANCH, GLEN COMSTOCK, MARK TROUTMAN

Fire, Medical and Police phone numbers are on back of this form

FOSS MARITIME
Always Ready

# ACCIDENT/INCIDENT REPORT

No.: _____
Center: _____
Office Use Only

*Complete the following in all cases*

1. Tug or worksite: TUG LEWISTON 2. Barge(s): FML FUEL DOCK
3. Voyage from: FUELING To: —
4. This accident/incident occurred on JULY 8 (month, day), ~~199~~ 02 (year) at about 0130 (Local Time) at or near FML (place or nearest landmark).

   Was dispatch notified? YES (yes/no) If yes to whom: RON PIPHER

   Was the USCG notified? YES (yes/no) If yes to whom: KUAWA
5. Other vessel(s) involved: DOZE
6. Conditions at the time of incident: wind speed Ø direction Ø illumination NIGHT visibility GOOD sea state CALM tide Ø current Ø
7. Photographs taken of damaged property or location of incident? NO (yes/no) If yes send to Portland Dispatch.
8. Witness information from **all** witnesses:

| Name | Job Title | Address | Phone |
|---|---|---|---|
| BRAD WARLER | CAPT | | |
| MATT DAILY | O/A | | |
| | | | |
| | | | |

9. Remarks: WHILE FUEL TUG LEWISTON - STBD SIGHT GLASS SHOWED 2' TO GO - FUEL BURPED OUT STBD TANK ON DECK INTO CONTAINMENT BOOM ON BOAT - APPROXIMATELY 5 GALLONS WENT INTO RIVER TRAPPED BETWEEN BOAT & DOCK
10. Diagram the accident/incident including reference points, distance, directions, wind direction, etc.
BOOM WAS DEPLOYED IN CALM SLACK WATER & FUEL WAS PICKED UP WITH ABSORBANT PADS.

N
or
S

E or W

**ACCIDENT REPORT ROUTE:**
ORIG: FRANK WILLIAMSON
CC: L. JOHNSON, T. BEYER, W. OLSEN, M. SUTTON, M. SEAN, D. FARRIER, M. WALKER, B. BURNETT, L. JACOBSON, G. SOHLER, M. TROUTMAN

8/30/94

*(Over)*

*Complete the following if vessel or property damage*

1. The vessel or property damaged was _____
   Suffering the following damage _____
   _____
2. The other vessel's Master or Captain was _____
3. The other vessel's/property's owner is _____
4. Describe what happened: _____
   _____
   _____
   _____
   _____

*Complete the following if there was an injury*

1. Name: _____ Social Security No.: _____ - _____ - _____
   (Person or Employee Injured)
   Address: _____ City: _____ State: _____ Zip: _____
   Telephone: ( _____ ) _____ Birth Date: _____
2. Place of Treatment: _____ Treated by: _____
3. Job Title: _____ 4. Length of current service: _____
5. Master's Certificate Issued?: _____ (yes/no) 6. Time Lost? _____ (yes/no/unknown) 7. Return to Duty? _____ (yes/no)
8. Activity of person at time of injury: _____
   _____
9. Where accident/incident occurred: _____
10. Part(s) of body injured: _____
11. Describe what happened: _____
    _____
    _____
    _____
    _____
12. Statement of injured party: _____
    _____
    _____
    _____

Captain or Supervisor's Name: BRAD WARNER
(Print neatly or type)

Captain or Supervisor's Signature: Brad Warner Date: July 08,02

Forward Original to:
Foss Maritime - CSR, Operations Manager, P.O. Box 83018, Portland, Oregon 97283-0018

**Confidential Business Information**

# LETTER OF WARNING

## United States Coast Guard

MARINE SAFETY OFFICE
RESPONSE BRANCH
(503)240-9379

6767 N. BASIN AVENUE
PORTLAND, OREGON
97217

On or about 21 APRIL 2003, U. S. Coast Guard Marine Safety Office Portland, Oregon investigated a pollution incident involving your vessel/facility at FOSS DOCK, PORTLAND OR. It has been determined that you are responsible for this incident, associated removal costs and any damages resulting from your discharge of oil.

A discharge of oil into a navigable waterway of the United States is a violation of Section 311 of the Clean Water Act. A violation of the Act can result in a civil penalty of up to $25,000 for each violation.

Under the Oil Spill Liability Act of 1990, the responsible party is liable for, among other things, removal costs and damages resulting from this incident. As long as the OSC determines that you are taking adequate actions in this matter, Federal removal action will usually be limited to monitoring the progress of your actions and providing guidance as necessry.

In consideration of this incident and the absence of recent similar violations, I am issuing this Letter of Warning in lieu of initiating an administrative penalty action. I currently do not intend to pursue this matter further. However, this incident may be considered or processed as a violation, if further information is uncovered. I urge your cooperation in preventing repetition of such violations.

A record of this incident will be maintained by the Coast Guard and this violation may be considered in the event future violations occur.

### RESPONSIBLE PARTY

Name: FOSS MARITIME
Address: 9630 NW ST HELENS RD
PORTLAND, OR 97231

Phone #: 503-286-6631

Vsl/Fac Name: JOSEPH T
VIN/FIN: 567631
Other Source Info:

RP violation history 2000 - NOV

### DISCHARGE INFORMATION

A violation of 33 USC 1321(b)(3) has been determined in that, there was a discharge of an oil or designated hazardous substance, in a harmful quantity, into a navigable waterway or adjoining shoreline of the United States, from your vessel, onshore or offshore facility, and you are the responsible party.

Incident Description: <2 GALLONS OF DIESEL/HYDROLIC OIL PUMPED FROM BILGE ON THE JOSEPH T AT OR AROUND 1000.

Issued by MSTS Scott A. Smith, USCG, Pollution Investigator Date/Time 4/21/03 1050

Received by Michael Unger Date/Time 4/21/03 1050

Confidential Business Information

U.S. Department of Transportation

United States Coast Guard

COMMANDING OFFICER

NOTICE OF FEDERAL INTEREST FOR AN OIL POLLUTION INCIDENT

COMMANDING OFFICER
MARINE SAFETY OFFICE/GROUP
6767 N. BASIN AVE.
PORTLAND, OR 97217

(503) 240-9370

Foss Maritime Co.
9030 NW St. Helens Rd
P.O. Box 83018 (97283-0018)
Portland, OR 97231

Gentlemen:

On or about 1000 21 APR 2003, an oil pollution incident occurred or threatens to occur at Foss Docks Portland OR Tug Joseph T #567631. You may be financially responsible for that incident. Under Federal Statutes, the United States Government may take action to minimize or mitigate damage to the public health or welfare that is threatened or that may be caused by this incident.

Under the Oil Pollution Act of 1990, the responsible party is liable for, among other things, removal costs and damages resulting from this incident. The failure or refusal of the responsible party to provide all reasonable cooperation and assistance requested by the Federal On-Scene Coordinator (OSC) will eliminate any defense or entitlement to limited liability which otherwise might be available under the Act.

You are advised that your failure to properly carry out the removal of the discharge as ordered by the OSC or to comply with any administrative orders necessary to protect the public health and welfare, may subject you to additional penalties. For such failure, owners, operators, or persons in charge of the vessel or facility from which the oil is discharged are subject under the Federal Water Pollution Control Act (FWPCA), as amended, to a civil penalty of up to $25,000 per day of violation or up to 3 times the costs incurred by the Oil Spill Liability Trust Fund. Should you require further information concerning this matter, please contact MST3 Scott A. Smith at the above address and telephone number.

As long as the OSC determines that you are taking adequate actions in this matter, Federal removal action will usually be limited to monitoring the progress of your actions and providing guidance as necessary. Under the FWPCA, as amended, your response actions may be taken into account in determining the amount of any penalty assessed as a result of the discharge.

Sincerely,

MST3 Scott A. Smith

Received and Acknowledged: Michael W. Lincoln

Witness(es): [illegible] MST3

DEPT. OF TRANSP., USCG, CG-5549 (5-92) ★U.S.GPO:1992-0-622-727 SN 7530-01-GF3-2620

## Business Name Search

New Search Printer Friendly

### Business Entity Data

01-31-2008
15:43

| Registry Nbr | Entity Type | Entity Status | Jurisdiction | Registry Date | Duration Date | Renewal Date |
|---|---|---|---|---|---|---|
| 120596-89 | FBC | ACT | DELAWARE | 06-23-1988 | | |
| Entity Name | BRIX MARITIME CO. | | | | | |
| Foreign Name | | | | | | |

New Search Printer Friendly

### Associated Names

| | | | | | | |
|---|---|---|---|---|---|---|
| Type | PPB | PRINCIPAL PLACE OF BUSINESS | | | | |
| Addr 1 | 660 W EWING ST | | | | | |
| Addr 2 | | | | | | |
| CSZ | SEATTLE | WA | 98119 | | Country | UNITED STATES OF AMERICA |

*Please click here for general information about registered agents and service of process.*

| | | | | | | |
|---|---|---|---|---|---|---|
| Type | AGT | REGISTERED AGENT | Start Date | 05-26-1994 | Resign Date | |
| Of Record | 003292-27 | C T CORPORATION SYSTEM | | | | |
| Addr 1 | 388 STATE ST STE 420 | | | | | |
| Addr 2 | | | | | | |
| CSZ | SALEM | OR | 97301 | 3581 | Country | UNITED STATES OF AMERICA |

| | | | | | | |
|---|---|---|---|---|---|---|
| Type | MAL | MAILING ADDRESS | | | | |
| Addr 1 | 660 W EWING ST | | | | | |
| Addr 2 | | | | | | |
| CSZ | SEATTLE | WA | 98119 | 1587 | Country | UNITED STATES OF AMERICA |

| | | | | | | |
|---|---|---|---|---|---|---|
| Type | PRE | PRESIDENT | | | Resign Date | |
| Name | GARY | C | FABER | | | |
| Addr 1 | 660 W EWING ST | | | | | |
| Addr 2 | | | | | | |
| CSZ | | | | | Country | |

| | | | | | |
|---|---|---|---|---|---|
| | SEATTLE | WA | 98119 | | UNITED STATES OF AMERICA |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type** | SEC | SECRETARY | | | **Resign Date** | |
| **Name** | FRANK | H | WILLIAMSON | | | |
| **Addr 1** | 660 W EWING ST | | | | | |
| **Addr 2** | | | | | | |
| **CSZ** | SEATTLE | WA | 98119 | **Country** | UNITED STATES OF AMERICA | |

New Search Printer Friendly

## Name History

| Business Entity Name | Name Type | Name Status | Start Date | End Date |
|---|---|---|---|---|
| BRIX MARITIME CO. | EN | CUR | 12-12-1988 | |
| TWIN CITY BARGE, INC. | EN | PRE | 06-23-1988 | 12-12-1988 |

Please read before ordering Copies.

New Search Printer Friendly

## Summary History

| Image Date | Action | Transaction Date | Effective Date | Status | Name/Agent Change | Dissolved By |
|---|---|---|---|---|---|---|
| 08-27-2007 | ARTICLES OF MERGER | 08-27-2007 | 08-31-2007 | FI | | |
| 05-22-2007 | AMENDMENT TO ANNUAL REPORT | 05-22-2007 | | FI | | |
| 05-17-2007 | ANNUAL REPORT PAYMENT | 05-17-2007 | 05-15-2007 | SYS | | |
| 05-26-2006 | ANNUAL REPORT PAYMENT | 05-26-2006 | | SYS | | |
| 06-01-2005 | ANNUAL REPORT PAYMENT | 06-01-2005 | | SYS | | |
| 06-14-2004 | ANNUAL REPORT PAYMENT | 06-14-2004 | | SYS | | |
| 06-17-2003 | ANNUAL REPORT PAYMENT | 06-17-2003 | | SYS | | |
| 06-10-2002 | ANNUAL REPORT PAYMENT | 06-10-2002 | | SYS | | |
| 06-08-2001 | CHANGE OF REGISTERED AGENT/ADDRESS | 06-08-2001 | | FI | | |
| 06-04-2001 | AMENDMENT TO ANNUAL REPORT | 06-04-2001 | | FI | | |
| 05-31-2001 | ANNUAL REPORT PAYMENT | 05-31-2001 | | SYS | | |
| 01-27-2001 | ARTICLES OF MERGER | 01-26-2001 | | FI | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 06-13-2000 | STRAIGHT RENEWAL | 06-13-2000 | | FI | | |
| 06-23-1999 | STRAIGHT RENEWAL | 06-11-1999 | | FI | | |
| 06-10-1998 | STRAIGHT RENEWAL | 06-01-1998 | | FI | | |
| 05-28-1997 | STRAIGHT RENEWAL | 05-21-1997 | | FI | | |
| 06-21-1996 | STRAIGHT RENEWAL | 06-13-1996 | | FI | | |
| 08-23-1995 | AMENDED RENEWAL | 08-23-1995 | | FI | | |
| 06-30-1995 | NOTICE | 07-03-1995 | | SYS | | |
| 06-07-1994 | AMENDED RENEWAL | 05-26-1994 | | FI | | |
| 07-29-1994 | AGENT/AUTH REP CHNG | 05-26-1994 | | FI | | |
| 06-24-1993 | STRAIGHT RENEWAL | 06-16-1993 | | FI | | |
| 05-22-1992 | STRAIGHT RENEWAL | 05-18-1992 | | FI | | |
| 05-30-1991 | AMENDED RENEWAL | 05-28-1991 | | FI | | |
| 11-02-1990 | AGENT/AUTH REP CHNG | 11-02-1990 | | FI | | |
| 05-31-1990 | AMENDED RENEWAL | 05-25-1990 | | FI | | |
| 05-31-1989 | AMENDED RENEWAL | 05-24-1989 | | FI | | |
| 12-12-1988 | ENTITY NAME CHANGE | 12-12-1988 | | FI | | |
| 06-23-1988 | NEW FILING | 06-23-1988 | | FI | | |



For comments or suggestions regarding the operation of this site, please contact : businessregistry.sos@state.or.us

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$68.
93072253

BOOK 2755 PAGE 879

STEWART TITLE

After recording return to:

Brix Maritime Co.
9030 N.W. St. Helens Road
P.O. Box 83018
Portland, OR 97283-0018

Until a change is requested, all tax statements are to be sent to the following name and address:

Brix Maritime Co.
9030 N.W. St. Helens Road
P.O. Box 83018
Portland, OR 97283-0018

# STATUTORY WARRANTY DEED

Peter J. Brix, Grantor, conveys and warrants to Brix Maritime Co., a Delaware corporation, Grantee, the following described real property free of encumbrances except as specifically set forth herein:

See Exhibit A attached hereto which is incorporated herein by this reference.

Such real property is free from encumbrances except as set forth on Exhibit B which is attached hereto and incorporated herein by this reference.

The true consideration for this conveyance is $550,000.

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES.

Dated this 21st day of September, 1993.

Peter J. Brix

STATE OF OREGON )
) ss.
County of Multnomah )

This instrument was acknowledged before me this 21 day of September, 1993, by Peter J. Brix.

OFFICIAL SEAL
C. KENT ROBERTS
NOTARY PUBLIC-OREGON
COMMISSION NO. 002567
MY COMMISSION EXPIRES NOV. 16, 1994

NOTARY PUBLIC FOR OREGON
My Commission Expires: 11/16/93

1 - STATUTORY WARRANTY DEED

(SWW2/46570/1593KLJ/546144.1)

SEP 22 1993

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EXHIBIT "A"

A tract of land situated in the Northeast one-quarter of Section 11, Township 1 North, Range 1 West of the Willamette Meridian, in the County of Multnomah and State of Oregon, more particularly described as follows:
Beginning at a brass cap set at the intersection of the North line of the W.W. Baker D.L.C. and the Northeasterly line of the S.P. & S. Railroad Co. 60.00 foot right-of-way; thence South 40 degrees 42'25" East along said right-of-way a distance of 39.79 feet to a point of tangent curve; thence along the arc of an 11,429.16 foot radius curve to the left, through a central angle of 2 degrees 39'43", an arc distance of 531.00 feet (the long chord bears South 42 degrees 02'17" East a distance of 530.95 feet) to a point; thence North 53 degrees 19'15" East a distance of 382.01 feet to the Willamette River Harbor Line; thence North 38 degrees 15'31" West along said Harbor line, a distance of 510.37 feet to a point; thence South 62 degrees 37'35" West parallel with said North line of the W.W. Baker D.L.C. a distance of 406.17 feet to a point in the Northeasterly line of the S.P. & S. Railroad Co. 100.00 foot right-of-way; thence South 40 degrees 42'25" East along said right-of-way a distance of 10.89 feet to the North line of the W.W. Baker D.L.C.; thence South 62 degrees 37'35" West along said North line a distance of 20.55 feet to the point of beginning SUBJECT TO AND TOGETHER WITH a non-exclusive easement to build and maintain a road for access purposes over a strip of land 25 feet wide, said 25 foot wide strip being described as follows: Beginning at a point on the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way which is North 40 degrees 42'25" West 10.89 feet from the intersection of said Northeasterly right-of-way line with the Northerly line of the W.W. Baker D.L.C.; thence South 40 degrees 42'25" East 10.89 feet to said intersection; thence South 11 degrees East 40.35 feet to an iron rod in the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way, said iron pipe being South 40 degrees 42'25" East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.; thence along said Northeasterly line of the 60 foot railroad right-of-way, along the arc of an 11,429.16 foot radius curve to the left, the chord of which bears South 42 degrees 08'45" East, an arc distance of 574.05 feet to an iron rod; thence continuing along said Northeasterly line of the 60 foot railroad right-of-way, South 43 degrees 35'05" East 647.97 feet to the Northerly line of Block "C", SPRINGVILLE, being the Southerly line of what was formerly part of N.W. Ferry Street; thence North 53 degrees 19'15" East along said Southerly line of Old N.W. Ferry Street to a point which bears North 46 degrees 24'55" East 25 feet from, at right angles to, said railroad right-of-way; thence Northwesterly along a line parallel with and 25 feet Northeasterly from, when measured at right angles to, the Northeasterly right-of-way line of the S.P. & S. Railroad Co. 60 foot right-of-way, a distance of 1224 feet, more

Continued on next page

SEP 2 2 1993

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or less, to a point which bears North 48 degrees 17'35" East 25 feet from the iron rod first designated above, (said iron rod being on the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way at a point which is South 40 degrees 42'25" East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.)) thence North 11 degrees West 40.35 feet to a point which bears North 48 degrees 17'35" East 25 feet from the intersection of the Northerly line of the W.W. Baker D.L.C. with the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way; thence North 40 degrees 42'25" West 5.0 feet, more or less, to a point which bears North 62 degrees 37'35" East from the point of beginning; thence South 62 degrees 37'35" West 26 feet, more or less, to the point of beginning.

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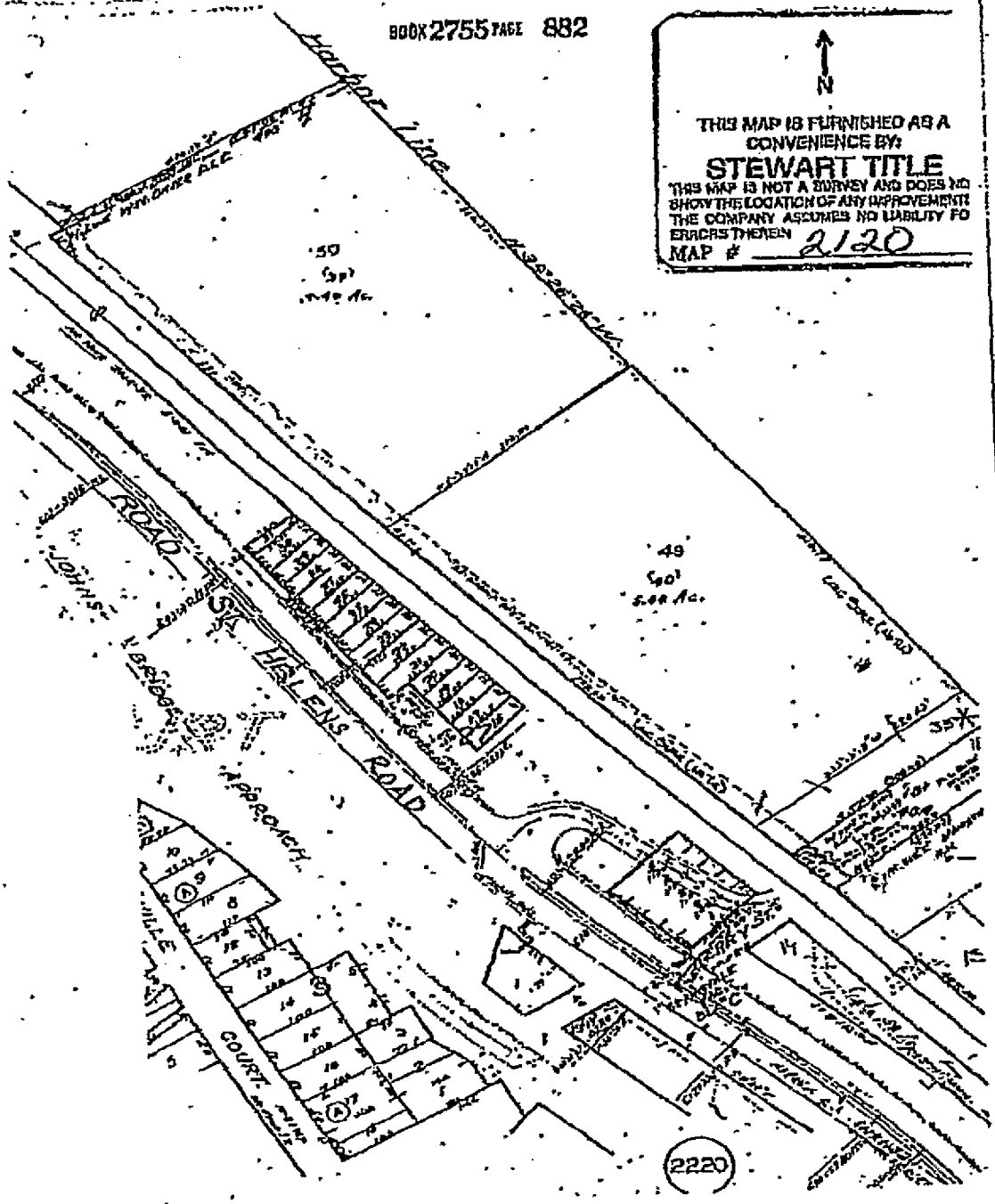
BOOK 2755 PAGE 882




SEP 2 2 1993

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EXHIBIT B

GENERAL EXCEPTIONS:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interest, easements or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.

3. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments or any other facts which a correct survey would disclose, and which are not shown by the public records.

5. Statutory liens or other liens or encumbrances, or claims thereof, which are not shown by the public records.

SPECIAL EXCEPTIONS:

6. 1993-94 taxes, a lien not yet payable.

7. Taxes, interest and penalties, if any, assessed by the State of Oregon, Department of Revenue for the assessment of the improvements located on the subject property.

8. City Liens, if any, of the City of Portland. We find none as of September 16, 1993.

9. Lack of Access due to the lack of evidence in the Records pertaining to a crossing permit or license, for access from the public right of way over the railroad property separating the subject property from N.W. St. Helens Road.

10. Implied Easement rights, of Southern Pacific Pipe Lines, Inc. for pipeline adjacent to the railroad right-of-way.
NOTE: Documentation of record indicates pipeline on those properties both North and South of adjacent property, which implies that the pipeline would continue through the subject property.

Continued on next page



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11. Easement, including the terms and provisions thereof:
    For: To inspect, patrol, construct, maintain, operate, repair, replace, change the size of, and remove, in whole or in part, one or more pipe lines, for the transportation of oil and gas, and the products thereof, water, or any other fluid or substance, with the necessary fittings, fixtures, valves, appurtenances and cathodic protection devices, and the right to maintain the right of way clear of trees, underbrush, buildings and other obstructions
    Granted to: Olympic Pipe Line Company, a Delware corporation
    Recorded: January 28, 1965
    Book: 220
    Page: 389
    Affects: A right of way ten (10) feet in width

12. Easement, including the terms and provisions thereof:
    For: To build and maintain a road for access purposes
    Granted to: Portland Terminals Co., a Nevada corporation
    Recorded: February 7, 1973
    Book: 908
    Page: 1420
    Affects: A strip of land 25 feet wide

13. Easement, including the terms and provisions thereof:
    For: Sewer or sewers
    Granted to: City of Portland, a municipal corporation
    Recorded: March 14, 1972
    Book: 914
    Page: 1891
    Affects: A strip of land 5.0 feet in width

14. Easement, including the terms and provisions thereof:
    For: Sewer or sewers
    Granted to: City of Portland, a municipal corporation
    Recorded: March 14, 1973
    Book: 914
    Page: 1895
    Affects: A strip of land 15.0 feet in width

15. Conditions and Restrictions, established by City of Portland Conditional Use Request No. 64-77:
    Regarding: For fill excavation and Greenway Conditional Use Permit for construction of a barge berthing area
    Recorded: August 24, 1977
    Book: 1202
    Page: 1684

Continued on next page



SEP 2 2 1993

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16. Conditions and Restrictions, established by City of Portland Conditional Use Request No. CU 78-78:
Regarding: To construct office building, parking lot, underground tank storage, warehouse and open storage within the Willamette River Greenway
Recorded: November 14, 1978
Book: 1308
Page: 2867

17. Trust Deed, including the terms and provisions thereof to secure the amount noted below and other amounts secured thereunder, if any:
Grantor: Knappton Corporation, a Washington corporation and Arthur A. Reidel
Trustee: Pioneer National Title Insurance Company
Beneficiary: Plumbing and Pipefitting Industry Pension Trust Fund (Oregon)
Dated: February 28, 1980
Recorded: February 28, 1980
Book: 1422
Page: 2269
Amount: $640,000.00
Loan No.: not disclosed
Assignment of Leases and Rents, including the terms and provisions thereof:
From: Knappton Corporation, a Washington corporation, and Arthur A. Reidel
To: Plumbing and Pipefitting Industry Pension Trust Fund (Oregon)
Dated: February 28, 1980
Recorded: February 28, 1980
Book: 1422
Page: 2287
Given as additional security for the Trust Deed shown above.

18. Easement, including the terms and provisions thereof:
For: Underground distribution line
Granted to: Portland General Electric Company, an Oregon corporation
Recorded: July 30, 1980
Book: 1458
Page: 1220
Affects: A strip of land 6 feet in width

Continued on next page



SEP 2 2 1993

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19. Setback as required under Greenway Permit, GP 2-88, recorded March 4, 1986, Book 2884, page 1848.

20. Unrecorded leaseholds, rights of parties in possession, and security interests in trade fixtures, personal property or unattached improvements, if any.

21. No search has been made for Financing Statements filed in the office of the Secretary of State. Exception may be taken to such matters as may be shown thereby. No liability is assumed if a financing statement is filed in the office of the County Recorder covering timber/crops/fixtures/contracts on the premises wherein the lands are described other than by metes and bounds or under the rectangular survey system or by recorded lot and block.

22. Intentionally omitted.

23. Right, title or interest of the public, including governmental bodies in and to that portion of said premises lying below the ordinary high water line of the Willamette River and public rights of fishing and recreation in and to the shoreline of said river.

24. Governmental rights in connection with flood control and propagation of anadromous fish and public rights of fishing and recreational navigation in and to the water, bed and shoreline of the Willamette River.

25. Any adverse claim or defect in the title based upon the assertion that some portion of said land has been removed from or brought within the boundaries of the premises by an avulsive movement of Willamette River or has been formed by a process of accretion or reliction or has been created by artificial means or has accreted to such portion so created.

26. Any adverse claim based on the assertion that any portion of the subject property has been created by artificial fill or has been accreted to such portions so created.

NOTE: Taxes paid in full for 1992-93:
Amount: $7,135.53
Account No.: R-96111-0390
Levy Code: 001
Map No.: 2120
AFFECTS THE LAND ONLY

NOTE: The premises herein described is commonly known as: 9030 N.W. St. Helens Road, Portland, Oregon 97231.

Continued on next page



SEP 2 2 1993

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00015231

NOTE: Multnomah County Ordinance No. 495 requires the County Clerk to collect a fee of $3.00 in connection with the Public Land Corner Preservation Fund on all instruments described under ORS 205.130, Section 2. Said fee is in ADDITION to existing recording fees and transfer tax.

NOTE: Effective January 1, 1990 the county will collect a $20.00 Department of Revenue - State of Oregon fee pursuant to ORS 205.320. This fee is in addition to the county's own recording fees.

NOTE: We find no Judgments or Federal Tax Liens against Brix Maritime Co.

RLS/ims

IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT OR YOUR ESCROW CLOSING PLEASE CALL O. JEANNE HARRIS AT 226-4203. O. JEANNE IS LOCATED AT 1300 SW 6TH AVE., SUITE 310, PORTLAND, OREGON 97201.

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93 SEP 22 PM 12:56

RECORDING SECTION
MULTNOMAH CO. OREGON

BOOK 2755 PAGE 879

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Page 5

SEP 22 1993

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# Western American Property Research

401 S.W. FOURTH AVENUE, PORTLAND, OREGON 97204-2273

**Parcel # R324089**
**Map # 1N1W11 800**

N W E S

The sketch below is made solely for the purpose of assisting in locating said premises and the Company assumes no liability for variations, if any, in dimensions and location ascertained by actual survey.

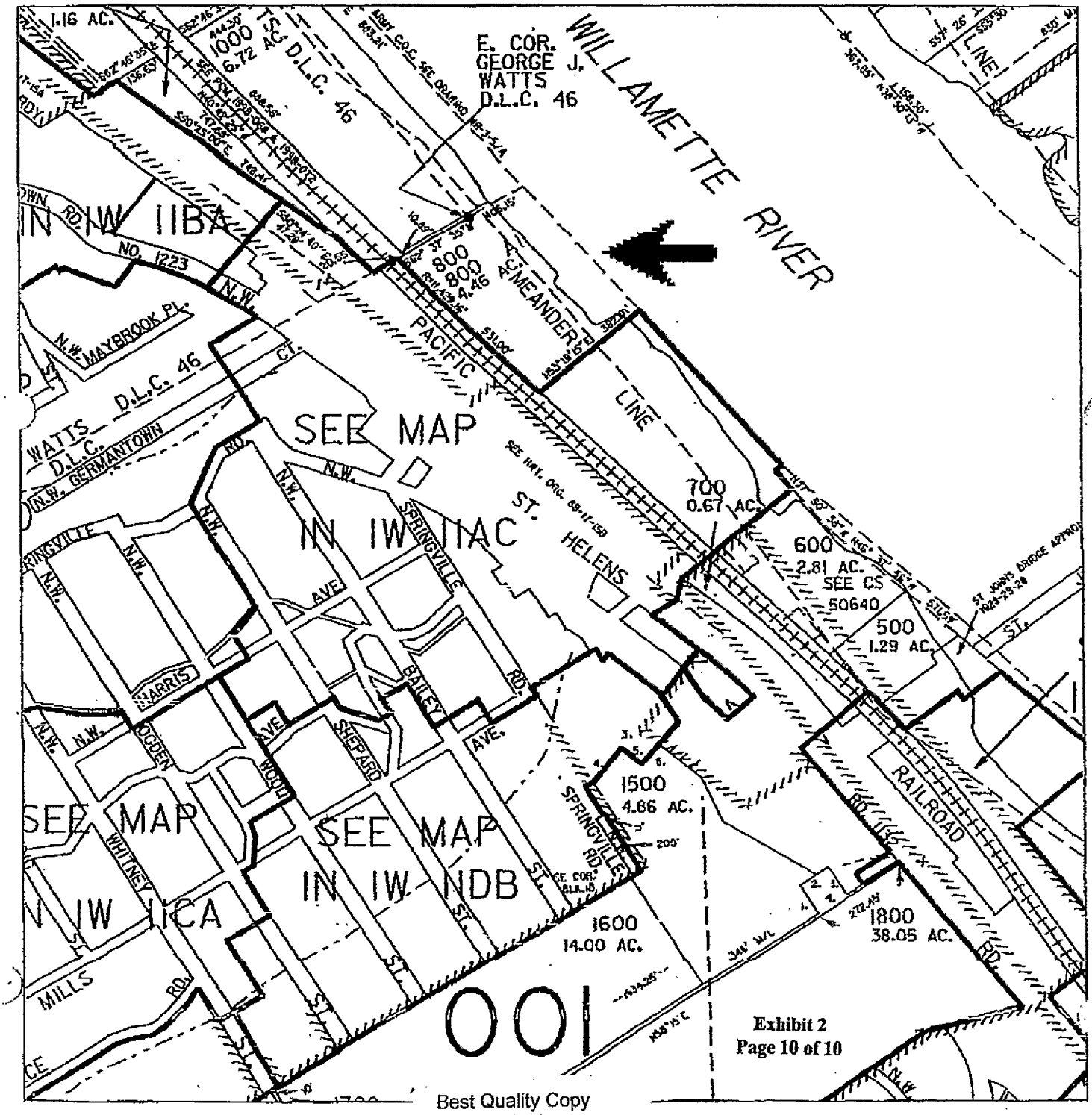


Exhibit 2
Page 10 of 10

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BOOK 2754 PAGE 1728

# QUITCLAIM DEED

THE SIEGFRIED COMPANY, an Oregon general partnership consisting of Arthur A. Riedel and Peter J. Brix and Arthur A. Riedel, individually, Grantors, release and quitclaim to Peter J. Brix, Grantee, all right, title and interest in and to the real property described on Exhibit A attached hereto and by this reference incorporated herein., upon which the grantors have placed their initials and this date.

The true consideration for this conveyance is other property or value given.

Dated this 16th day of September, 1993.

THE SIEGFRIED COMPANY, an Oregon general partnership

By: Arthur A. Riedel, General Partner

By: Peter J. Brix, General Partner

ARTHUR A. RIEDEL

After Recording Return to: Brix Maritime Co.
9030 NW St. Helens Road
PO Box 83018
Portland, Oregon 97283-0018

+TAX STMTS TO:

(SWW2/46570/87118/CMC/545906.1)

SEP 2 1 1993

STATE OF OREGON )
) ss.
County of Multnomah )

This instrument was acknowledged before me this 16 day of September, 1993, by Arthur A. Riedel, individually, and as a partner, on behalf of The Siegfried Company, a partnership.

OFFICIAL SEAL
DONNA J. ROE
NOTARY PUBLIC-OREGON
COMMISSION NO. 013848
MY COMMISSION EXPIRES MARCH 28, 1995

NOTARY PUBLIC FOR OREGON
My Commission Expires: _____

STATE OF OREGON )
) ss.
County of Multnomah )

This instrument was acknowledged before me this 21 day of September, 1993, by Peter J. Brix, partner, on behalf of The Siegfried Company, a partnership.

OFFICIAL SEAL
D. KENT ROBERTS
NOTARY PUBLIC-OREGON
COMMISSION NO. 002467
MY COMMISSION EXPIRES NOV. 16, 1994

NOTARY PUBLIC FOR OREGON
My Commission Expires: 11/16/93

SEP 21 1993

9/16/93

EXHIBIT "A" (P)

A tract of land situated in the Northeast one-quarter of Section 11, Township 1 North, Range 1 West of the Willamette Meridian, in the County of Multnomah and State of Oregon, more particularly described as follows:
Beginning at a brass cap set at the intersection of the North line of the W.W. Baker D.L.C. and the Northeasterly line of the S.P. & S. Railroad Co. 60.00 foot right-of-way; thence South 40 degrees 42'25" East along said right-of-way a distance of 39.79 feet to a point of tangent curve; thence along the arc of an 11,429.16 foot radius curve to the left, through a central angle of 2 degrees 39'43", an arc distance of 531.00 feet (the long chord bears South 42 degrees 02'17" East a distance of 530.95 feet) to a point; thence North 53 degrees 19'15" East a distance of 382.01 feet to the Willamette River Harbor Line; thence North 38 degrees 15'31" West along said Harbor line, a distance of 510.37 feet to a point; thence South 62 degrees 37'35" West parallel with said North line of the W.W. Baker D.L.C. a distance of 406.17 feet to a point in the Northeasterly line of the S.P. & S. Railroad Co. 100.00 foot right-of-way; thence South 40 degrees 42'25" East along said right-of-way a distance of 10.89 feet to the North line of the W.W. Baker D.L.C.; thence South 62 degrees 37'35" West along said North line a distance of 20.55 feet to the point of beginning SUBJECT TO AND TOGETHER WITH a non-exclusive easement to build and maintain a road for access purposes over access purposes over a strip of land 25 feet wide, said 25 foot wide strip being described as follows:
Beginning at a point on the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way which is North 40 degrees 42'25" West 10.89 feet from the intersection of said Northeasterly right-of-way line with the Northerly line of the W.W. Baker D.L.C.; thence South 40 degrees 42'25" East 10.89 feet to said intersection; thence South 11 degrees East 40.35 feet to an iron rod in the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way, said iron pipe being South 40 degrees 42'25" East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.; thence along said Northeasterly line of the 60 foot railroad right-of-way, along the arc of an 11,429.16 foot radius curve to the left, the chord of which bears South 42 degrees 08'45" East, an arc distance of 574.05 feet to an iron rod; thence continuing along said Northeasterly line of the 60 foot railroad right-of-way, South 43 degrees 35'05" East 647.97 feet to the Northerly line of Block "C", SPRINGVILLE, being the Southerly line of what was formerly part of N.W. Ferry Street; thence North 53 degrees 19'15" East along said Southerly line of Old N.W. Ferry Street to a point which bears North 46 degrees 24'55" East 25 feet from, at right angles to, said railroad right-of-way; thence Northwesterly along a line parallel with and 25 feet Northeasterly from, when measured at right angles to, the Northeasterly right-of-way line of the S.P. & S. Railroad Co. 60 foot right-of-way, a distance of 1224 feet, more

Continued on next page

SEP 21 1993

EXHIBIT "A" / 9/16/93 (R)



or less, to a point which bears North 48 degrees 17'35" East 25 feet from the iron rod first designated above, (said iron rod being on the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way at a point which is South 40 degrees 42'25" East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.); thence North 11 degrees West 40.35 feet to a point which bears North 48 degrees 17'35" East 25 feet from the intersection of the Northerly line of the W.W. Baker D.L.C. with the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way; thence North 40 degrees 42'25" West 5.0 feet, more or less, to a point which bears North 62 degrees 37'35" East from the point of beginning; thence South 62 degrees 37'35" West 26 feet, more or less, to the point of beginning.

126341

93 SEP 21 PM 4:28

RECORDING SECTION
MULTNOMAH CO. OREGON

BOOK 2754 PAGE 1728

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SEP 21 1993

7-06-81

BARGAIN AND SALE DEED

BOOK 1535 PAGE 796

ARTHUR A. RIEDEL, Grantor, conveys to THE SIEGFRIED COMPANY, an Oregon partnership consisting of ARTHUR A. RIEDEL and PETER J. BRIX, Grantee, the following described real property situated in the City of Portland and Multnomah County, Oregon, to-wit:

A tract of land situated in the Northeast one-quarter of section 11, Township 1 North, Range 1 West of the Willamette Meridian in the County of Multnomah and State of Oregon, more particularly described as follows:

Beginning at a brass cap set at the intersection of the north line of the W.W. Baker D.L.C. and the northeasterly line of the S.P. & S. Railroad Co. 60.00 foot right-of-way; thence South 40° 42' 25" East along said right-of-way a distance of 39.79 feet to a point of tangent curve; thence along the arc of an 11,429.16 foot radius curve to the left, through a central angle of 2° 39' 43", an arc distance of 531.00 feet (the long chord bears South 42° 02' 17" East a distance of 530.95 feet) to a point; thence North 53° 19' 15" East a distance of 382.01 feet to the Willamette River Harbor Line; thence North 38° 15' 31" West along said Harbor line, a distance of 510.37 feet to a point; thence South 62° 37' 35" West parallel with said north line of the W.W. Baker D.L.C. a distance of 406.17 feet to a point in the Northeasterly line of the S.P. & S. Railroad Co. 100.00 foot right-ofway; thence South 40° 42' 25" East along said right-of-way a distance of 10.89 feet to the north line of the W.W. Baker D.L.C.; thence South 62° 37' 35" West along said north line a distance of 20.55 foot to the point of beginning SUBJECT TO AND TOGETHER WITH a non-exclusive easement to build and maintain a road for access purposes over a strip of land 25 feet wide, said 25 foot wide strip being described as follows: Beginning at a point on the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way which is North 40° 42' 25" West 10.89 feet from the intersection of said Northeasterly right-of-way line with the Northerly line of the W.W. Baker D.L.C.; thence South 40° 42' 25" East 10.89 feet to said intersection; thence South 11° East 40.35 feet to an iron rod on the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way, said iron pipe being South 40° 42' 25" East 39.79 feet from the Northerly line of the W.W. Baker

Page 1

47867

JUL 6 1981

7-06-81

BOOK 1535 PAGE 797

D.L.C.; thence along said Northeasterly line of the 60 foot railroad right-of-way, along the arc of an 11,429.16 foot radius curve to the left, the chord of which bears South 42° 08' 45" East, an arc distance of 574.05 feet to an iron rod; thence continuing along said Northeasterly line of the 60 foot railroad right-of-way, South 43° 35' 05" East 647.97 feet to the Northerly line of Block "C", SPRINGVILLE, being the Southerly line of what was formerly part of N.W. Ferry Street; thence North 53° 19' 15" East along said Southerly line of old N.W. Ferry Street to a point which bears North 46° 24' 55" East 25 feet from, at right angles to, said railroad right-of-way; thence Northwesterly along a line parallel with and 25 feet Northeasterly from, when measured at right angles to, the Northeasterly right-of-way line of the S.P. & S. Railroad Co. 60 foot right-of-way, a distance of 1224 feet, more or less, to a point which bears North 48° 17' 35" East 25 feet from the iron rod first designated above, (said iron rod being on the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way at a point which is South 40° 42' 25" East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.); thence North 11° West 40.35 feet to a point which bears North 48° 17' 35" East 25 feet from the intersection of the Northerly line of the W.W. Baker D.L.C. with the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way,; thence North 40° 42' 25" West 5.0 feet, more or less, to a point which bears North 62° 37' 35" East from the point of beginning; thence South 62° 37' 35" West 26 feet, more or less, to the point of beginning. Said above described tract contains 5 acres, more or less.

The true consideration for this conveyance is other value which is the whole of the consideration.

This Deed is effective the 1st day of January, 1980.
Dated this 19 day of June, 1981.

ARTHUR A. RIEDEL

STATE OF OREGON }
} ss.
County of Multnomah }

Personally appeared the above named ARTHUR A. RIEDEL and acknowledged the foregoing instrument to be his voluntary act and deed.

BEFORE ME:

NOTARY PUBLIC FOR OREGON
My Commission Expires: 3/26/84

NOTARY PUBLIC FOR OREGON
My Commission Expires 3/26/84

Page 2

47867

JUL 6 1981

7-06-81

RETURN TO:

Wall & Wall, Attys
686 Lloyd Five Hundred Building
500 N.E. Multnomah
Portland, Oregon 97232
Att: Robert C. Wall

BOOK 1535 PAGE 798

47867

STATE OF OREGON
Multnomah County } ss.

Division Services and Recorder of Government, Land Records of Multnomah County, Oregon, is hereby certify that the within instrument of writing was received for record and recorded in the Record of Mortgages of said County as:

MULTNOMAH COUNTY, OREGON

JUL -6 1981 -9 00 AM

In Book 1535 Of Page 796

Witness my hand and seal of the office of Director

Director
Department of Administration
Services

Receipt

Deputy

47867

JUL 6 1981

## BARGAIN AND SALE DEED

KNOW ALL MEN BY THESE PRESENTS, that GLEN A. WIDING, hereinafter [illegible] the grantor, conveys unto ARTHUR A. RIEDEL, hereinafter called the grantee, for the consideration hereafter stated, and unto grantee's heirs, successors, and assigns, that certain real property, with the tenements, hereditaments, and appurtenances thereunto belonging or appertaining, situated in the County of Multnomah and State of Oregon, described as follows, to-wit:

> A tract of land situated in the Northeast one-quarter of Section 11, Township 1 North, Range 1 West of the Willamette Meridian in the County of Multnomah and State of Oregon, more particularly described as follows:
>
> Beginning at a brass cap set at the intersection of the north line of the W.W. Baker D.L.C. and the northeasterly line of the S.P. & S. Railroad Co. 60.00 foot right of way; thence South 40° 42' 25" East along said right of way a distance of 39.79 feet to a point of tangent curve; thence along the arc of an 11,429.16 foot radius curve to the left, through a central angle of 2° 39' 43", an arc distance of 531.00 feet (the long chord bears South 42° 02' 17" East a distance of 530.95 feet) to a point; thence North 53° 19' 15" East a distance of 382.01 feet to the Willamette River Harbor Line; thence North 38° 15' 31" West along said Harbor line, a distance of 510.37 feet to a point; thence South 62° 37' 35" West parallel with said north line of the W.W. Baker D.L.C. a distance of 406.17 feet to a point in the Northeasterly line of the S.P. & S Railroad Co. 100.00 foot right of way; thence South 40° 42' 25" East along said right of way a distance of 10.89 feet to the north line of the W.W. Baker D.L.C.; thence South 62° 37' 35' West along said north line a distance of 20.55 feet to the point of beginning; SUBJECT TO AND TOGETHER WITH a non-exclusive easement to build and maintain a road for access purposes over a strip of land 25 feet wide, said 25 foot wide strip being described as follows: Beginning at a point on the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right [illegible] 40° 42' 25" West [illegible] [illegible] Northerly line of the W.W. Baker D.L.C. [illegible] [illegible] 40.35 feet to [illegible] the [illegible] line of the S.P. & S. Railroad [illegible] [illegible]

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East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.; thence along said Northeasterly line of the 60 foot railroad right of way, along the arc of an 11,429.16 foot radius curve to the left, the chord of which bears South 42° 08' 45" East, an arc distance of 574.05 feet to an iron rod; thence continuing along said Northeasterly line of the 60 foot railroad right of way, South 43° 35' 05" East 642.97 feet to the Northerly line of Block "C", SPRINGVILLE, being the Southerly line of what was formerly part of N.W. Ferry Street; thence North 53° 19' 15" East along said Southerly line of old N.W. Ferry Street to a point which bears North 46° 24' 55" East 25 feet from, at right angles to, said railroad right of way; thence Northwesterly along a line parallel with and 25 feet Northeasterly from, when measured at right angles to, the Northeasterly right of way line of the S.P. & S. Railroad Co. 60 foot right of way, a distance of 1224 feet, more or less, to a point which bears North 48° 17' 35" East 25 feet from the iron rod first designated above, (said iron rod being on the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right of way at a point which is South 40° 42' 25" East 39.79 feet from the Northerly line of the W.W. Baker D.L.C.); thence North 11° West 40.35 feet to a point which bears North 48° 17' 35" East 25 feet from the intersection of the Northerly line of the W.W. Baker D.L.C. with the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right of way; thence North 40° 42' 25" West 5.0 feet, more or less, to a point which bears North 62° 37' 35" East from the point of beginning; thence South 62° 37' 35" West 26 feet, more or less, to the point of beginning. Said above described tract contains 5 acres, more or less.

The true and actual consideration paid for this transfer, stated in terms of dollars, is $70,793.66. However, the actual consideration consists of or includes other property or value given or promises which is part of the consideration.

WITNESS grantor's hand this 16th day of February, 1973.

Best Quality Copy
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Confidential Business Information

00015248

appeared the above named GLEN A. WIDING and acknowledged the foregoing instrument to be his voluntary act and deed.

Notary Public for Oregon
My Commission expires 9/30/73

Best Quality Copy
Available

## BARGAIN AND SALE DEED

KNOW ALL MEN BY THESE PRESENTS, that GLEN A. WIDING, hereinafter [illegible] the grantor, conveys unto ARTHUR A. RIEDEL, hereinafter called the grantee, for the consideration hereafter stated, and unto grantee's heirs, successors, and assigns, that certain real property, with the tenements, hereditaments, and appurtenances thereunto belonging or appertaining, situated in the County of Multnomah and State of Oregon, described as follows, to-wit:

> A tract of land situated in the Northeast one-quarter of Section 11, Township 1 North, Range 1 West of the Willamette Meridian in the County of Multnomah and State of Oregon, more particularly described as follows:
>
> Beginning at a brass cap set at the intersection of the north line of the W.W. Baker D.L.C. and the northeasterly line of the S.P. & S. Railroad Co. 60.00 foot right of way; thence South 40° 42' 25" East along said right of way a distance of 39.79 feet to a point of tangent curve; thence along the arc of an 11,429.16 foot radius curve to the left, through a central angle of 2° 39' 43", an arc distance of 531.00 feet (the long chord bears South 42° 02' 17" East a distance of 530.95 feet) to a point; thence North 53° 19' 15" East a distance of 382.01 feet to the Willamette River Harbor Line; thence North 38° 15' 31" West along said Harbor line, a distance of 510.37 feet to a point; thence South 62° 37' 35" West parallel with said north line of the W.W. Baker D.L.C. a distance of 406.17 feet to a point in the Northeasterly line of the S.P. & S Railroad Co. 100.00 foot right of way; thence South 40° 42' 25" East along said right of way a distance of 10.89 feet to the north line of the W.W. Baker D.L.C.; thence South 62° 37' 35' West along said north line a distance of 20.55 feet to the point of beginning; SUBJECT TO AND TOGETHER WITH a non-exclusive easement to build and maintain a road for access purposes over a strip of land 25 feet wide, said 25 foot wide strip being described as follows: Beginning at a point on the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right [illegible] 40° 42' 25" West [illegible] [illegible] Northerly line of the W.W. Baker D.L.C. [illegible] [illegible] 40.35 feet to [illegible] the [illegible] line of the S.P. & S. Railroad [illegible] [illegible]

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Confidential Business Information

00015248

appeared the above named GLEN A. WIDING and acknowledged the foregoing instrument to be his voluntary act and deed.

Notary Public for Oregon
My Commission expires 9/30/73

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44012

DEED

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Confidential Business Information

00015250

44012

DEED

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Available

Confidential Business Information

00015250

# State of Oregon

## Department of Commerce
## Corporation Division

### Amended Certificate of Authority

*OF*

KNAPPTON TOWBOAT COMPANY

**The undersigned,** *as Corporation Commissioner of the State of Oregon, hereby certifies that duplicate originals of an Application for an Amended Certificate of Authority to transact business in this State, duly signed and verified pursuant to the provisions of the Oregon Business Corporation Act, have been received in this office and are found to conform to law.*

**Accordingly,** *the undersigned, as such Corporation Commissioner, and by virtue of the authority vested in him by law, hereby issues this Amended Certificate of Authority to the corporation named above to transact business in this State under the name of* KNAPPTON CORPORATION *, and attaches hereto a duplicate original of the Application for such Amended Certificate.*

**In Testimony Whereof,** *I have hereunto set my hand and affixed hereto the seal of the Corporation Division of the Department of Commerce of the State of Oregon this* 26th *day of* December *, 19* 78.

**Frank J. Healy**
*Corporation Commissioner*

*By* Shirley Smith
*Chief Clerk*

C-35-B/N
11-69

No. 35 B/N
7-71

Filing Fee: $5.00
Submit in duplicate

# Application for Amended Certificate of Authority

Of

① KNAPPTON TOWBOAT COMPANY

FILED
IN THE OFFICE OF THE CORPORATION COMMISSIONER OF THE STATE OF OREGON
DEC 2 6 1978
FRANK J. HEALY
CORPORATION COMMISSIONER

To the Corporation Commissioner
of the State of Oregon:

Pursuant to the provisions of ORS 57.716 of the Oregon Business Corporation Act, the undersigned corporation hereby applies for an amended certificate of authority to transact business in the State of Oregon, and for that purpose submits the following statement:

② 1. Its corporate name has been changed to KNAPPTON CORPORATION

2. The name which it had elected to use in the State of Oregon was KNAPPTON TOWBOAT COMPANY

③ 3. The name which it elects to use hereafter in the State of Oregon is KNAPPTON CORPORATION

We, the undersigned officers, declare under penalties of perjury that we have examined the foregoing and to the best of our knowledge and belief, it is true, correct and complete.

④ KNAPPTON CORPORATION

By [signature]

Its _____ President

and [signature]

Dated Dec 9, 19 78

Its _____ Secretary

Notes:

① Insert exact former corporate name.

② If the corporate name has not been changed, insert "No Change".

③ To conform with Oregon law, corporate name or name elected to be used in Oregon must contain one of the following words, or an abbreviation thereof: "Corporation", "Incorporated", "Company" or "Limited".

④ Exact corporate name of the corporation making the application.

Send to Corporation Commissioner, Commerce Building, 158 - 12th Street N.E., Salem, Oregon 97310.

SP*85232-814

FORM W-[illegible] 521277

Date

# REPORT OF BUILDING INSPECTION

[illegible]

Lot [illegible] Block [illegible] Addition

Owner [illegible] Address [illegible]

Contractor [illegible] Address [illegible]

Story Type [illegible] Zone [illegible] Cost [illegible]

Plan Examiner [illegible] Structural Engineer [illegible]

| DATE | HOUR | REMARKS |
|---|---|---|
| | | [illegible] |
| | | [illegible] |
| | | [illegible] |
| | | [illegible] |
| | | [illegible] |
| 2-8-79 | 2:00 | [illegible] |
| | | [illegible] |
| | | [illegible] |
| 3-23-79 | 11:10 | [illegible] |
| 3-[illegible]-79 | 10:30 | [illegible] |
| | | [illegible] |

221-1077

9030 N.W. ST. HELENS RD. (2) 521277

| DATE | HOUR | REMARKS |
|---|---|---|
| 7-13-79 | 3:00 | Called & Cover 1st floor walls flatwork South End [illegible] |
| 7-25-79 | 10:40 | CALL — CD TO COVER TOP FLOOR [illegible] |
| 8-24-79 | 11:05 | CALL — LOWER FLOOR CEILING OK CG [illegible] |
| 10-19-79 | 3:15 | CALL — TEMP. OCC. GRANTED — 15 DAYS SUBJECT TO PLUMBING, ELETRICAL, HVAC, AND FIRE MARSHALL'S REGS. [illegible] |
| 11-13-79 | 2:00 | CALL — TEMP. OCC. EXTENDED 15 DAYS NEED PLUMBING & ELETRICAL INSP. [illegible] |
| 11-21-79 | 1:00 | CALL — [illegible] |
| 12-27-79 | | Cert of occup logged & sent [illegible] |

[illegible]

FIELD INSPECTOR

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Available

# BDS: Permits/Cases

New Search

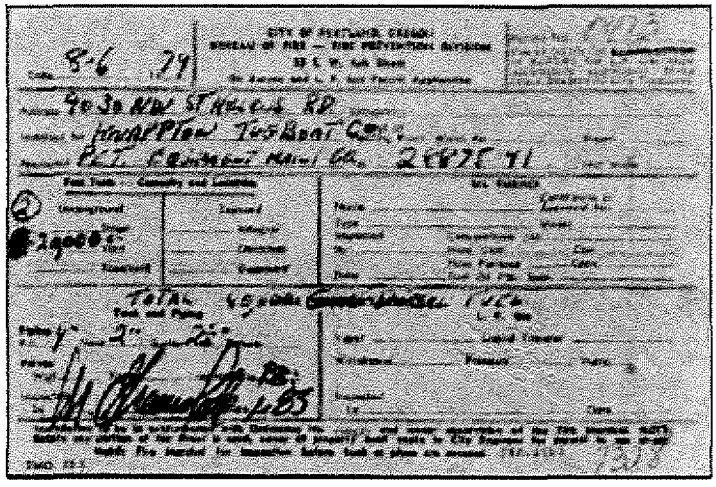
## 9030 NW ST HELENS RD - LINNTON - PORTLAND

Explorer | **Property** | Maps | Crime | Census

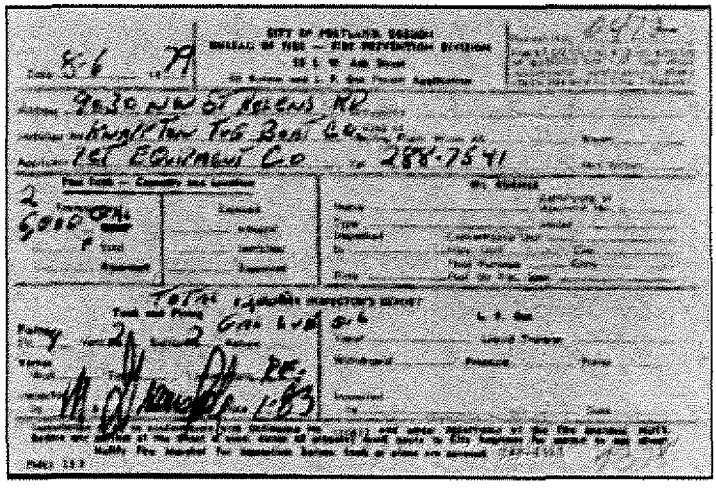
Summary | Assessor | Permits/Cases | Block | Schools | Parks | Capital Projects | Development | **Storage Tank**

### Underground Storage Tank Permit(s)

9030 NW ST HELENS RD



View Large | Download TIFF Version



View Large | Download TIFF Version

1. These permits were generated by the Fire Bureau from 1936-1990 to inspect the installation and renovation of above ground and underground residential storage tanks.
2. There are many areas that are within the City limits today, but were outside the city limits when the tank work was performed. We do not have any permits for those addresses (east of 92nd Avenue, south of SE Foster Rd, north of Columbia Blvd, Maywood Park, Rose City).
3. Even though permits were required by the Fire Bureau, we might not have one for a particular address because it was lost or the owner never filed one. We always recommend having a tank locate performed in addition to searching this database. You can access a list of ODEQ-licensed tank companies at www.deq.state.or.us. Click on "Programs", then "Heating Oil Tanks."
4. The permits are for installation and/or renovation, NOT decommissioning/removal. The City has never required permits to decommission/remove a tank on private property. If your tank is in the street/sidewalk, then it's in the Right-of-Way, and you would need a street/sidewalk opening permit from PDOT. If the tank has leaked, and it was reported to ODEQ, then they will have a file on it at the website listed above. Otherwise, there are no records for clean tank sites.
5. Still have questions? Contact Jennifer Berry at 503-823-6820 or jenb@bes.ci.portland.or.us

# BDS: Permits/Cases

New Search

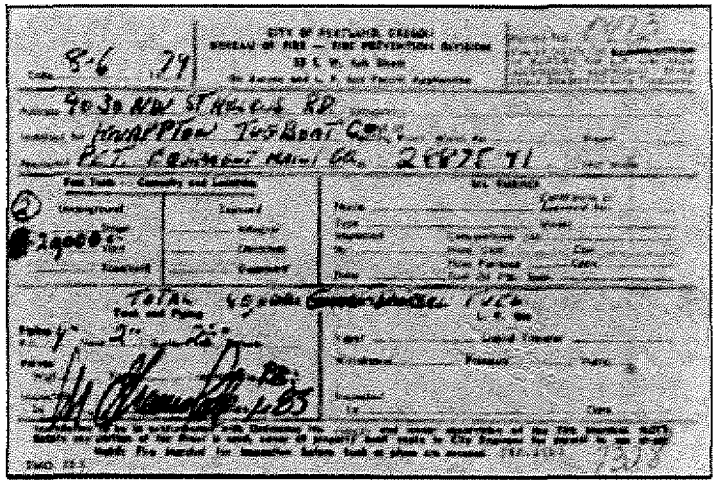
## 9030 NW ST HELENS RD - LINNTON - PORTLAND

Explorer | **Property** | Maps | Crime | Census

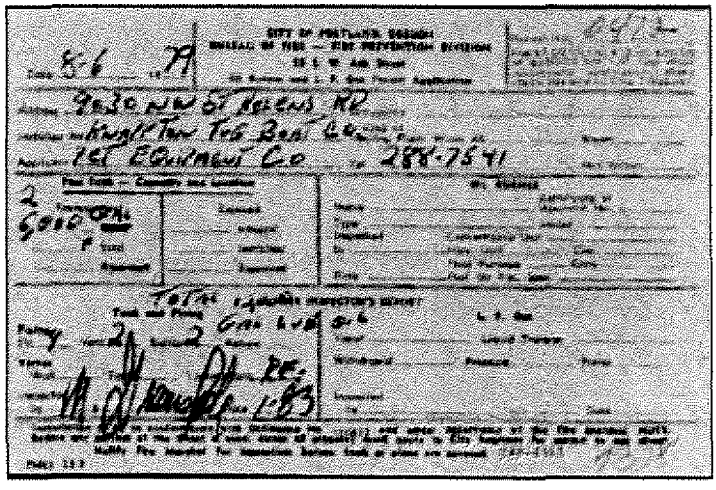
Summary | Assessor | Permits/Cases | Block | Schools | Parks | Capital Projects | Development | **Storage Tank**

### Underground Storage Tank Permit(s)

9030 NW ST HELENS RD



View Large | Download TIFF Version



View Large | Download TIFF Version

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5. Still have questions? Contact Jennifer Berry at 503-823-6820 or jenb@bes.ci.portland.or.us

Date 8-6 1979

CITY OF PORTLAND, OREGON
BUREAU OF FIRE — FIRE PREVENTION DIVISION
55 S. W. Ash Street
Oil Burner and L. P. Gas Permit Application

Permit No. 0473
Fee $3.00 for Oil, ~~$10.00, $20.00~~ or $100.00 for L.P. Gas must accompany application. Make check payable to City Treasurer.

Address 9030 NW ST HELENS RD. Occupancy

Mailed for KNAPPTON TUGBOAT Co. Kind of Heating Plant: Warm Air Steam

Applicant PET. EQUIPMENT MAINT CO. Tel 2887541 Hot Water

**Fuel Tank — Capacity and Location**

| Underground | Exposed |
|---|---|
| 2 Street | Integral |
| 20000 Yard | Detached |
| Basement | Basement |

**OIL BURNER**

Name Certificate of Approval No.
Type Model
Inspected by Conventional Unit Horz. Unit Circ.
Floor Furnace Conv.
Date Fuel Oil Pac. Spec.

TOTAL 40,000 FIRE INSPECTOR'S REPORT DIESEL FUEL

**Tank and Piping**

Piping Fill 4" Vent 2" Suction 2½" Return
Valves Wall Top Thermostatic RB
Inspected by [signature] Date 1-85

**L. P. Gas**

Vapor Liquid Transfer
Withdrawal Pressure Pump
Inspected by Date

Installation to be in conformance with Ordinance No. 130872 and under supervision of the Fire Marshal. NOTE: Before any portion of the street is used, owner of property must apply to City Engineer for permit to use street. Notify Fire Marshal for inspection before tank or pipes are covered. 248-4363 7228

FMO 15 1

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Confidential Business Information

00015260

Date 8-6 1979

CITY OF PORTLAND, OREGON
BUREAU OF FIRE — FIRE PREVENTION DIVISION
55 S. W. Ash Street
Oil Burner and L. P. Gas Permit Application

Permit No. 0472
Fee $3.00 for Oil, $10.00, $20.00 or $100.00 for L.P. Gas must accompany application. Make check payable to City Treasurer.

Address 9030 NW ST HELENS RD Occupancy

illed for KNAPPTON TUG BOAT CO Kind of Heating Plant: Warm Air Steam

Applicant PET EQUIPMENT CO Tel 288-7541 Hot Water

**Fuel Tank — Capacity and Location**

| Underground | Exposed |
|---|---|
| 2 6,000 GAL | Integral |
| X Yard | Detached |
| Basement | Basement |

**OIL BURNER**

Name Certificate of Approval No.
Type Model
Inspected by Conventional Unit
Horz. Unit Circ.
Floor Furnace Conv.
Date Fuel Oil Pac. Spec.

TOTAL 12,000 GAL LUB OIL

**FIRE INSPECTOR'S REPORT**

**Tank and Piping**

Piping Fill 4 Vent 2 Suction 2 Return
Valves Wall Tank Thermostatic RE.
Inspected by M. [signature] Date 1-83

**L. P. Gas**

Vapor Liquid Transfer
Withdrawal Pressure Pump
Inspected by Date

Installation to be in conformance with Ordinance No. 130672 and under supervision of the Fire Marshal. NOTE: Before any portion of the street is used, owner of property must apply to City Engineer for permit to use street. Notify Fire Marshal for inspection before tank or pipes are covered. 248-4363 1328

FMO 15 I

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Date 8-6 1979

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BUREAU OF FIRE — FIRE PREVENTION DIVISION
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**Fuel Tank — Capacity and Location**

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|---|---|
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| Basement | Basement |

**OIL BURNER**

Name Certificate of Approval No.
Type Model
Inspected by Conventional Unit Horz. Unit Circ.
Floor Furnace Conv.
Date Fuel Oil Pac. Spec.

TOTAL 40,000 GAL DIESEL FUEL

**Tank and Piping**

Piping Fill 4" Vent 2" Suction 2½" Return
Valves Wall Tank Thermostatic RB
Inspected by [signature] Date 1-85

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Vapor Liquid Transfer
Withdrawal Pressure Pump
Inspected by Date

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Applicant PET EQUIPMENT CO Tel 288-7541 Hot Water

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| X Yard | Detached |
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**OIL BURNER**

Name Certificate of Approval No.
Type Model
Inspected by Conventional Unit
Horz. Unit Circ.
Floor Furnace Conv.
Date Fuel Oil Pac. Spec.

TOTAL 12,000 GAL LUB OIL

**FIRE INSPECTOR'S REPORT**

**Tank and Piping**

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Inspected by M. [signature] Date 1-83

**L. P. Gas**

Vapor Liquid Transfer
Withdrawal Pressure Pump
Inspected by Date

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FMO 15 I

Best Quality Copy Available

mci1458 mci1220

# UNDERGROUND DISTRIBUTION LINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, That ARTHUR A. RIEDEL

hereinafter called "the Grantors," whether one or more, for and in consideration of the payment of the sum of One and 00/100 dollars ($ 1.00), the receipt of which is hereby acknowledged, hereby grant, sell and convey to Portland General Electric Company, an Oregon corporation

hereinafter called "the Grantee," whether one or more than one, its successors and assigns, a perpetual easement and right of way under and across the following described parcel of land situated in Multnomah County, Oregon, being a strip of land six (6) feet in width extending three (3) feet on each side of a center line more particularly described as follows:

See attached Exhibit "A".

TO HAVE AND TO HOLD the above described easement and right of way unto the Grantee, its successors and assigns for the following purposes, namely: the perpetual right to enter upon and to install, use, maintain, repair, rebuild, operate and patrol underground electric power lines and appurtenances and also including, but not limited to, the right to install surface or subsurface mounted transformers, surface mounted connector boxes and meter cabinets and also temporary overhead utility service facilities during construction.

Grantors shall have the right to use the lands subject to the above described easement for all purposes not inconsistent with the uses and purposes herein set forth, except Grantors shall not build or erect any structure upon the right of way without the prior written consent of the Grantee.

If the Grantee, its successors and assigns, shall fail to use said right of way for the purposes above mentioned for a continuous period of five years after installation of said underground electric power lines, then and in that event this right of way and easement shall terminate and all rights and privileges granted hereunder shall revert to the Grantors, their heirs and assigns.

The Grantors hereby warrant that they are possessed of a marketable title to the property covered by this easement, and have the right to grant the same.

The Grantors, for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns, shall peaceably enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantors have caused this easement to be executed this 25th day of April, 1980.

Arthur A. Riedel (SEAL)

(SEAL)

(SEAL)

(SEAL)

STATE OF OREGON
County of Multnomah ss.
April 25, 1980

Personally appeared the above named Arthur A. Riedel

and acknowledged the foregoing instrument to be their voluntary act. Before me

Janet R. Cooper
Notary Public for Oregon

9-13-83
My commission expires

52568

JUL 30 1980

JUL 30 1980

PLTF 000047

BOOK 1458 PAGE 1221

Exhibit "A"

POWERLINE EASEMENT DESCRIPTION
for Knappton Towboat Co.

A strip of land 6 feet in width and 1 feet on each side of a centerline situated in the Northwest one-quarter of Section 11, Township 1 North, Range 1 West, County of Multnomah, State of Oregon, being more particularly described as follows:

BEGINNING AT A POINT on the northeasterly N.P.RY. right-of-way line which bears S.43°26'00"E., 285.10 feet from a brass cap monument being a witness corner to the southeast corner of the W. W. Baker D.L.C., THENCE, N.28°17'30"E., 25.93 feet to a point; THENCE, N.39°45'55"E., 85.93 feet to a point; THENCE, N.45°13'30"E., 90.00 feet to the terminus of said centerline.

The above described centerline is shown on Portland General Electric Company drawing E-5820 attached hereto which by reference thereto is made a part hereof.

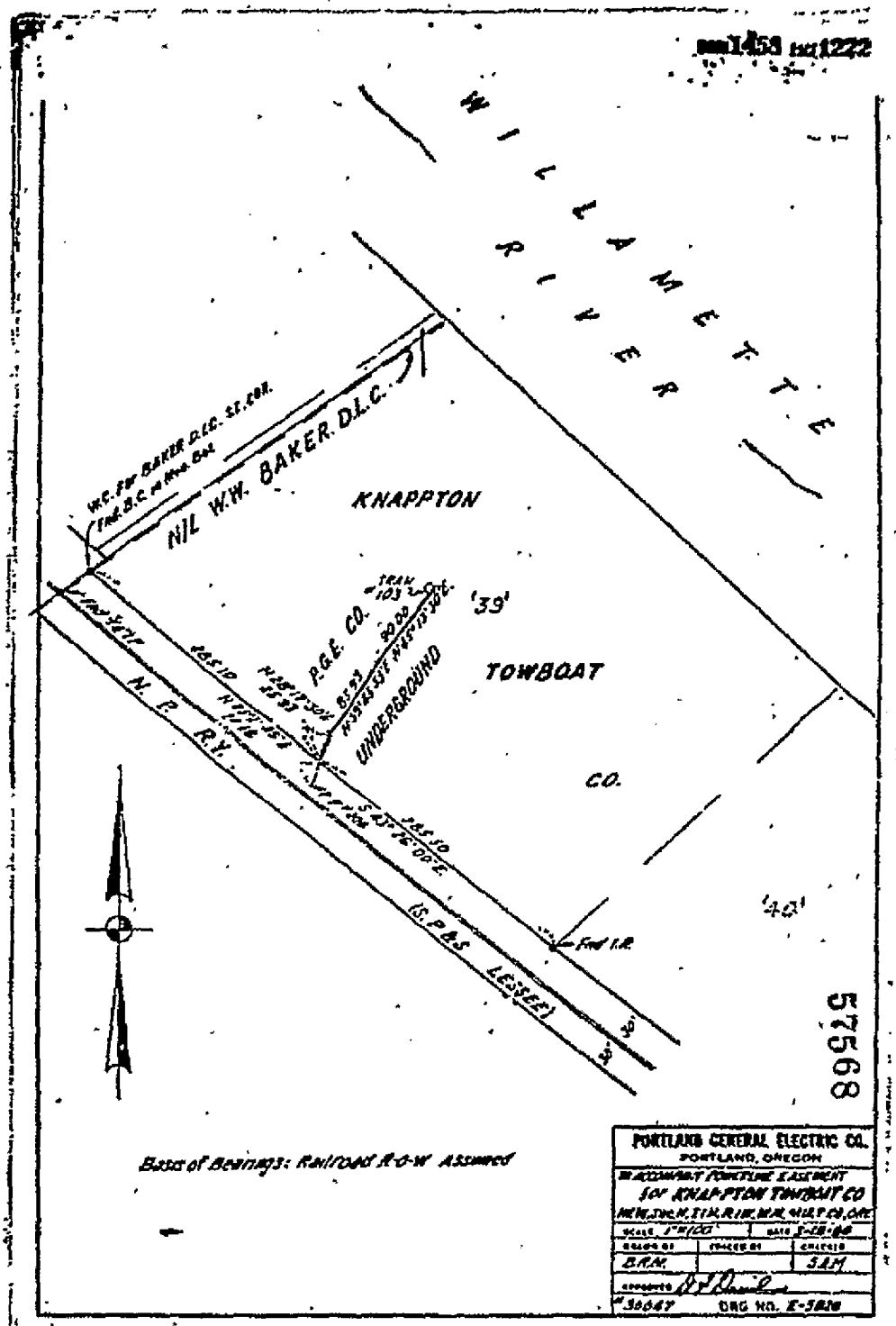
8RM/5ms59.4R12
3-18-80

JUL 30 1980

57568

JUL 30 1980

PLTF 000048

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AUDIT NO. 33829

DATE 4-25-80

NAME Riedel, Arthur A.

LOCATION

SECTION 11 T. 1N R. 1W

COUNTY Multnomah

DOCUMENT COVERS U/G Line

RENTAL

EXPIRES

ITEM ... ON R/W PLAT ...

MAPPED ... BY

STATE OF OREGON
Multnomah County

1980 JUL 30 PM 1:53

RECORDING SECTION
MULTNOMAH CO. OREGON

7458 1220

M. Burns

Portland General Electric Co.
121 S. W. Salmon St.
Portland, Oregon 97204
c/o Permit Section

57568

JUL 30 1980

PLTF 000050

Oregon
Theodore Kulongoski, Governor

**Department of Environmental Quality**
**Headquarters**
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
FAX (503) 229-6124
TTY (503) 229-6993

January 25, 2008

RECEIVED
JAN 31 2008
F.H.W.

LQ-HW-AR-CEG 544
LINDA BROWN
FOSS MARITIME CO
9030 NW SAINT HELENS RD
PORTLAND, OR 97231

Re: 2007 Annual Hazardous Waste Report

Dear Hazardous Waste Coordinator:

You are receiving this letter because our records show that your company has an active RCRA Site Identification Number and last reported as a Conditionally Exempt Generator (CEG) of hazardous waste. As a registered CEG, you do not need to complete an annual report unless one of the following situations applies to your business:

- Your business generated over the CEG limits in any one month of calendar year 2007. The attached Frequently Asked Questions (FAQ) document provides information on determining your generator status. You can also receive help from our technical assistance staff to help identify hazardous waste streams and understand the regulations. See FAQ Question #6 for telephone numbers.
- Your facility site information has changed (e.g., new location, new owner, new contact person, etc.). The RCRA Site ID Number is not transferable to other physical locations.
- If your facility is generating waste through an environmental cleanup effort.

If you need to report, you must complete the annual report by **April 1, 2008.** You can complete your report by doing one of the following:

- Access the on-line annual reporting system, HazWaste.Net, via the internet using this web address: www.deqhazwaste.net. At this web site you will find the General Instructions which will walk you through the steps for electronic reporting or you can call the Annual Report Hotline for assistance.
- Use hardcopy paper forms. The attached Frequently Asked Questions tells you how to obtain the paper forms.

You may also want to consider withdrawing your RCRA Site Identification Number. State and federal requirements do not require Conditionally Exempt Generators to have this number. The FAQ will provide information to help you determine whether you should keep your identification number. Starting this year, CEGs may inactivate their ID number and reactivate at a later date without paying the $200 administrative fee. To do this you would submit an annual report to withdraw the RCRA Site ID number. If the ID number is needed in the future you would submit a new Site Identification Form requesting a reactivation.

If you want to keep your RCRA Site ID number active, we want to make sure that the imperative information we have for your business is accurate. Please verify this information and submit an annual report if you need to provide an update.

| | |
|---|---|
| RCRA Site ID Number: | ORD103014866 |
| Company Name: | FOSS MARITIME CO |
| Site Location: | 9030 NW ST HELENS RD<br>PORTLAND, OR 97231 |
| Hazardous Waste Forms Contact: | LINDA BROWN |
| Name of Legal Owner: | BRIX MARITIME CO DBA FOSS MARITIME CO |

Thank you in advance for timely notification of changes to your facility information. If you have any questions regarding this letter, please call the Annual Report Hotline in Portland at (503) 229-6938 or toll-free within the State of Oregon at 1-800-452-4011, extension 6938. You can also e-mail your questions to hazwaste@deq.state.or.us. If you have questions concerning hazardous waste regulations, please call the technical assistance staff in the DEQ regional office nearest you. Telephone numbers are provided at the end of the Frequently Asked Questions document.

Sincerely,

Nancy Dollar

Nancy Dollar, Operations & Policy Analyst
Hazardous Waste Section
Land Quality Division

FOSS MARITIME
"Always Ready"

March 31, 1999

Mr. Steve Fortuna, Remedial Action Specialist
Site Assessment Program
Oregon Department of Environmental Quality, Northwest Region
2020 NW Fourth Ave., Suite 400
Portland, Oregon 97201-4987

Re: Site Assessment Review Notice
Brix Maritime Co. d/b/a Foss Maritime Company
9030 NW St. Helens Rd.
Portland, Oregon 97231-1127
Multnomah County

Dear Mr. Fortuna:

The following responds to your request for information regarding the above-referenced facility. For ease of reference, we have followed the format of the outline you provided.

## SITE ASSESSMENT INFORMATION

### *1. Background Information*

a. Brix Maritime Company dba Foss Maritime Company, 9030 NW St. Helens Road, Portland, OR 97231-1127

b. Foss Maritime Company, 9030 NW St. Helens Road, Portland, OR 97231-1127. Contact: Larry Johnson, Manager Marine Operations

c. Same

d. The site consists of a two-story office building, office trailers, a maintenance building housing the purchasing department and maintenance department offices and general stores, an outdoor storage area, small sheds for storage of compressed gases, and a maintenance barge for equipment repair and upkeep. The land area is paved except the rip-rapped embankment. The property was developed in 1979 for the current use.

660 West Ewing Street • Seattle, WA 98119-1587 • Phone (206) 281-3800 • TELEX 32-0132 FOSS SEA • FAX (206) 281-4702

e. No information is readily available regarding site use prior to 1979.

f. The site size is 4.46 acres and the Tax Lot No. is 39.

g.. The site is fully fenced, except for areas adjoining the river.

h. The site is bounded by industrial properties on both sides (bulk fuel facilities to the NW and a log sorting yard to the SW). NW St. Helens Road is behind the property.

***2. Site Map***

A site map, with applicable information, is attached **(Figure 1).**

***3. Chemical/Waste Handling Information***

a. Foss uses the following chemical products at the site: oxygen, paint, propane, acetylene, diesel #2, gasoline, and lubricating oil.

b. Small amounts of the above-referenced chemicals are stored on site. The facility is a DEQ conditionally exempt generator of hazardous substances.

c. These amounts are detailed in Foss' Annual Hazardous Substance Information Survey, which is filed with the Oregon State Fire Marshall, and Registration Verification Report, filed with DEQ.

d. None

e. In 1993, when Foss purchased Brix Maritime Co. and the facility, five Underground Storage Tanks ("USTs")(two 20,000-gallon diesel fuel USTs, two 6,000-gallon lubrication oil USTs, and one 2,000-gallon gasoline UST) were in operation at the facility.

f. The facility is a DEQ conditionally exempt generator.

g. A few small, accidental spills have occurred during Foss' operation at the site. These spills were quickly contained and did not result in contamination.

h. None readily available.

***4. Permit Information***

a. None

***5. Sampling, cleanup, and investigative information***

a. In January 1993, prior to Foss' purchase of Brix, a small release of lubricating oil at the site was noted and reported to DEQ (File No. 26-93-009). Brix undertook investigative activities, including soil sampling, and excavated 45 cubic yards of oil-impacted soil. In 1998, both the 20,000 gallon diesel USTs and one of the 6,000-gallon lubrication oil USTs were certified as upgraded and retrofitted under OAR Chapter 340, Divisions 150 and 160. Checklists were submitted to DEQ for each of the three USTs. The other two USTs (the other 6,000-gallon lubrication oil UST, and the 2,000-gallon gasoline UST) were decommissioned and removed.

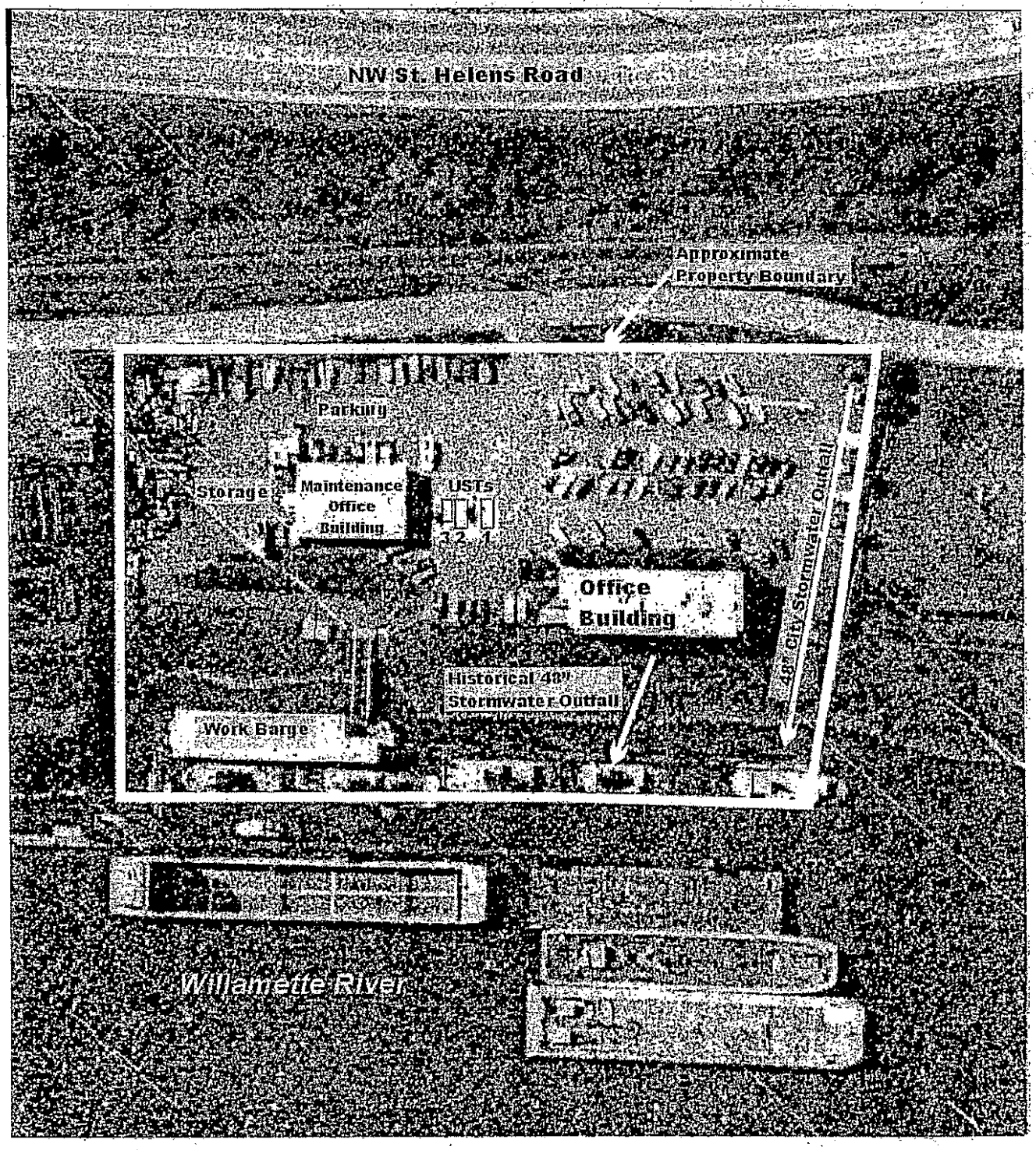
b. See Section 5.a.

Please contact me if you have any further questions.

Very truly yours,

Frank Willi—

Frank H. Williamson
Assistant General Counsel




ANCHOR ENVIRONMENTAL, L.L.C.

Figure 1
Site Map - Brix Maritime

SB NIB ¼ SEC 2120

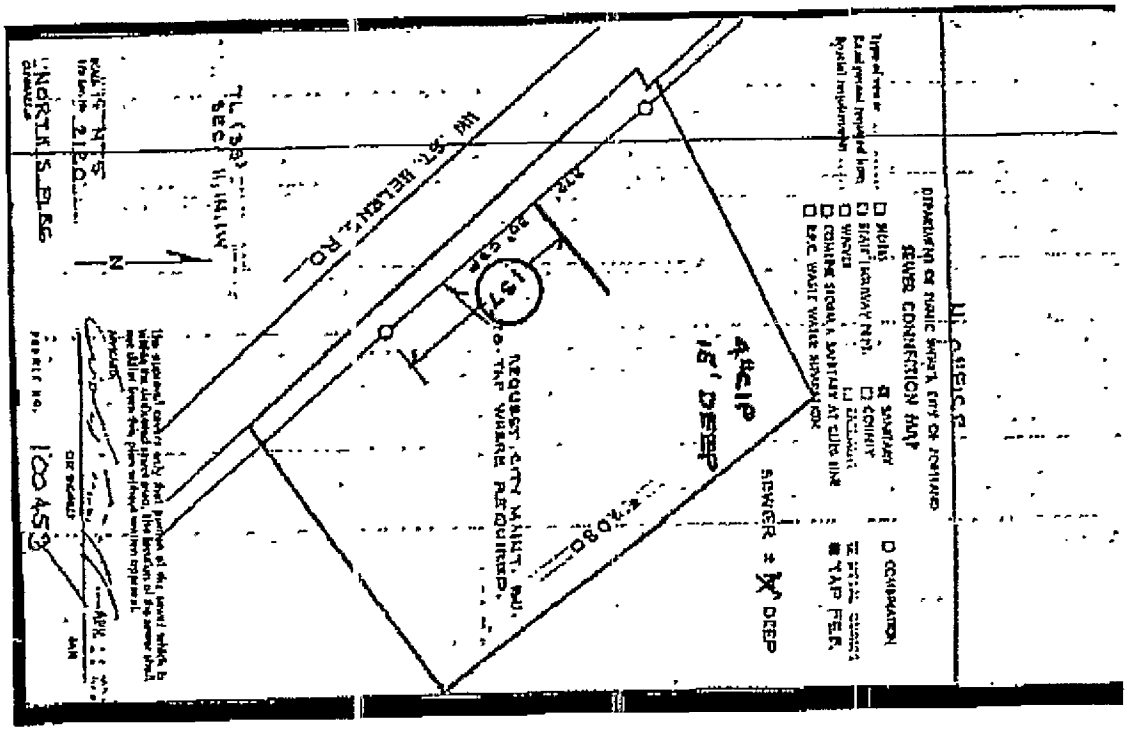
CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
SEWER BRANCH

Pmt. No. 100459
Date 4-17-79

Location 9030 NW St Helens Road
Between
Addition Sec. 11, 1N, 1W Lot (39) Blk.
Applicant North's Plbg. Waiver No XX Yes ☐ #
Remarks 4" CIP maint. bu tap 197' north of manhole 15' deep at main sewer.

SANITARY ONLY SEWER
~~ENTERED SEWER BOOK~~

Inspected 4-12-79 19 By Ek
Book 9 Page 251 New XXXX Repair




Best Quality Copy Available

Form W-89
(4-74)

BUREAU OF BUILDINGS
REPORT OF PLUMBING INSPECTION

Date 11/15/79

Address 9030 N. St. Helens Rd. Permit 0220868

Lot _____ Blk _____ Add _____

Owner Knappton Towboat, Same!

Contractor North's Plbg

Stories and class of building old 1-story barge

Water Closets _____ Hot-Water Tank _____ Cesspool _____

Bath, Shower _____ Auto. Cl. Washer _____ Conn. Cesspool _____

Bath Tub _____ Auto. Dishwasher _____ Dry Well _____

Basins _____ Drain Floor _____ Conn. Drywell _____

Sinks _____ Drain Area _____ Conn. Sewer 150' 1N

Laundry Trays _____ Rain Drains _____ Storm Sewer _____

Bldg. Pmt. _____ Water Ser. 1½" 1N Catch-Basins _____

Remarks Water service and san. sewer extended to barge See Permit # 021526le.

Date of First Inspection _____ Date of Final Inspection 3-20-80

_____ Inspector Charlie Copeland Inspector

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Available
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Form W-89 (4-74)

BUREAU OF BUILDINGS

REPORT OF PLUMBING INSPECTION

Date 12/19/78

Address 9030 N.W. St. Helens Road Permit 0215266

Lot _____ Blk _____ Add _____

Owner Knappton Corporation same

Contractor North's Plumbing Inc. 17120 S.W. Shaw St.

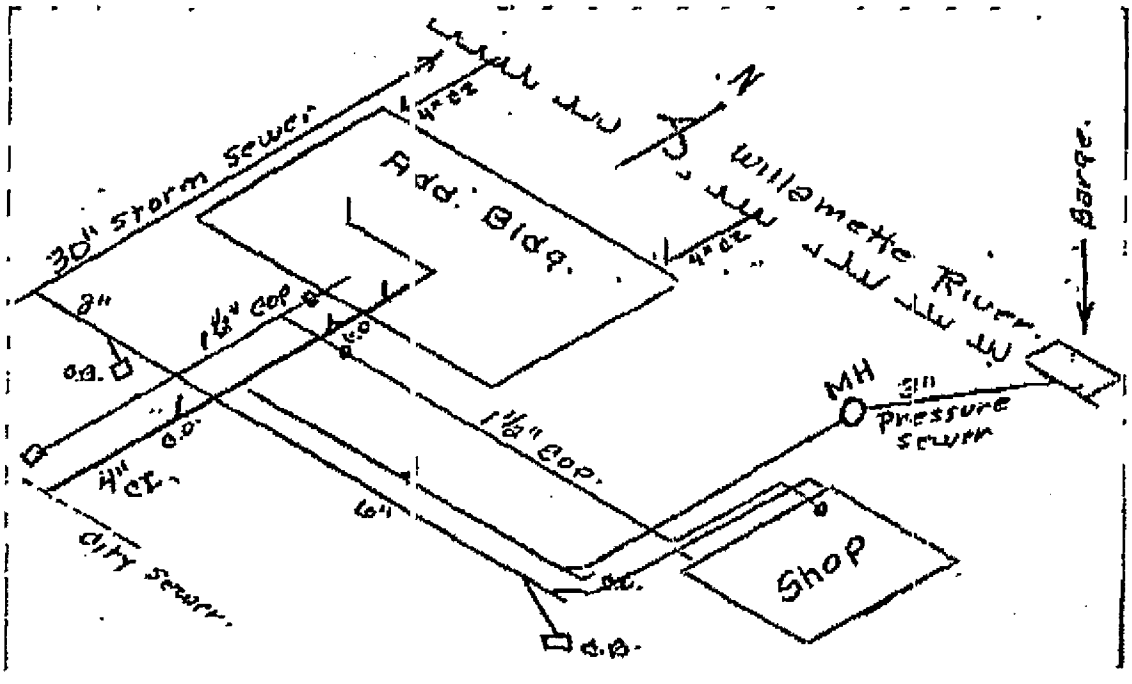
Stories and class of building New 2 stories office bldg.

| | | | | | |
|---|---|---|---|---|---|
| Water Closets | 6N | Hot-Water Tank | 2N | Cesspool | |
| Bath, Shower | | Auto. Cl. Washer | | Conn. Cesspool | |
| Bath Tub | | Auto. Dishwasher | | Dry Well | |
| Basins | 4N | Drain Floor | 2N | Conn. Drywell | |
| Sinks | ord. 4N | Drain Area | | Conn. Sewer | 150'-4" 1N |
| Laundry Trays | | Rain Drains | 2N | Storm Sewer | 20'-4" 1N |
| Bldg. Pmt. | | Water Ser. | 1N | Catch-Basins | 6N |

Remarks Urinals 2N Fountains 2N

Date of First Inspection _____ Date of Final Inspection 3-20-80

_____ Inspector [signature] Inspector

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PLEASE PRINT CLEARLY - THIS IS A PERMANENT RECORD

APPLICATION FOR PERMIT

BUREAU OF BUILDINGS, CITY OF PORTLAND, OREGON

DOUBLE FILE

PERMIT NO. 520825

DATE 12-20-78

NEW CONSTRUCTION ☐ ALTERATIONS ☐

☐ WRECK ☐ REPAIR ☐ ADDITION ☐ CHANGE OCCU. ☐

VALUATION $40,000.00

PERMIT FEE $314.00

TAX UNITS ROOMS STORIES

HOUSE NO. FEE

DRIVEWAY FEE

TOTAL FEE

RECEIPT NO. 136274

LAND USE FEE

AMOUNT $24.05

RECEIPT NO. 135315

COMPUTED BY

DATE JAN 5 1979

APPLICANT PLEASE COMPLETE AREA BOUNDED BY HEAVY LINE (PRINT IN INK)

OWNER AND STREET 9020 NW ST HELENS RD

NUMBER AND NAME OF STREET

SEC 4 T1N R1W TL 39 BLOCK

LOT

SIZE OF BLD. 2424# OCCUPIED AS OFFICE

NAME KNAPTON CORP. ADDRESS 110 SE CAR. THEC.

NAME ADDRESS PORTLAND

NAME MAKWIN WITT & ASSOC. ADDRESS 2892 NW UPHAM

CITY NO.

ESTIMATED VALUATION OF COMPLETED JOB $40,000.00

BRIEFLY DESCRIBE IN INK A BRIEF DESCRIPTION OF WORK TO BE DONE

FOUNDATION ONLY NOTHING ELSE

DOUBLE FILE WORK

COMPLETES W/O PERMIT

NO Plumbing on this Permit

Key 12081

| ITEM | APPD. BY | DATE |
|---|---|---|
| 1. DRIVEWAY | | 11-22-78 |
| 2. INDUS. WASTE | | 11-24-78 |
| 3. M.V.E.E. | | 11-27-78 |
| 4. SAN. SEWER | | 11-24-78 |
| 5. STORM SEWER | | 11-27-78 |
| 6. HOUSE NUMBER | | 11-28-78 |
| 7. FLDG. | | 12-4-78 |
| 8. ZONING | | 12/15/78 |
| 9. FIRE MARSHAL | | 12-18-78 |
| 10. PLAN EXAMINER | | 12/16/78 |
| 11. STRUCT. ENGINEER | | 11/16/78 |
| 12. | | 11/20/78 |
| 13. | | |

RESIDENTIAL

Special Inspection of Soils, piling and concrete is req'd.

ALL ELECTRICAL SHALL BE IN ACCORDANCE WITH L.S. HYDRANTS SHALL BE PROVIDED IN ACCORDANCE WITH CHAPTER 34 NFPA STANDARD 24, OR TO THE SATISFACTION OF THE FIRE MARSHAL'S OFFICE.

THIS PERMIT INCLUDES ONLY WORK DESCRIBED ABOVE, AND/OR, ON PLANS AND SPECIFICATIONS BEARING THE SAME PERMIT NUMBER, AND WILL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES OF THE CITY OF PORTLAND, OREGON.

APPLICANT MAKWIN WITT & ASSOC. TELEPHONE NO. 221-1017

(Owner or Authorized Agent (Print))

SIGNATURE Mary Spencer TITLE

| | | | |
|---|---|---|---|
| PLUMBING | | SPRINKLER SYSTEM | X |
| HEATING INSTALLATION | | SIGN IF ANY | X |
| ELECTRICAL | | CURB CUT AND DRIVEWAY | X |
| VENTILATION | | ELEVATOR AND DOORS | |
| INCINERATOR | | RANGE HOOD AND VENT | |

NOTE: KEEP BUILDING PERMIT AND COPY OF APPLICATION ON PREMISES UNTIL FINAL INSPECTION, FOR WHICH YOU MUST CALL.

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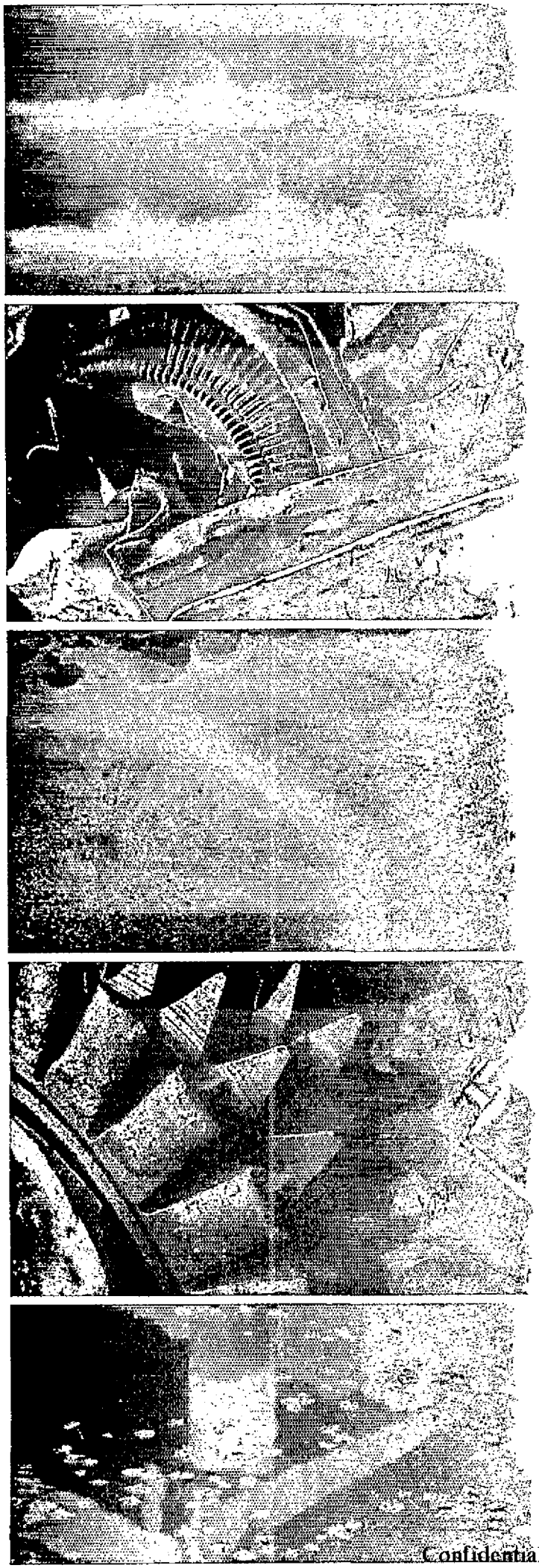

# Stormwater System Sampling and Analysis Work Plan

**Brix Maritime - Portland**
**9030 NW St. Helens Road**
**Portland, Oregon**
**ECSI No. 2364**

**Prepared for**
**Brix Maritime Company**

**December 20, 2007**
**15634-00/Task 08**

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**HARTCROWSER**
*Delivering smarter solutions*

# *Stormwater System Sampling and Analysis Work Plan*
## *Brix Maritime - Portland*
## *9030 NW St. Helens Road*
## *Portland, Oregon*
## *ECSI No. 2364*

***Prepared for***
***Brix Maritime Company***

***December 20, 2007***
***15634-00/Task 08***

**Prepared by**
Hart Crowser, Inc.

REGISTERED PROFESSIONAL
OREGON
LEON LAHIERE
No. G1255
GEOLOGIST

**Leon Lahiere, RG**
Senior Associate

*Five Centerpointe Drive, Suite 240*
*Lake Oswego, Oregon 97035-8652*
*Fax 503.620.6918*
*Tel 503.620.7284*

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1 Site Location Map
2 Site Plan And Stormwater System Layout
3 Brix Catch Basin (Typical)

## APPENDIX A
## QUALITY ASSURANCE PLAN



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**STORMWATER SYSTEM SAMPLING AND ANALYSIS WORK PLAN**
**BRIX MARITIME COMPANY**
**9030 NW ST. HELENS ROAD, PORTLAND, OREGON**
**ECSI NO. 2364**

# 1.0 INTRODUCTION

This Catch Basin Sediment and Stormwater Outfall Sampling and Analysis Work Plan (Work Plan) presents the scope of work and procedures for performing stormwater related monitoring activities at the Brix Maritime – Portland facility (site). The purpose of the monitoring is to obtain data to screen catch basin sediment and stormwater for site-specific and additional Portland Harbor compounds of interest (COI) that may be discharged to the Willamette River through the site's stormwater system. This information will be used to evaluate potential impacts to the Willamette River water and sediments related to stormwater discharges from the site.

This Work Plan was prepared in general accordance with the framework for stormwater screening evaluations presented in Appendix D of the Portland Harbor Joint Source Control Strategy (JSCCS) and Oregon Department of Environmental Quality (DEQ) guidance documents (DEQ-EPA, 2005 and DEQ, 2006a and 2006b). The planned activities will be conducted with DEQ oversight under the terms of the Voluntary Agreement for Remedial Investigation and Source Control Measures, DEQ No. LQDVC-NWR-02-03.

## *1.1 Scope of Work*

The scope of work will consist of the following tasks:

- Inspecting and documenting the configuration and condition of the stormwater system catch basins and outfalls;
- Collecting catch basin sediment samples and analyzing the sediments for site-specific and selected Portland Harbor COI;
- Collecting stormwater outfall discharge samples during four storm events;
- Analyzing the stormwater samples for site-specific COI, and if warranted, selected Portland Harbor COI; and
- Documenting the catch basin sediment and stormwater discharge sampling activities and results.

These activities are discussed in further detail within this Work Plan.



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### *1.2 Limitations*

This Work Plan has been prepared to describe the scope of work to perform catch basin sediment and stormwater sampling activities. Work for this project will be performed in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities. This Work Plan is intended for the exclusive use of Brix Maritime Company, for specific application to the facility. No other warranty, express or implied, is made.

## 2.0 BACKGROUND

The site's setting, operational history, and previous environmental activities are summarized below. Additional information is provided in previous work plans and reports (references are listed in Section 7.0).

### *2.1 Site Setting and Description*

The site's address is 9030 NW St. Helens Road, Portland, Oregon (Tax Lot 800); and is within the northeast quarter of the southeast quarter of Section 11, Township 1 North, Range 1 West, Willamette Meridian (Figure 1). The site encompasses about 4.5 acres. Most of the site is generally flat and is situated at an elevation of about 42 feet above mean sea level (msl), except for a steep embankment along the northeast site boundary that slopes to the Willamette River where seasonal water levels typically range from about 5 to 20 feet msl. Regionally, the northwest trending Tualatin Mountains southwest of NW St. Helens Road (US 30) rise steeply to elevations of over 1,000 feet msl.

The site and surrounding properties are zoned Heavy Industrial (HI) and developed for marine, industrial, or transportation related uses. Adjacent properties include a bulk fuel storage facility to the northwest, railroad tracks and NW St. Helens Road (US 30) to the southwest, and warehousing operations to the southeast.

The extent and layout of the site are shown on Figure 2. Upland site structures and features include a two-story administration office building, a maintenance office and materials storage building, and several small sheds used to store compressed gases. Currently, three underground storage tanks (USTs) are situated in a single tank nest located northwest of the maintenance building. The entire property is surfaced with asphalt, concrete, or riprap (along the river embankment), except for minor landscaped areas around the site's perimeter and adjacent to the office building. Security fencing surrounds the site except



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for the area fronting the Willamette River. Permanent on water features include mooring docks and a covered work barge, permanently moored adjacent to the embankment.

## 2.2 Site History

**Site Developed in 1979.** The site was vacant and undeveloped prior to 1979. Brix Maritime Company has used the site as a tugboat fleet and barge mooring and dispatch facility since that time. Site operations from 1979 to the present include tug and barge scheduling and dispatch, fueling and lubrication, and routine maintenance. Major repairs or maintenance, such as sand blasting, hull painting, or major engine rebuilds, currently and historically have not been performed at the site (Anchor, 2000).

**Underground Storage Tank System.** Five single-wall steel USTs were installed at the site in 1979 as part of the site development activities (DEQ UST Facility No. 7374). The UST system initially consisted of two 20,000-gallon diesel tanks, two 6,000-gallon lubrication oil tanks, and one 2,000-gallon gasoline tank.

The gasoline UST and one of the lubricating oil USTs were decommissioned by removal in 1998. The three remaining USTs were retrofitted and upgraded at the time with tank liners, cathodic protection, and spill and overfill prevention equipment to comply DEQ's 1998 upgrade requirements (Anchor, 2000).

## 2.3 Previous Environmental Activities

**1993 Lubricating Oil Release and Initial Investigation and Remediation.** In January 1993, lubricating oil was observed seeping from a seam between asphalt paving and the UST nest concrete pad (DEQ File No. 26-93-009). A hole in one of the lubricating oil product pipes was subsequently identified as the source of the leak and repaired. In February 1993, approximately 45 cubic yards (cy) of petroleum contaminated soil (PCS) in the vicinity of the leak were excavated and removed for off-site treatment and disposal. About 60 feet of steel product line were replaced with fiberglass piping prior to backfilling. Diesel to oil range petroleum hydrocarbons were present in soil samples from the floors and walls of the excavation at concentrations up to 53,000 milligrams per kilogram (mg/kg). Groundwater was not encountered in the excavation, (Hahn, 1993a).

**1993 Subsurface Investigation.** The extent of petroleum hydrocarbons in soil or groundwater was not defined during the initial investigation. Additional site activities were performed in April 1993 and included completing 13 explorations (designated B-1 to B-13) in the vicinity of the UST nest



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(Hahn, 1993b). The results of the investigation identified PCS in two areas. One area was along the UST pipeline adjacent to the maintenance building and was likely associated with the product line leak. The other area was south of the UST nest where gasoline range petroleum hydrocarbons were detected in samples from one boring. Groundwater was encountered at about 25 feet below ground surface (bgs). Groundwater samples were not collected but soil data from this and the initial investigation suggested petroleum hydrocarbons had not migrated to groundwater.

**2001 Investigation.** Sixteen push probe explorations (B-14 through B-30) were completed in May 2001 to further assess soil conditions in the UST and piping system areas (Anchor and Hahn, 2001). Groundwater samples were also collected from six explorations (B-14, B-15, B-17, B-18, B-19, and B-20) to initially assess groundwater conditions beneath and downgradient of the UST and piping areas; and to evaluate the potential for petroleum hydrocarbon constituents in soil to migrate to groundwater.

Soil data defined two areas impacted by petroleum hydrocarbons. Gasoline range petroleum hydrocarbons in soil were limited to the area in the immediate vicinity of the former gasoline dispenser. Diesel and oil range petroleum hydrocarbons in soil were limited to the vicinity of the oil pipeline trench area. Several volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs) were identified in groundwater samples from 5 of the 7 explorations; however, only samples from B-17 and B-18, located downgradient from the oil pipeline leak area, contained VOCs and PAHs at concentrations above DEQ generic Risk Based Concentrations (RBCs) for potentially applicable exposure scenarios.

**2002 and 2003 Monitoring Well Installations and Monitoring Program.** Brix Maritime Company entered into a Voluntary Agreement with the DEQ in May 2002 to conduct a remedial investigation (RI) and a source control evaluation for the site. Two monitoring wells (MW-3 and MW-4) were installed downgradient of the oil pipeline release in July 2002 as part of the initial RI activities. Additional wells (MW-1, MW-2, and MW-5, MW-6, and MW-7) were installed in February and June 2003 (Anchor, 2003a, 2003b). All wells were initially sampled for gasoline and diesel to oil range total petroleum hydrocarbons (TPH-G and TPH-D, respectively), PAHs, and VOCs. Water levels and liquid phase petroleum product (free product) thickness (observed in MW-3 only) were measured monthly in all existing monitoring wells from July 2002 through 2003. A quarterly groundwater monitoring program that includes analyses for gasoline to oil range petroleum hydrocarbons and related constituents was initiated in February 2003 and is ongoing.



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**2005 Explorations and Monitoring Well Installation.** Three soil explorations and one monitoring well were completed in February 2005 (Anchor, 2005a). The purpose of the soil explorations was to obtain additional data for source control risk screening and developing site-specific RBCs. Two soil explorations (B-31 and B-32) were completed in the former gasoline piping and dispenser area. Based on field screening and total petroleum hydrocarbon identification (TPH-HCID), one soil sample from exploration B-32 (10 to 12 feet bgs) was analyzed for TPH-D, TP-G, PAHs, and VOCs. In addition, the sample was also analyzed for volatile (VPH) and extractable (EPH) petroleum hydrocarbon fractions. Gasoline and diesel range petroleum hydrocarbons and volatile gasoline constituents were present in the sample, but at concentrations below potentially applicable RBCs.

Exploration B-33 was completed between the UST nest and former oil pipe leak area. One sample from 20 feet bgs with an oily sheen was analyzed for TPH-D, TPH-G, PAHs, VOCs, EPH, VPH, and lead. Oil range petroleum hydrocarbons and volatile gasoline constituents were present in the B-33 sample, but at concentrations below potentially applicable RBCs.

Monitoring well MW-8 was also installed in the oil line leak area adjacent to exploration B-33 in February 2005. The purpose of MW-8 was to assess the presence of mobile free product in the UST tank nest and former oil pipe leak areas. Free product has not been observed in this well.

**2005 Seep and Surface Water Sampling.** A groundwater seep is present on the riprap slope between well MW-2 and the River Gauge at the sand fill/native silt contact (Figure 2). Seep water samples were collected from the seep in September 2005. Surface and near surface (0.5 feet into the slope) soil samples from the seep area, a surface water (Willamette River) sample from the immediate vicinity of the seep, and a groundwater sample from monitoring well MW-2 were also collected in conjunction with the seep sampling (Anchor 2005b).

The soil and water samples were analyzed for PAHs (Anchor 2005c). PAHs were present in both soil samples, but at concentrations below potentially applicable RBCs. Pyrene, a PAH, was present in the MW-2 groundwater sample at a concentration slightly above the method report limit and below potentially applicable RBCs and JSCS screening level values (SLVs). Several PAH compounds were present in the seep and surface water samples at concentrations above potentially applicable JSCS SLVs.



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## 3.0 STORMWATER COLLECTION SYSTEM AND OUTFALLS

The entire site, except for the riprapped riverbank and minor landscaped areas, is covered with buildings, concrete, or asphalt. Precipitation falling on the office building discharges through roof drains directly to the riverbank and infiltrates into the subsurface. Two catchment areas collect precipitation falling on the remainder of the site. The catchment areas, stormwater system construction and layout, and outfall locations are shown on Figure 2 and described below.

### *3.1 Catchment Area A*

Catchment Area A encompasses the central and northwest areas of the site and includes the office and employee parking lot and the UST nest area. Stormwater in this catchment flows to three catch basins (designated CB-A1, CB-A2, and CB-A3). Catch basins CB-A1 and CB-A2 are connected to a single 6-inch diameter line that drains to an 8-inch diameter line, that in turn discharges directly to the Willamette River through an outfall (Outfall A) on the riverbank north of the office building. Catch basin CB-A3 is connected to the 8-inch diameter outfall line about 20 feet up gradient from the junction with the 6-inch diameter line.

### *3.2 Catchment Area B*

Catchment Area B encompasses the southern portion of the site and includes the maintenance and materials storage building and a parking and non-motorized equipment storage area. Stormwater in this catchment flows to two catch basins (designated CB-B1 and CB-B2) that are connected to a single 6-inch diameter line, and discharges directly to the Willamette River through an outfall (Outfall B) on the riverbank near the southern site boundary.

### *3.3 Catch Basin Construction*

The five catch basins are similar in size and type; and are constructed with pre-cast concrete sides and bottoms with steel surface grates. The dimensions of each catch basin are reportedly 28 inches by 28 inches and 24 inches deep and equipped with a 4-inch diameter inverted outlet pipes (Figure 3).

### *3.4 Stormwater Management Practices and System Maintenance*

The stormwater catchment areas are primarily used for employee and visitor parking and non-motorized equipment storage. All fuel and lubricating oil transfer operations take place at the fueling station located beneath a canopy on the work barge. No petroleum fuels, lubricants, or other hazardous substances are stored or handled within exposed drainage areas. The site currently meets



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the conditions for No Exposure Certification and no National Pollutant Discharge Elimination System (NPDES) storm water permit is required for the site. Each catch basin is fitted with a particulate and oil absorbent insert to filter sediment, debris, and/or oil residue from stormwater runoff prior to entering the stormwater system. The inserts are inspected and maintained by site personnel and are replaced every six months.

### *3.5 City of Portland Stormwater System and Outfall*

The City of Portland (City) currently owns and maintains a 48-inch diameter storm sewer line that runs beneath the site near the northern site boundary and discharges to the Willamette River through Outfall AAE427 (Figure 2). Precipitation falling on the site does not enter the City's stormwater system. The catchment area for Outfall AAE427 includes runoff from NW St. Helens Road, the southbound approach from NW St. Helen Road to the St. Johns Bridge (NW Bridge Avenue), and from residential and undeveloped forested areas west of NW St. Helens Road (Portland Maps, 2007).

The former Outfall AND882 and associated underground piping were installed in the mid 1970s (Figure 2). The piping and outfall were constructed with 48-inch diameter corrugated metal pipe. From 1979 to 1998, stormwater from the upgradient off-site catchment area described above discharged to the Willamette River through this outfall. By 1998 a section of the metal pipe had collapsed, and Outfall AND882 was replaced in July 1998 by installing approximately 190 feet of 48-inch diameter concrete pipe and Outfall AAE427 at the location shown on Figure 2. Concurrent with the installation of Outfall AAE427, the collapsed section of metal piping and Outfall AND882 were abandoned in place by filling the pipe and plugging the outfall with controlled density fill material. The City has owned and maintained Outfall AAE427 and all associated piping since the installation was completed in July 1998 (DEQ, 2007 and Portland Maps, 2007).

## 4.0 STORMWATER SYSTEM SAMPLING ACTIVITIES

This section describes the procedures that will be used to collect and handle sediment and stormwater samples from the site's stormwater system. The objective of the sampling program is to obtain data to screen for COI that may be present in sediment and stormwater and may be entering the river via the site's stormwater system. These data will be used to characterize and evaluate the stormwater pathway and assess if additional source control measures are warranted to prevent site COI from adversely impacting the river and river sediments.



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Representative samples will be collected from the site's catch basins and two stormwater outfalls. Runoff from the site does not enter the City's stormwater system, and as such, samples will not be collected from the City's outfall. The sampling activities will be performed in general accordance with industry standards and guidance developed by DEQ and others (COP, 2003; DEQ, 2006a and 2006b; EPA, 1992; and WDOE, 2005).

The catch basin sediment and stormwater sample collection, handling, and documentation procedures are discussed below. Additional information is presented in the Quality Assurance Plan (QAP) (Appendix A).

## *4.1 Catch Basin Sediment Sampling*

**Pre-Sampling Activities and Field Documentation.** Prior to sample collection, the interior of each catch basin will be photographed (with the insert in place and with the insert removed). The dimensions and outlet pipe configuration of each catch basin will be measured and recorded. The presence and estimated quantity of sediment and/or water, debris, blocked or clogged outlets, and the general condition of the catch basin will be noted on the field inspection and sampling form. Field indications of petroleum hydrocarbons entering the catch basin, such as sheen, staining, or petroleum-like odors will also be noted on the field form.

In the event standing water is present in a catch basin at the time of sampling, the standing water will be pumped off to facilitate sediment sample collection. The water will be pumped from the surface (i.e., the pump tubing will be placed at the air/water interface and will not extend into the sediment) at a rate and to a depth such that the fine sediment materials are not disturbed. Water removed from the catch basin will be placed in a labeled drum and stored at the site pending approval for batch discharge to the City's sanitary sewer.

**Sediment Sample Collection for Non-Volatile COI.** Two sediment samples will be collected from each catch basin. One sample will be collected from sediment contained within the catch basin insert and one sample will be collected from the sump (bottom) of the catch basin (post filtration). Dry to wet, but firm, sediment samples will be collected using a clean stainless steel spoon, trowel, or scoop. Saturated sediment or sediment with a high water content will be collected using a clean stainless steel hand corer. An equal amount of sediment material, representative of total thickness of the sediment at each location, will be collected from each corner and the middle of the sump and combined into one sample. Sediment material will be collected from the center of each insert and will be a representative composite of the total depth of the material contained within the insert. The collected material will be placed



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directly into clean laboratory-supplied containers and capped pending compositing for chemical analyses.

Prior to analyzing the sediment samples for non-volatile COI, the 10 samples from the individual catch basins will be combined into 4 composite samples as follows:

Catchment A Pre-Filtration – This sample will consist of sediment material collected from the inserts of catch basins CB-A1, CB-A2, and CB-A3.

Catchment A Post-Filtration – This sample will consist of sediment material collected from the sumps of catch basins CB-A1, CB-A2, and CB-A3.

Catchment B Pre-Filtration – This sample will consist of sediment material collected from the inserts of catch basins CB-B1 and CB-B2.

Catchment B Post-Filtration – This sample will consist of sediment material collected from the sumps of catch basins CB-B1 and CB-B2.

The individual sediment samples that will make up one composite sample (e.g., sump sediment samples CB-A1, CB-A2, and CB-A3), will be placed in a clean stainless steel bowl and gently mixed to homogenize the material, transferred into a clean laboratory-supplied sample container, and capped tightly with a Teflon® lined lid.

**Sediment Sample Collection for VOC COI.** Sediment samples to be submitted for VOC analysis will be collected from undisturbed sediment in accordance with EPA Method 5035 sample collection and field preservation procedures. A dedicated plug-type corer supplied by the laboratory will be inserted into the undisturbed sediment, the filled corer is then removed from the sampling point; and the sample is immediately transferred to a laboratory-prepared sample vial containing preservative and a stirring device, and capped tightly with a Teflon® lined lid. The VOC sediment samples will be analyzed as discrete samples and will not be composited in the field or by the laboratory prior to analysis.

**Sample Labeling and Handling.** All sample containers will be marked with a sample number, date of collection, project number, and sampler's initials. The samples will be placed in a cooled ice chest immediately following sample collection for temporary field storage and transport to the analytical laboratory. Chain of custody procedures will be maintained and documented throughout the sample handling process.

## *4.2 Stormwater Outfall Sampling*

**Sampling Locations.** Stormwater entering the site's stormwater system is discharged to the Willamette River through two outfalls: Outfall A and Outfall B



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(Figure 2). Outfall A is the discharge point for stormwater draining from Catchment Area A (office and employee parking and UST nest areas) and is located on the riverbank north of the office building. Outfall B is the discharge point for stormwater from Catchment Area B (maintenance and materials storage building and outdoor equipment storage area) and is located on the riverbank near the southern site boundary. Representative water samples will be collected from each outfall and screened for COI to evaluate stormwater being discharged from the site.

**Stormwater Sampling Criteria and Frequency.** Stormwater samples will be collected during a "storm event" to ensure the samples will be representative of stormwater being discharged from the site, adequate runoff will be available to meet analytical sample volume requirements, and to obtain data that will be consistent with stormwater screening evaluations being performed at other Portland Harbor upland sites. The criteria for a storm event are:

- The event must be preceded by dry period of at least 24 hours as defined by less than 0.1 inches of precipitation during the previous 24 hours;
- A predicted rainfall of at least 0.2 inches; and
- An expected duration of at least 3 hours.

Four sampling events will be performed within one year. Two of the four events will be performed, to the extent feasible, within the first 30 minutes of outfall discharge to represent "first flush" conditions. The remaining two sampling events will be conducted within three hours of the onset of stormwater discharge, to the extent practicable.

**Stormwater Sample Collection and Handling.** Unfiltered whole water (i.e., water plus suspended sediment) grab stormwater samples will be collected from each outfall. Samples will be collected by placing a laboratory-supplied container directly into the central area of flow at the point of discharge. The sampler will position the container with the opening facing into the flow of water such that the container does not touch the discharge pipe and the water enters directly into the container without first flowing over the container or the sampler's gloves. Care will be taken to adequately fill, but not overfill the container, to insure no preservative or COI are lost.

The analytical laboratory will provide sample containers with the appropriate preservative if required. Each container will be labeled with a sample number, date and time of collection, project number, and sampler's initials. The samples will be placed in a cooled ice chest immediately following collection for temporary field storage and transport to the analytical laboratory. Chain of



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custody procedures will be maintained and documented throughout the sample handling process.

**Field Parameter Measurements.** Temperature, pH, and conductivity of each outfall discharge will be measured immediately following sample collection by placing the sensing probes directly into the discharge stream without touching the discharge pipe. Field parameter instruments will be calibrated before and, if warranted, periodically during each event in accordance with manufacturer's specifications. The date, time, and calibration result will be recorded in a calibration logbook maintained for each instrument.

**Field Documentation.** The outfall flow conditions at the time of sampling will be described and photographed. The discharge flow rate will be estimated by timing the flow into a 1- or 5-gallon bucket and recorded on the field sampling form. Visual (e.g., presence of sheen, solids) and olfactory observations and field parameter measurements will be noted on the sampling form. Forecasted and actual weather conditions at the time of sampling will be documented for each sampling event. Any unusual circumstances, observations, or problems during sample collection will be described and corrective actions noted.

### *4.3 Decontamination Procedures*

Stormwater and sediment sampling procedures are designed to minimize the introduction of contamination into samples from sampling equipment, adjacent media or site features, or from other samples. To further prevent the potential for cross contamination, clean dedicated disposable sampling equipment (e.g., gloves, core syringes, tubing, etc.) will be used once at each sampling location and discarded after use. Non-disposable items (e.g., stainless steel sampling spoons and mixing bowls) will be cleaned before initial use and after each sample collection event. Cleaning will consist of washing in a detergent (e.g., Alconox®) solution, rinsing with tap water, followed with a de-ionized water rinse, and allowed to air dry or dried with a clean unused paper towel.

## 5.0 ANALYTICAL PROGRAM

The purpose of the sampling activities is to obtain stormwater data that will be of a quality suitable for comparison with Portland Harbor JSCS SLVs. Catch basin sediment and stormwater samples will be submitted to an accredited laboratory and analyzed for site-specific and selected area wide Portland Harbor COI by Northwest or EPA SW-846 Methods. The specific analytical methods were selected to achieve the JSCS SLVs, or the lowest practicable detection and reporting limits, to facilitate the data evaluation within the context of both the



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site and the Portland Harbor. Table A-1 of Appendix A lists the data quantification limit goals for each analyte.

## 5.1 Compounds And Physical Properties of Interest

Site-specific COI, based on site operations and previous investigation, are gasoline and diesel to oil range petroleum hydrocarbons, petroleum hydrocarbon VOCs, and PAHs.. In addiction to site-specific COI, the DEQ is requiring catch basin sediments at all Portland Harbor upland sites to be analyzed for polychlorinated biphenyls (PCBs) and phthalates due to the ubiquitous nature of these compounds in the Portland Harbor. The DEQ is also requesting total organic carbon (TOC) and grain size analysis be performed on catch basin sediment samples to provide additional information for evaluating COI fate and transport via the stormwater pathway.

## 5.2 Catch Basin Sediment Analyses

Four composite catch basin sediment samples will be analyzed for the following physical parameter and compounds:

- Grain Size Sieve Analysis by ASTM Method D-422.
- TOC by EPA Method 415.1/SW 9060.
- Gasoline Range TPH by Northwest Method TPH-Gx.
- Diesel to Oil Range TPH by Northwest Method TPH-Dx.
- PAHs by EPA Method 8270M-SIM.
- PCBs by EPA Method 8082.
- Phthalates by EPA Method 8270M-SIM.

Two discrete sediment samples from each catch basin (10 total) will be submitted for VOC analyses by EPA Method 5035/8260B.

## 5.3 Stormwater Analyses

Stormwater outfall samples (2 samples per storm event for 4 events) will be analyzed for the following compounds:

- Gasoline Range TPH by Northwest Method TPH-Gx.
- Diesel to Oil Range TPH by Northwest Method TPH-Dx.
- VOCs by EPA Method 8260B.



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- PAHs by EPA Method 8270M-SIM.
- Total Suspended Solids by EPA Method 160.2.

Analysis for PCBs by EPA Method 8082 and phthalates by EPA Method 8270M-SIM will also per formed on the stormwater samples if these COI are present in catch basin sediments at concentrations exceeding the JSCS SLVs (Table 3-1; DEQ, 2005).

## 6.0 QUALITY ASSURANCE AND QUALITY CONTROL

The general quality assurance objectives for this project are to develop and implement procedures for obtaining and evaluating data of a specified quality that can be used to evaluate the site's stormwater pathway in accordance with criteria presented in the JSCS. 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. A QAP specifying project objectives and quality assurance requirements and procedures is included as Appendix A to this Work Plan.

## 7.0 REPORTING

**Catch Basin Sediment Sampling Activities and Results.** A technical memorandum will be prepared following the catch basin sampling activities and receipt of the analytical data. The memorandum will include a description of the site's stormwater system, and discuss the sampling activities, weather conditions at the time of sampling, the condition of each catch basin and insert, and other field observations or relevant information. The physical and chemical data will be tabulated and the analytical results will be compared to JSCS SLVs. The report will include a discussion of the results, identify detected compounds and any compounds exceeding SLVs, and if warranted, present recommendations for modifying the proposed stormwater monitoring program. Photographs of each catch basin, and copies of the field forms and analytical reports will be included as attachments. The analytical data will also be provided to the DEQ in electronic format (MS Excel) to facilitate DEQ's incorporation of the site's data into the Portland Harbor database

**Stormwater Sampling Activities and Results.** The stormwater sampling activities and results will be documented in the quarterly progress reports. The storm event conditions, estimated discharge rates, field observations, and other relevant information will be discussed. Data summary tables and copies of the analytical



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reports and field forms will be included with the reports. The stormwater monitoring results will also be included in the Source Control Evaluation.

## 8.0 REFERENCES


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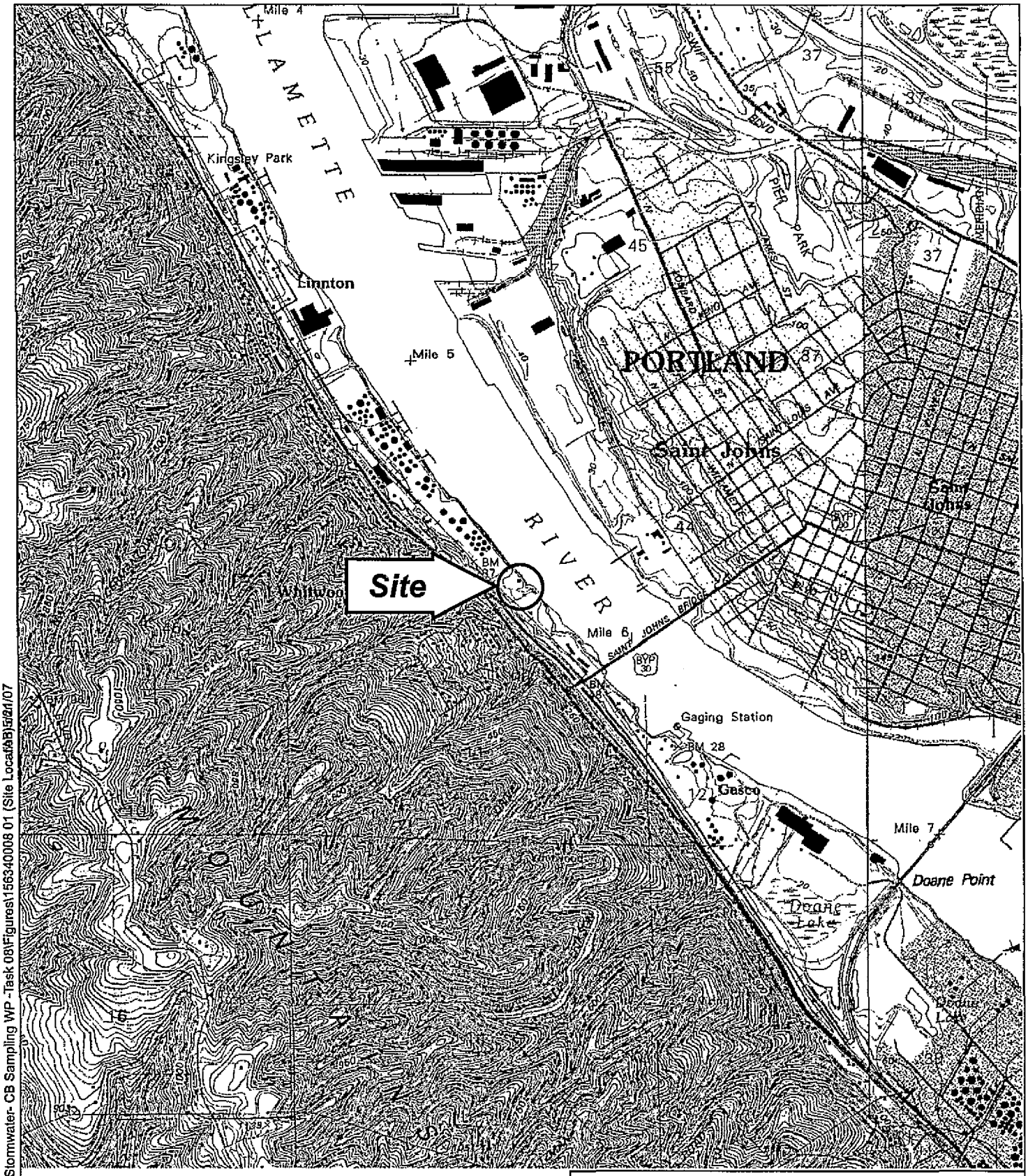


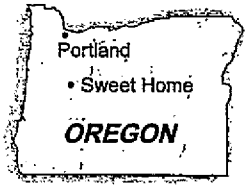


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Scale in Feet

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*Source:* Base map prepared from the USGS 7.5-minute quadrangle of Linnton, Oregon, dated 1990.

Brix Maritime Company
9030 NW St. Helens Road, Portland, Oregon

***Site Location Map***

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Figure
1

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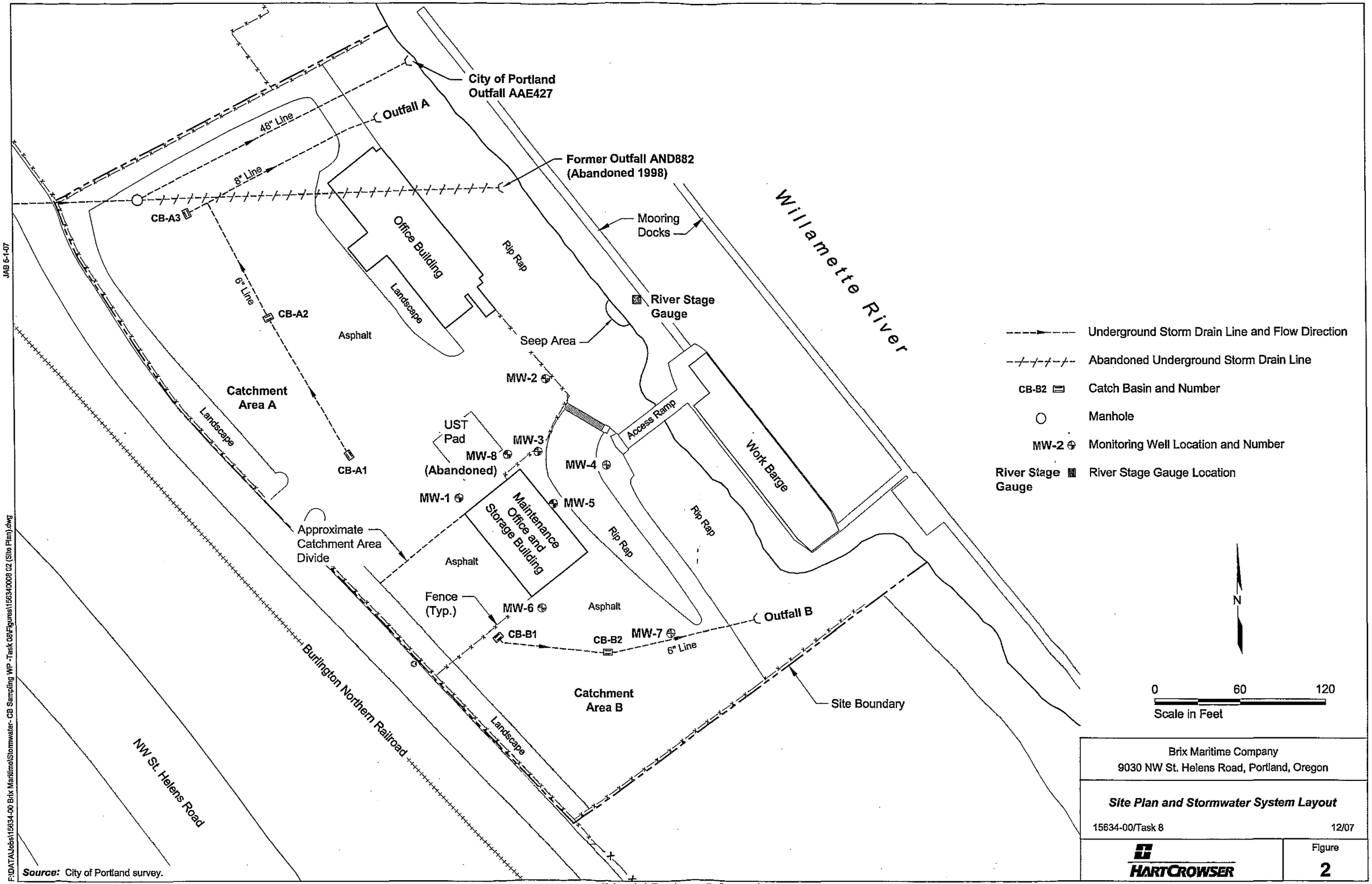
City of Portland Outfall AAE427
Outfall A
48" Line
8" Line
Former Outfall AND882 (Abandoned 1998)
CB-A3
Office Building
Rip Rap
Mooring Docks
Willamette River
6" Line
CB-A2
Landscape
Asphalt
River Stage Gauge
Seep Area
MW-2
Catchment Area A
Landscape
UST Pad
MW-3
MW-8 (Abandoned)
Access Ramp
MW-4
CB-A1
Work Barge
MW-1
MW-5
Maintenance Office and Storage Building
Rip Rap
Rip Rap
Approximate Catchment Area Divide
Asphalt
Fence (Typ.)
MW-6
Asphalt
Outfall B
CB-B1
CB-B2
MW-7
6" Line
Catchment Area B
Site Boundary
Burlington Northern Railroad
Landscape
NW St. Helens Road
Underground Storm Drain Line and Flow Direction
Abandoned Underground Storm Drain Line
CB-B2 Catch Basin and Number
Manhole
MW-2 Monitoring Well Location and Number
River Stage Gauge River Stage Gauge Location
N
0 60 120
Scale in Feet
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F:\DATA\Jobs\15634-00 Brix Maritime\Stormwater- CB Sampling WP -Task 08\Figures\156340008 02 (Site Plan).dwg
Source: City of Portland survey.
Brix Maritime Company
9030 NW St. Helens Road, Portland, Oregon
Site Plan and Stormwater System Layout
15634-00/Task 8
12/07
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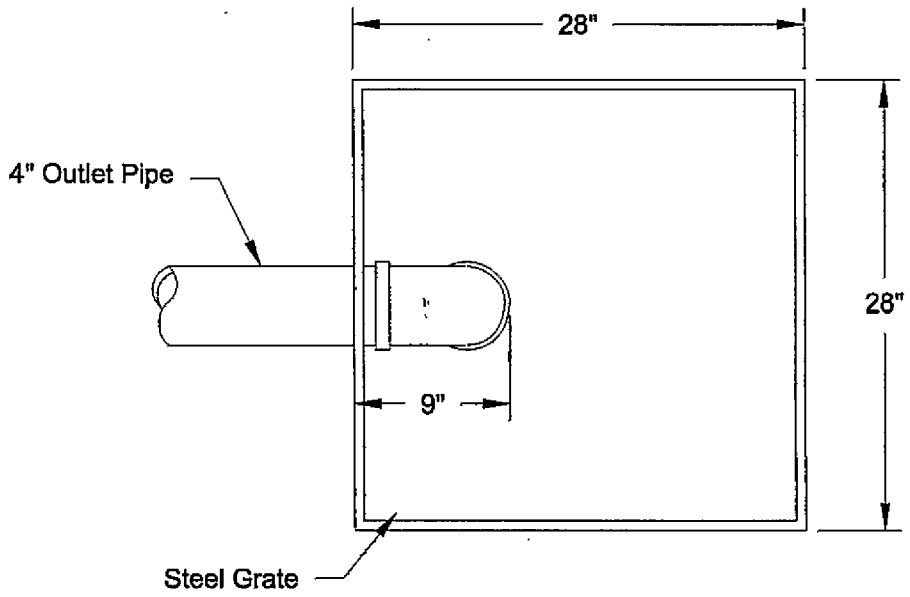
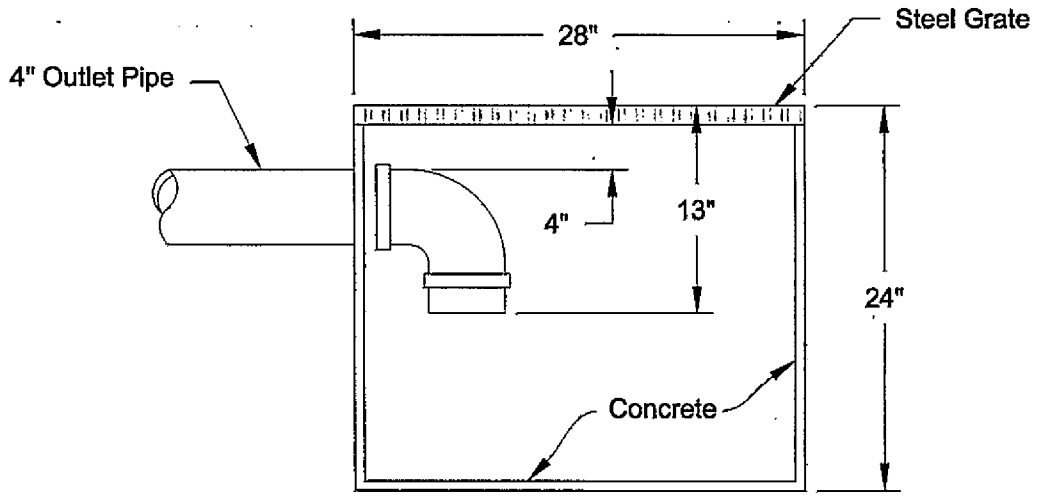
Figure
2




**Top View**




**Side View**

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Scale in Feet

Brix Maritime Company
9030 NW St. Helens Road, Portland, Oregon

***Brix Catch Basin (Typical)***

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Figure
3

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Appendix A

# APPENDIX A
# QUALITY ASSURANCE PLAN

# APPENDIX A - QUALITY ASSURANCE PLAN
# STORMWATER SYSTEM SAMPLING AND ANALYSIS WORK PLAN
# BRIX MARITIME COMPANY
# 9030 NW ST. HELENS ROAD, PORTLAND, OREGON

## 1.0 INTRODUCTION

This Quality Assurance Plan (QAP) presents the quality assurance (QA) and quality control (QC) activities for catch basin sediment and stormwater sampling activities planned for the Brix Maritime – Portland facility (site). This QAP specifies project objectives; procedures for office, field, and laboratory documentation; and other QA requirements that will be used to obtain valid, representative samples and analytical data.

## 2.0 QUALITY ASSURANCE OBJECTIVES FOR DATA MANAGEMENT

### *2.1 Data Quality Objectives*

The Data Quality Objectives (DQOs) for this project are to develop and implement procedures for obtaining and evaluating data of a specified quality that can be used to evaluate potential impacts to the Willamette River water and river sediments related to stormwater discharges from the site. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual conditions, and samples must be collected, handled, and analyzed using unbroken chain of custody procedures.

### *2.2 Criteria for Data Measurement*

To meet the DQOs, the overall QA objective for analytical data is to ensure that data of known and acceptable quality are provided. To achieve this goal, data must be reviewed for sensitivity, representativeness, comparability, accuracy, precision, and completeness. These criteria, described below, are necessary attributes to ensure that analytical data are reliable, scientifically sound, and defensible. Each analytical result or set of results generated should be fully defensible in any legal action, whether administrative, civil or criminal.

**Sensitivity.** Method reporting limits (MRLs), method detection limits (MDLs), and analytical results will be compared to Portland Harbor Joint Source Control Strategy (JSCCS) Screening Level Values (SLVs) for each parameter in the media of concern. MRLs are the lowest practical limits at which concentrations are quantified without qualification with method protocols and the technology



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available at commercial laboratories. MDLs are lower than MRLs; however, quantified concentrations reported above MDLs but below MRLs are typically qualified as estimated. The laboratory documentation will list the MDLs and MRLs for all analyzed compounds to allow additional data evaluation and comparison to the JSCS SLVs. Table A-1 lists the data quantification limit goals for each analyte.

**Precision.** Precision is a measure of 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 value. For duplicate measurements, precision can be expressed as the relative percent difference (RPD). Analysis of laboratory duplicate samples will serve to measure the precision of laboratory equipment. Laboratory duplicate measurements will be carried out with approximately a 10 percent frequency.

**Accuracy.** Accuracy is the agreement between the measured value and the true value. Accuracy depends on the magnitude of systematic (bias) and random (precision) errors in the measurement. Bias due to sample matrix effects will be assessed by spiking the samples with known standards and calculating the recovery for the standards. Matrix spikes will be used at a minimum frequency of one in 20 or one per sample set. Perfect accuracy is 100 percent recovery.

**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. Field procedures will be implemented to reduce the potential contamination of samples, such as using decontaminated sampling equipment, laboratory-supplied jars, and jars with lids equipped with Teflon liners. Proper documentation will also confirm that protocols are followed. This helps to assure sample identification and integrity.

Laboratory method blanks will be run in accordance with established laboratory protocols to ensure samples are not contaminated during sample preparation in the laboratory. Trip blanks will be prepared and analyzed for volatile organic compounds (VOCs) to assess the potential for cross contamination by VOCs during transportation and will be included in the coolers with catch basin sediment and stormwater samples.

**Comparability.** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. A DQO for this project is to produce data with the greatest possible degree of comparability. Comparability of the data will be ensured by following Oregon Department of



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Environmental Quality (DEQ) guidance procedures for sample collection and handling, and using Northwest and U.S. Environmental Protection Agency (EPA) methods for sample analyses.

**Completeness.** Completeness is defined as a measure of the actual amount of valid data obtainable from a measurement system compared to the expected amount obtained under normal conditions. It is important that appropriate QA procedures be maintained to ensure that valid data are obtained in order to meet project needs. The completeness goal for this project is 100 percent.

## 3.0 SAMPLING REQUIREMENTS

### *3.1 Sample Design and Methods*

The basis and scope of the planned stormwater system monitoring activities are described in the main text of the Work Plan. Field sampling methods are described in detail in Section 4 of the Work Plan.

### *3.2 Field Data Management*

**Field Observations.** An inspection and sampling form will be used to document sampling activities and observations. Documentation will be sufficient to enable an accurate and objective reconstruction of the field events at a later time. All entries on the form will be made in waterproof ink, and dated and signed by the person conducting the work. Information entered on the form is to contain only facts and observations; with clear, objective, and concise language that is free of personal interpretation or terminology that could be misconstrued at a later date.

At a minimum, the following data will be recorded on the inspection and sampling form:

- Date and time of activity;
- Purpose and location of activity;
- Weather conditions;
- Sample location and identification number;
- Sediment thickness, estimated volume and/or water thickness or flow rate;
- Presence of sheen, odor, staining, or other indications of contaminants;
- Other relevant comments and observations; and
- The signature of responsible personnel.



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Field documentation will be identified by the project name and a project-specific number, and stored in the project file after field activities are completed. All forms will be photocopied or scanned after the investigation, and will be stored in the permanent project files.

**Photographs.** Photographs will be taken as described in the main text of the Work Plan. The following information will be noted on the field form concerning photographs: date, location, description of photographs taken, and the reason or significance of the photograph. Following film development or downloading of digital photographs, each roll or computer file folder of photographs will be labeled as to their date and location/activity.

**Corrections.** All original data are recorded in field notes using indelible ink. Documents will be retained even if they are illegible or contain inaccuracies that require correction. If an error is made on a document, the individual making the entry will correct the document by crossing a line through the error, entering the correct information, and initialing and dating the correction. Any subsequent error discovered on a document is corrected, initialed, and dated by the person who made the entry.

## *3.3 Sample Handling and Custody*

**Containers.** Sample containers will be obtained directly from the analytical laboratory performing the analysis. Container type, number, volume, preservatives, and maximum sample holding times to extraction and/or analysis will be completed as specified by the respective analytical methods. Sample containers, preservation, and holding times for the planned analyses are listed in Table A-2.

**Sample Identification.** A sample label will be affixed to the sample container and will be used to identify each sample collected in the field and to avoid the possibility of misidentification. The sampler will fill out each sample label using waterproof ink and specify on the label a unique field sample number, project number, the sample date and time, sampler initials, analysis required, and preservation (when applicable). To minimize handling of sample containers, labels will be completed before sample collection to the extent possible. After each sample is collected, an entry will be made on the field form describing the sample and its identifying number.

**Storage and Shipment.** Sample storage in the field will consist of placement of labeled filled sample containers into insulated coolers with ice. The cooler will be kept closed except when opening the cooler to add additional samples.



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Styrofoam peanuts or bubble wrap may be placed around the sample containers within the cooler to ensure safe storage and container integrity during transport. When not under direct observation of the sampler, the cooler will be sealed with a custody seal (preprinted gel-type seals, designed to break into small pieces if the seals are disturbed). Seals will be signed and dated before use.

When a sample shipment is transported to the laboratory, a chain of custody form will be placed in the cooler (chain of custody forms are discussed in detail below). A temperature blank, consisting of a water-filled vial, will also be placed in the cooler. The cooler will be sealed with signed and dated custody seals in as many places as necessary to ensure security. Packaging, marking, labeling, and shipping of samples will comply with all regulations promulgated by the U.S. Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171-177. Freight bills and bills of lading, if any, will be retained as part of the permanent documentation.

**Chain of Custody.** Sample chain of custody refers to the process of tracking the possession of a sample from the time it is collected in the field through the laboratory analysis. A sample is considered to be under a person's custody if it is in a person's physical possession; in view of the person after possession has been taken; or secured by that person such that no one can tamper with the sample, or secured by that person in an area restricted to authorized personnel.

A chain of custody form is used to record possession of a sample and to document analyses requested. Each time the samples are transferred between individuals, both the sender and receiver sign and date the chain of custody form. This record will document sample custody transfer. Specifically, the following information is recorded on a chain of custody form:

- Sample identification number;
- Sample collector's signature;
- Date and time of collection;
- Description of sample;
- Analyses requested;
- Number of sample containers;
- Shipper's name and address;
- Receiver's name and address; and
- Signatures of persons involved in chain of custody.



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All original data are recorded on chain of custody forms using indelible ink. If an error is made, the individual making the entry will correct the document by crossing a line through the error, entering the correct information, and initialing and dating the correction. Any subsequent error discovered on a document is corrected, initialed, and dated by the person who made the entry.

When transporting samples to the laboratory, the original chain of custody form will be placed in a sealed plastic bag in the sample cooler. A copy of the form will be retained in the project files. The cooler will be sealed with signed and dated custody seals in as many places as necessary to ensure security. Upon receipt at the laboratory, the custodian will check that seals on cooler are intact, will open the cooler, and check that all samples are present. The laboratory will then assume sample custody by signing the chain of custody form and retain the samples in a secure area until such time as the samples are ordered destroyed.

# 4.0 LABORATORY OPERATIONS AND QUALITY ASSURANCE

## *4.1 Laboratory Operations*

Quality assurance of laboratory operations is guided by the laboratory's QAP and standard operating procedures (SOPs). To ensure that samples are accurately tracked and instrumentation produces valid results, the laboratory follows sample custody procedures and performs preventative maintenance, calibration, and corrective action on instrumentation. These laboratory operations are discussed below.

**Laboratory Custody Procedures.** A designated sample custodian at the laboratory will accept custody of the shipped samples from the carrier and enter preliminary information about the package into a package or sample receipt log, including the person delivering the package and the status of the custody seals on the coolers (i.e., broken versus unbroken). The custodian responsible for sample log-in will follow the laboratory's SOP for opening the package, checking the contents, and verifying that the information on the chain of custody agrees with samples received. The laboratory will also check the temperature blank inside the cooler, and document it in the sample login form. Each sample in the cooler will be assigned a unique laboratory identification number used by the laboratory for analysis assignment, sample tracking, and data reporting.

**Preventative Maintenance.** Laboratories perform routine testing, inspection, and preventative maintenance (parts replacement and cleaning) of all instruments and equipment, and provide a clean, climate-controlled environment instrument/



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equipment operation. Major instruments such as gas chromatographs (GC), atomic absorption spectrophotometers, analytical balances and GC/mass spectrometer (MS) systems are maintained under commercial services contracts or by qualified in-house service technicians. All instrument maintenance is recorded in the associated instrument logbook for future reference and validation of scheduled maintenance. Logbook entries include the date, analyst's name, detailed description of the problem, detailed explanation of the solution and a verification that the instrument is functioning properly.

**Calibration.** Calibration of analytical instrumentation is required to verify that the analytical system is operating properly and at the sensitivity necessary to meet established quantitation limits. Each instrument will be operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations, as well as criteria set forth in the applicable analytical methodology references. Once the operating parameters for an instrument have been established according to the analytical method, the analyst prepares standard solutions containing all of the analytes of interest, any internal standards, and any surrogate standards appropriate to the method. To establish the calibration curve for the particular analyte, these standard solutions are prepared at graduated dilution. One of the concentrations must be above the detection limit while the others are used to define the working range of the instrument.

**Corrective Action.** The laboratory QA Manual also contains the systems established to ensure conditions adverse to quality are promptly identified and corrected. This corrective action system functions at both the bench level through recognition and response to isolated events and at the management level through trend analysis. Recalibrations are performed when fundamental changes to the instrument characteristics occur (i.e., change of analytical column, etc.) or when results of QC check standards or samples indicate an out-of-control limit condition.

## *4.2 Laboratory QC Samples*

The laboratory conducts internal QC checks by analyzing QC samples to determine if analytical operations are in control, as well as determining the effect that the sample matrix may have on data being generated. The type and frequency of specific QC samples performed will conform to the acceptability criteria specified by the analytical laboratory for the analytical methods. QC results that vary from acceptable ranges shall result in the implementation of appropriate corrective measures, potential application of qualifiers, and/or an assessment of the impact these corrective measures have on the established data quality objectives. Quality control samples that will be analyzed are discussed below.



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**Method Blanks.** Method blanks, consisting of an aliquot of water or purified solid, are carried through the analytical scheme and serve to measure potential contamination associated with laboratory storage, preparation, or instrumentation (i.e., the level of laboratory background contamination. For most analyses, method blanks are analyzed on a daily basis and at a frequency of 1 per 20 samples if more than 20 samples are analyzed in a given batch.

**Laboratory Control Samples.** Laboratory control samples (LCSs) are aliquots of water or purified solid to which known amounts of an analyte have been added. They are subjected to the sample preparation or extraction procedure and are analyzed as samples. Stock solutions used for LCSs are purchased or prepared independently of the calibration standards. The LCS evaluates the functioning analytical method process and equipment function. Results of the LCS analysis are expressed as percent recovery. LCSs are prepared and analyzed on at least a daily basis, with at a greater frequency if a greater number of samples are run on a given day.

**Calibration Blanks.** Calibration blanks are prepared with standards to create an instrument calibration curve. They differ from other standards only by the absence of an analyte and provide the zero-point for the curve.

**Surrogates.** Surrogates are measured amounts of certain compounds added before sample preparation or extraction. Analysts measure the surrogate recovery to determine systematic extractions problems and to assess the accuracy of a chemical measurement by comparing the measured value to the actual spiked value. Surrogates are added to all samples analyzed for organic analysis. Surrogate recoveries are expressed as percent recovery.

**Matrix Spikes.** Matrix spike analyses are performed on samples submitted to the laboratory that are of the same matrix as the actual sample. The MS sample is spiked with known levels of the constituents of interest using a stock solution purchased or prepared independently of calibrations standards. The MS sample is then subjected to the entire analytical procedure as the actual sample. MS analyses are used to assess the potential for matrix interference with recovery or detection of the constituents of interest and the accuracy of the determination. The MS results are compared to the expected result (i.e., sample concentration plus spike amount) and are reported as percent recovery. Spikes are prepared and analyzed on a daily basis and at a frequency of at least one per 20 samples or one per batch whichever is more frequent.

**Matrix Spike Duplicates.** A second matrix spike sample (a.k.a., the matrix spike duplicate [MSD]) is prepared as above and analyzed. This is compared to the



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initial matrix spike to assess the precision of the analytical method by calculating the RPD. For this method, both a percent recovery and an RPD are reported. As such, both accuracy and precision for the matrix are measured. The samples are used to assess matrix interference effects on the method, as well as to evaluate instrument performance. MSDs are prepared and analyzed on a daily basis.

**Laboratory Duplicates.** A duplicate is a second laboratory sample taken from a submitted sample. The duplicate is then prepared along with the original. It is analyzed and compared to the first to assess the precision of the analytical method and the potential variability of the sample matrix. This comparison is reported as the RPD.

**LCS Duplicates.** In cases where the analyte concentration is consistently below the method detection limit, LCS duplicates are substituted for laboratory duplicate samples. An LCS duplicate is a second analysis of an LCS. The duplicate is prepared along with the original. It is analyzed and compared to the first to assess the precision of the analytical method and the potential variability of the sample matrix. For this method, both a percent recovery and an RPD are reported. As such, both accuracy and precision for the matrix are measured. LCS duplicates are prepared as needed.

## *4.3 Laboratory Documentation*

Laboratory data report packages will be provided in both hard copy and electronic formats. These packages will be kept in the paper and electronic project files. Laboratory data reports will include all internal laboratory quality control checks and sample results. At a minimum, laboratory reporting shall include the following.

- The field (client provided) and laboratory sample identification number.
- The sampling date, the date the laboratory received the sample, and the date(s) of extraction and analysis.
- The quantified concentration.
- The method reporting limit.
- The method detection limit.
- Reporting units.
- Laboratory QC sample results (including date and time of analysis, method, and acceptability criteria); and



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- Data qualifiers assigned by the laboratory, with definitions presented in each report.

Following receipt of the analytical data, the Project Manager will review data for completeness and format. If any error is noted in the laboratory report, the laboratory will be informed and appropriate corrective action will be performed, including review of raw data, assigning a data qualifier to the sample result, and/or re-analysis of the sample. For minor corrections (such as misspelled sample names), the individual making the correction shall cross a line through the error, enter the correct information, and initial and date the correction. Data validation and reporting are discussed in Section 5.

# 5.0 RESPONSE AND CORRECTIVE ACTION

## *5.1 Response Actions*

Assessments used during implementation of the project will include frequent communication between the Project and field technicians. Response actions to assessed issues will be coordinated between the Project Manager, Brix Maritime, and the laboratory, as appropriate. The Project Manager will coordinate notifications and other communications with the DEQ.

The DEQ or designee may conduct an audit of the field activities for this project. The DEQ auditor will have the authority to stop work on finding a significant condition that would adversely affect the quality and usability of the data. The Project Manager will then have the responsibility for initiating and implementing response actions to address these deficiencies identified by the site audit. Once the response action(s) have been implemented, the DEQ or designee may perform a follow-up audit.

## *5.2 Corrective Actions*

If a QA/QC audit detects unacceptable conditions or data, the Project Manager will be responsible for developing and initiating corrective action. Corrective action may include the following:

- Reanalyzing the samples, if holding times can be met;
- Resampling and analyzing;
- Evaluating and amending sampling and analytical procedures; and
- Accepting data and acknowledging level of uncertainty or inaccuracy by flagging the data.



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All corrective actions will be documented in writing.

## 6.0 DATA VALIDATION AND USABILITY

Data generated during this project will be validated to ensure that DQOs have been met and the data are suitable for their intended use. The data validation review will include an evaluation of: the information provided on the analytical data sheets and required support documentation for all sample analyses; the sample collection documentation, including field notes and chain of custody; and adherence to the procedures described in Work Plan and the requested analytical methods.

### *6.1 Data Reduction and Review*

Data reduction includes all processes that change the numerical value of the raw data. Laboratory analytical data are first generated in raw form at the instrument. These data may be in either graphic form or printed in tabular form. Specific data reduction, generation procedures, and calculations are found in each of the methods, as well as within the laboratory's QAP. Analytical results must be reported consistently. Data reduction will be performed by the laboratory technician/analyst experienced with the particular analysis and knowledgeable of method's QC requirements.

The technician/analyst who generates the analytical data is responsible for the correctness and completeness of that data. This review process involves evaluation of both the results of the QC data and the professional judgment of the person(s) conducting the review. This application of technical knowledge and experience to the evaluation of data is essential in ensuring that high quality data are generated. The laboratory has documented procedures, which are to be followed and must be accessible to all laboratory personnel. The data review is generally conducted in a three-step process at the laboratory level prior to release of the final data package.

- Level I Technical Data Review. The analysts review the quality of their work based on an established set of guidelines. The review will ensure at a minimum that appropriate preparation, analysis, and SOPs have been followed; analytical results are correct and complete; QC samples are within established control limits; and that documentation is complete (e.g., any anomalies have been documented).
- Level II Technical Review. This level of review will be performed by a supervisor, data review specialist, or QA/QC officer whose function is to



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provide an independent review of the data package. This review shall also be conducted according to an established set of guidelines (i.e., method requirements and laboratory SOP). The Level 2 review includes a review of qualitative and quantitative data and review of documented anomalies.

- Level III Administrative Data Review. The final review of the data, prior to final report release, is performed by the project manager at the laboratory. This level of review provides a total overview of the data package to ensure its consistency and compliance with project requirements.

### 6.2 Data Validation

Data validation is a systematic procedure of reviewing a body of data against a set of established criteria to provide a specified level of assurance of validity prior to its intended use. The Hart Crowser Project Manager will assure validation of the analytical data by reviewing the field sampling procedures used and the laboratory analyses performed.

**Sampling Procedure Review.** Documentation from the field sampling activities will be reviewed to ensure the samples were collected consistent with the procedures specified in the Work Plan and DEQ guidance, the samples are representative of the conditions being measured, and the samples fulfill the intended purpose. Field notes will be checked to verify samples have supporting information to verify when, how, and where sampling occurred; who performed the sampling; and that appropriate sample identifiers were used. Field instrument calibration logs will be reviewed if relied upon for selection of samples for analysis or critical for interpretation of analytical results. Chain of custody and sample receipt documentation will be reviewed to ensure that chain of custody was unbroken and samples arrived in good condition.

**Analytical Data Validation.** Hart Crowser will evaluate the analytical data in accordance with the QA/QC requirements specified in this QAP and the technical specifications of the analytical methods in the EPA's *National Functional Guidelines.* The laboratory generating analytical data for this project will be required to submit results that are supported by sufficient backup and QA/QC data to enable the reviewer to determine the quality of the data. The data evaluation process will include reviewing:

- The overall deliverable package for completeness;
- Holding times;
- The samples were analyzed using the specified analytical methods;



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- Laboratory QC results (e.g., blanks, surrogates, spikes, duplicates) to assess if the data are within the method required limits and specifications; and
- Laboratory qualifiers.

A review of raw data will not be performed. When possible, discrepancies will be resolved through direct correspondence with the laboratory project manager. If the data review reveals significant deviations and problems with the analytical data, Hart Crowser may recommend corrective action or a complete validation of the data, including raw data.

### *6.3 QA Reporting*

The QA/QC evaluation of the data will be included as an appendix to the main report. In addition to an opinion regarding the validity of the data, the QA/QC evaluation will address the following:

- Any adverse conditions or deviations;
- Assessment of analytical data for precision, accuracy, and completeness;
- Significant QA problems and recommended solutions; and
- Corrective actions taken for any problems previously identified.

## 7.0 AUDITS

Audits are systematic examinations to determine whether activities comply with planned arrangements, whether the arrangements are implemented effectively, and whether the results are suitable to achieve project objectives. No field or laboratory audits are anticipated for this project. Laboratories routinely undergo performance evaluation audits by various Federal and State agencies to ensure that the laboratory meets accreditation or certification requirements. Additionally, laboratories regularly perform internal QA analyses for the applicable analytical methods to be used for this project.



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**Table A-1: Sample Analyses and Data Quantification Goals**
**Stormwater System Sampling and Analysis Work Plan**
**Brix Maritime Company**
**9030 NW St. Helens Road, Portland, Oregon**

| Method and Analyte | Sediment (µg/kg) | | Water (µg/L) | |
|---|---|---|---|---|
| | MDL | MRL | MDL | MRL |
| ***Total Petroleum Hydrocarbons by Northwest Methods*** | | | | |
| Gasoline Range - NWTPH-Gx | 33 | 100 | 33 | 100 |
| Diesel Oil Range - NWTPH-Dx | 1,330 | 4,000 | 33 | 100 |
| Residual Oil Range - NWTPH-Dx | 3,330 | 10,000 | 83 | 250 |
| ***VOCs by EPA Method 8260B*** | | | | |
| Acetone | 130 | 2,000 | 8.9 | 50 |
| Benzene | 1.2 | 10 | 0.29 | 1.0 |
| Bromobenzene | 1.3 | 10 | 0.24 | 10 |
| Bromochloromethane | 0.83 | 10 | 0.40 | 1.0 |
| Bromodichloromethane | 0.86 | 10 | 0.37 | 1.0 |
| Bromoform | 1.1 | 10 | 0.51 | 1.0 |
| Bromomethane | 0.86 | 10 | 0.89 | 5.0 |
| 2-Butanone (MEK) | 110 | 2,000 | 4.5 | 2.0 |
| n-Butylbenzene | 1.7 | 10 | 0.23 | 1.0 |
| sec-Butylbenzene | 1.4 | 10 | 0.22 | 1.0 |
| tert-Butylbenzene | 1.3 | 10 | 0.20 | 1.0 |
| Carbon tetrachloride | 1.1 | 10 | 0.31 | 1.0 |
| Chlorobenzene | 1.1 | 10 | 0.3 | 1.0 |
| Chloroethane | 2.5 | 10 | 0.86 | 5.0 |
| Chloroform | 1.1 | 10 | 0.33 | 5.0 |
| Chloromethane | 2.4 | 10 | 0.25 | 2.5 |
| 2-Chlorotoluene | 1.1 | 10 | 0.22 | 1.0 |
| 4-Chlorotoluene | 1.4 | 10 | 0.16 | 1.0 |
| Dibromochloromethane | 0.93 | 10 | 1.2 | 10.0 |
| 1,2-Dibromo-3-chloropropane | 1.6 | 10 | 0.48 | 5.0 |
| 1,2-Dibromoethane | 1.0 | 10 | 0.48 | 1.0 |
| Dibromomethane | 0.77 | 10 | 0.28 | 1.0 |
| 1,2-Dichlorobenzene | 1.5 | 10 | 0.29 | 1.0 |
| 1,3-Dichlorobenzene | 1.3 | 10 | 0.19 | 1.0 |
| 1,4-Dichlorobenzene | 1.5 | 10 | 0.30 | 1.0 |
| Dichlorodifluoromethane | 1.4 | 10 | 0.54 | 1.0 |
| 1,1-Dichloroethane | 1.3 | 10 | 0.31 | 1.0 |
| 1,2-Dichloroethane | 1.0 | 10 | 0.27 | 1.0 |
| 1,1-Dichloroethene | 1.2 | 10 | 0.50 | 1.0 |
| cis-1,2-Dichloroethene | 1.1 | 10 | 0.38 | 1.0 |
| trans-1,2-Dichloroethene | 1.1 | 10 | 0.30 | 1.0 |
| 1,2-Dichloropropane | 0.98 | 10 | 0.52 | 1.0 |
| 1,3-Dichloropropane | 1.0 | 10 | 0.23 | 1.0 |
| 2,2-Dichloropropane | 1.1 | 10 | 0.25 | 1.0 |
| 1,1-Dichloropropene | 1.1 | 10 | 0.06 | 1.0 |
| cis-1,3-Dichloropropene | 0.84 | 10 | 0.08 | 1.0 |
| trans-1,3-Dichloropropene | 1.1 | 10 | 0.09 | 1.0 |
| Ethylbenzene | 1.1 | 10 | 0.22 | 1.0 |

**Please refer to notes on the last page of this table.**

**Table A-1: Sample Analyses and Data Quantification Goals**
**Stormwater System Sampling and Analysis Work Plan**
**Brix Maritime Company**
**9030 NW St. Helens Road, Portland, Oregon**

| Method and Analyte | Sediment (µg/kg) | | Water (µg/L) | |
|---|---|---|---|---|
| | MDL | MRL | MDL | MRL |
| ***VOCs by EPA Method 8260B (Continued)*** | | | | |
| Hexachlorobutadiene | 1.7 | 10 | 0.49 | 1.0 |
| 2-Hexanone | 57 | 2,000 | 0.29 | 2.0 |
| Isopropylbenzene | 1.1 | 10 | 0.19 | 1.0 |
| p-Isopropyltoluene | 2.0 | 10 | 0.21 | 1.0 |
| Methylene chloride | 1.4 | 10 | 0.30 | 5.0 |
| 4-Methyl-2-pentanone | 86 | 2,000 | 1.4 | 10 |
| Methyl tert-butyl ether (MTBE) | 40 | 80 | 0.19 | 1.0 |
| Naphthalene | 3.0 | 10 | 0.17 | 5.0 |
| n-Propylbenzene | 1.2 | 10 | 0.22 | 1.0 |
| Styrene | 1.0 | 10 | 0.38 | 1.0 |
| 1,1,1,2-Tetrachloroethane | 1.1 | 10 | 0.40 | 1.0 |
| 1,1,2,2-Tetrachloroethane | 1.5 | 10 | 0.22 | 1.0 |
| Tetrachloroethene | 1.2 | 10 | 0.29 | 1.0 |
| Toluene | 1.3 | 10 | 0.27 | 5.0 |
| 1,2,3-Trichlorobenzene | 1.8 | 10 | 0.24 | 1.0 |
| 1,2,4-Trichlorobenzene | 1.7 | 10 | 0.26 | 1.0 |
| 1,1,1-Trichloroethane | 1.1 | 10 | 0.27 | 1.0 |
| 1,1,2-Trichloroethane | 0.85 | 10 | 0.45 | 1.0 |
| Trichloroethene | 0.87 | 10 | 0.37 | 1.0 |
| Trichlorofluoromethane | 1.4 | 10 | 0.29 | 5.0 |
| 1,2,3-Trichloropropane | 2.1 | 10 | 0.36 | 1.0 |
| 1,2,4-Trimethylbenzene | 1.3 | 10 | 0.20 | 1.0 |
| 1,3,5-Trimethylbenzene | 1.2 | 10 | 0.22 | 1.0 |
| Vinyl chloride | 1.1 | 10 | 0.27 | 1.0 |
| Total Xylenes | 2.7 | 20 | 0.86 | 3.0 |
| ***PAHs by EPA Method 8270M-SIM*** | | | | |
| Acenaphthene | 3.5 | 10 | 0.0018 | 0.050 |
| Acenaphthylene | 4.1 | 10 | 0.0014 | 0.050 |
| Anthracene | 4.9 | 10 | 0.00045 | 0.050 |
| Benzo (a) anthracene | 3.2 | 10 | 0.0010 | 0.050 |
| Benzo (a) pyrene | 4.2 | 10 | 0.0010 | 0.050 |
| Benzo (b) fluoranthene | 2.9 | 10 | 0.0010 | 0.050 |
| Benzo (ghi) perylene | 1.5 | 10 | 0.0010 | 0.050 |
| Benzo (k) fluoranthene | 3.3 | 10 | 0.0010 | 0.050 |
| Chrysene | 4.2 | 10 | 0.00068 | 0.050 |
| Dibenzo (a,h) anthracene | 2.3 | 10 | 0.00096 | 0.050 |
| Fluoranthene | 3.2 | 10 | 0.00065 | 0.050 |
| Fluorene | 4.1 | 10 | 0.0011 | 0.050 |
| Indeno (1,2,3-cd) pyrene | 3.8 | 10 | 0.0012 | 0.050 |
| Naphthalene | 9.9 | 10 | 0.011 | 0.25 |
| Phenanthrene | 3.3 | 10 | 0.00073 | 0.050 |
| Pyrene | 2.8 | 10 | 0.00083 | 0.050 |

**Please refer to notes on the last page of this table.**

**Table A-1: Sample Analyses and Data Quantification Goals**
**Stormwater System Sampling and Analysis Work Plan**
**Brix Maritime Company**
**9030 NW St. Helens Road, Portland, Oregon**

| Method and Analyte | Sediment (µg/kg) | | Water (µg/L) | |
|---|---|---|---|---|
| | MDL | MRL | MDL | MRL |
| ***PCBs by EPA Method 8082*** | | | | |
| Aroclor 1016 | 6.6 | 10 | 0.066 | 0.1 |
| Aroclor 1221 | 12 | 20 | 0.12 | 0.2 |
| Aroclor 1232 | 5.7 | 10 | 0.057 | 0.1 |
| Aroclor 1242 | 3.6 | 10 | 0.025 | 0.1 |
| Aroclor 1248 | 2 | 10 | 0.029 | 0.1 |
| Aroclor 1254 | 3.3 | 10 | 0.046 | 0.1 |
| Aroclor 1260 | 2.9 | 10 | 0.039 | 0.1 |
| ***Phthalates by EPA Method 8270M-SIM*** | | | | |
| Dimethyl phthalate | 13.4 | 26.8 | 0.526 | 1.00 |
| Diethyl phthalate | 13.4 | 26.8 | 0.526 | 1.00 |
| Di-n-butyl phthalate | 13.4 | 26.8 | 0.526 | 1.00 |
| Butyl-benzyl-phthalate | 13.4 | 26.8 | 0.526 | 1.00 |
| Bis(2-ethylhexyl) phthalate | 13.4 | 26.8 | 0.526 | 1.00 |
| Di-n-octyl phthalate | 13.4 | 26.8 | 0.526 | 1.00 |
| ***Total Organic Carbon by Method 415.1*** | -- | 100,000 | -- | 500 |
| ***Total Suspended Solids by EPA Method 160.2*** | -- | -- | -- | 2,000 |

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**Notes:**

1. MDLs (method detection limits) and MRLs (method reporting limits) for sediment are highly dependent on matrix conditions (e.g. percent solids) and are target estimates only.
2. µg/kg = Micrograms per Kilogram.
3. µg/L = Micrograms per Liter.
4. VOCs: Volatile organic compounds.
5. PAHs: Polynuclear aromatic hydrocarbons.
6. PCBs: Polychlorinated biphenyls.
7. -- Not applicable or available.

**Table A-2: Sample Containers, Preservation, and Holding Times**
**Stormwater System Sampling and Analysis Work Plan**
**Brix Maritime Company**
**9030 NW St. Helens Road, Portland, Oregon**

| Analyte | Analytical Method | Matrix | Container | Preservation | Holding Time |
|---|---|---|---|---|---|
| Gasoline Range TPH | Northwest TPH-Gx | Soil | 1 - 4 oz glass jar | Cool to 4°C | 14 days |
| | | Water | 2 - 40 ml VOA vials | HCl to pH<2; cool to 4°C | 14 days |
| Diesel to Oil Range TPH | Northwest TPH-Dx | Soil | 1 - 8 oz glass jar | Cool to 4°C | 14 days |
| | | Water | 1 - 1L amber glass | HCl to pH<2; cool to 4°C | 14 days |
| Volatile Organic Compounds (VOCs) | EPA 5035A/8260B | Soil | 3 - 40 ml pre-weighed VOA vials with stir bar | $NaHSO_4$ in 5 mL water; Cool to 4°C | 14 days |
| | EPA 8260B | Water | 3 - 40 ml VOA vials | HCl to pH<2; cool to 4°C | 14 days |
| Polynuclear Aromatic Hydrocarbons (PAHs)/ Phthalates | EPA 8270M-SIM | Soil | 1 - 8 oz glass jar | Cool to 4°C | 14 days (extraction) 40 days (analysis) |
| | | Water | 2 - 1L amber glass | Cool to 4°C | 7 days (extraction) 40 (analysis) |
| Polychlorinated Biphenyls | EPA 8082 | Soil | 1 - 8 oz glass jar | Cool to 4°C | 14 days (extraction) 40 days (analysis) |
| Total Organic Carbon | EPA 415/SW 9060 | Soil | 1 - 8 oz glass jar | $H_2SO_4$ to pH<2; cool to 4°C | 28 days |
| Total Suspended Solids | EPA 160.2 | Water | 1 - 250 ml polyethylene | Cool to 4°C | 7 days |
| Grain Size Sieve Analysis | ASTM Method D-422 | Soil | 1 - 16 or 32 oz polyethylene | NA | NA |

F:\DATA\Jobs\15634-00 Brix Maritime\Stormwater- CB Sampling WP -Task 08

**Notes:**

1. Holding times are from date of sample collection. For organic analyses where extraction is needed, the holding time listed is the number of days between sample extraction and sample analysis.
2. TPH = Total Petroleum Hydrocarbons.
3. EPA = US Environmental Protection Agency
4. oz = Ounce.
5. °C = Degrees Celsius.
6. mL = Milliliter.
7. L = Liter.
8. g = Gram.
9. HCl = Hydrochloric Acid.
10. $NASO_4$ = Sodium Bisulfate.
11. $H_2SO_4$ = Sulfuric Acid.

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Tel 907.276.7475

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Five Centerpointe Drive, Suite 240
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Fax 503.620.6918
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February 21, 2001

Mr. Frank Williamson
Assistant General Counsel
Foss Maritime
660 West Ewing Street
Seattle, Washington 98119

**Re: Supplementary Preliminary Assessment**
**Foss Maritime Company**
**Portland Oregon**
**ESCI No. 2364**

Dear Mr. Williamson:

The Oregon Department of Environmental Quality (DEQ) received your letter, dated January 17, 2001. The purpose of this letter is to clarify for you the roles of DEQ and EPA on this project and DEQ's position on the need for further action at the Foss facility.

**Regulatory Oversight.** In your letter, you state that it is your understanding that Foss Maritime (Foss) will be working with EPA regarding any further actions required at the Foss site. Regulatory oversight of the Portland Harbor Superfund site is being jointly managed by DEQ and EPA. Under the Memorandum of Understanding (MOU) between DEQ and EPA, DEQ is responsible for the oversight of investigations at upland facilities, such as Foss, and EPA is responsible for oversight of in water (i.e., sediment) activities on a harborwide basis. DEQ is responsible for identifying current and historic sources of sediment contamination and source control measures. In some instances the evaluation of potential sources will necessitate the collection of sediment samples to determine if a release has impacted Willamette River sediments.

The notice letter you received from EPA inviting Foss to participate in negotiation of an Administrative Order on Consent (AOC) pertains to the harborwide in water or sediment investigations. The AOC does not address upland (e.g., soil, groundwater, surface water, storm water, underground storage tank) issues and does not relieve Foss from addressing Oregon environmental regulations. DEQ has regulatory authority over the upland investigation through the Environmental Cleanup statutes and rules (Oregon Revised Statutes [ORS] 465.200 - .900, Oregon Administrative Rules [OAR] 340-122-010 –

0140) and the underground storage tank statutes and rules (ORS 466.705 - .835, 466.994 and OAR 340-122-0205 – 0360).

**Need for Further Investigation.** In your letter, you state that Foss does not believe additional investigation at the Foss facility is warranted for several reasons. Each of Foss's reasons and DEQ's response are provided below.

1. Foss did not request tank closure from DEQ.

   DEQ Response: DEQ has identified hazardous substance releases associated with the tanks as a potential source of contamination that may be impacting the Willamette River, therefore, DEQ is requiring that additional investigation be performed.

2. Foss did not request a delisting decision from DEQ.

   DEQ Response: The Foss facility has not been added to DEQ's confirmed release list or inventory, therefore, a delisting decision is not applicable to this site. Data generated from the requested investigation will be used to determine if releases at the Foss facility meet the criteria for listing on the CRL or inventory (OAR 340-122-074 and 340-122-075).

3. Foss believes there is "no evidence that Brix's operations have contributed any contaminants to the sediments of the Willamette River."

   DEQ Response: It is DEQ's opinion insufficient data exist to determine that the documented hazardous substance releases associated with the underground storage tanks at the Foss facility have not impacted groundwater or the Willamette River. It is the Department's opinion that additional data is needed to evaluate potential contaminant sources at the facility and to determine if complete contaminant migration pathways to the river exist. Due to the proximity of the potential contaminant sources to the Willamette River and the potential for these releases to have impacted site groundwater or the Willamette River, DEQ is requiring that additional investigation be performed.

**Potentially Responsible Parties.** In your letter you state that "Foss has never operated at the site, therefore, Foss cannot be considered a PRP." It is DEQ's understanding that Foss Maritime is the assumed business name of Brix Maritime Co., that Brix is the current owner of the facility, and that Brix dba Foss has operated the facility since at least 1993. Based on these facts, it appears that Brix dba Foss is liable under ORS 465.244. Please provide DEQ with any information you believe is relevant to defining Foss and Brix's liability for this facility.

DEQ would be happy to meet with you and your consultant to discuss our December 19, 2000 comments. DEQ requests a written comment-by-comment response to our letter and a sampling and analyses plan for the investigations described in DEQ's letter be submitted to DEQ, no later than March 15, 2001. Please do not hesitate to call me at (503) 229-5562, if you have any questions.

Sincerely,

Rodney G. Struck, R.G.
Project Manager
Voluntary Cleanup and Portland Harbor Section

cc: ECSI File No. 2364
LUST File No. 26-93-0009
Mike Rosen, DEQ/NWR
Eric Blischke, DEQ/NWR
Wallace Reid, EPA Region X
Elizabeth McKenna, EPA Region X
Kurt Burkholder, Oregon Department of Justice
Larry Johnson, Foss Maritime
David Templeton, Anchor Environmental

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
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(503) 229-5263 Voice
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February 21, 2001

Mr. Frank Williamson
Assistant General Counsel
Foss Maritime
660 West Ewing Street
Seattle, Washington 98119

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**Portland Oregon**
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Rodney G. Struck, R.G.
Project Manager
Voluntary Cleanup and Portland Harbor Section

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Wallace Reid, EPA Region X
Elizabeth McKenna, EPA Region X
Kurt Burkholder, Oregon Department of Justice
Larry Johnson, Foss Maritime
David Templeton, Anchor Environmental

January 17, 2001

Mr. Rodney G. Struck
Oregon Dept. of Environmental Quality
2020 S.W. Fourth Ave., Suite 400
Portland, Oregon 97201-4987

Re: Supplementary Preliminary Assessment
Foss Maritime Company and Brix Maritime Co.
Portland, Oregon

Dear Mr. Struck:

We received your letter with comments regarding Foss Maritime Company ("Foss") and Brix Maritime Co.'s ("Brix") Supplemental Preliminary Assessment Summary Report (the "Report") submitted to DEQ on November 18, 1999. Subsequent to our submission of the Report and the listing of Portland Harbor by EPA on the National Priorities List, both Foss and Brix received a general notice letter from EPA informing us that EPA has assumed jurisdiction over the Portland Harbor Superfund Site. The notice letter indicates that EPA will next be negotiating an Administrative Order on Consent for a Remedial Investigation/Feasibility Study to determine contamination at the Site and to analyze remedial alternatives. Foss and Brix have responded to the general notice letter and it is our understanding that we will be working with EPA with regard to our involvement, if any, in further action regarding the Site.

Even if EPA had not assumed jurisdiction over the Site, we do not believe the additional investigation requested in your letter is warranted. In submitting the Report, Foss and Brix did not request DEQ to issue a confirmation that the USTs at Brix's facility have been permanently decommissioned pursuant to OAR 340-150-0130 or a delisting decision pursuant to OAR 340-122-077, even though it is our position that the previous investigations presented in the Report are sufficient, without any additional investigation, to support such a decision by DEQ if requested. Rather, the Report is intended solely to establish that there is no evidence that Brix's operations at the facility located at 9030 N.W. St. Helens Road have at any time contributed any contaminants to the sediments of the Willamette River. It is our opinion that the Report does establish this point convincingly and we have forwarded a copy to EPA for its review. Consequently, in response to your letter dated December 19, 2000, we will not be undertaking any additional investigation at this time as we have not requested any action from DEQ with respect to this site.

660 West Ewing Street • Seattle, WA 98119 • Phone (206) 281-3800 • FAX (206) 281-4702

Confidential Business Information

For your information, Foss has never operated at this site, therefore, Foss cannot be considered a PRP. We have already informed EPA that if there is any material data linking operations at the Brix facility to sediment contamination, Brix will consider entering into good faith negotiations regarding a *de minimis* settlement. We have not received a response at this time from EPA.

Feel free to contact me if you have any further questions.

Very truly yours,

Frank Willi

Frank H. Williamson
Assistant General Counsel

Cc: Larry Johnson, Foss Maritime Company
Elizabeth McKenna, EPA
Wallace Reid, EPA

January 17, 2001

Mr. Rodney G. Struck
Oregon Dept. of Environmental Quality
2020 S.W. Fourth Ave., Suite 400
Portland, Oregon 97201-4987

Re: Supplementary Preliminary Assessment
Foss Maritime Company and Brix Maritime Co.
Portland, Oregon

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Feel free to contact me if you have any further questions.

Very truly yours,

Frank Willi

Frank H. Williamson
Assistant General Counsel

Cc: Larry Johnson, Foss Maritime Company
Elizabeth McKenna, EPA
Wallace Reid, EPA

December 18, 2000

Ms. Elizabeth McKenna
U.S Environmental Protection Agency
Office of Regional Counsel
1200 Sixth Avenue, M/S ORC 158
Seattle, WA 98101

Re: Portland Harbor Superfund Site, Portland, Oregon

Dear Ms. McKenna:

This letter acknowledges receipt by Foss Maritime Company ("Foss") and Brix Maritime Co. ("Brix") of EPA's general notice letter regarding the above-referenced site. For the reasons stated below, Foss and Brix deny any potential liability at the site and have established convincingly that both should be removed from the list of PRPs.

It is our understanding that Foss and Brix have received notice letters due to operations at the facility located at 9030 N.W. St. Helens Rd. in Portland. However, the operations at this facility do not give rise to potential environmental liability for either Foss or Brix.

First, it should be noted that Foss has never done business at this facility. The facility is operated by Brix, a separate corporation which is a wholly-owned subsidiary of Foss doing business under the assumed Foss name in Oregon. Therefore, Foss should be removed from the PRP list.

With regard to Brix, the Oregon Department of Environmental Quality ("DEQ") previously notified us regarding the sediment issue. We retained an environmental consulting firm and performed an Expanded Preliminary Assessment ("XPA"), a copy of which is enclosed. The XPA, which was presented to and reviewed by the DEQ, established conclusively that the facility does not now and has never represented a potentially significant source of contaminants to the Willamette River sediments. Based on this clear evidence, Brix should also be removed from the PRP list.

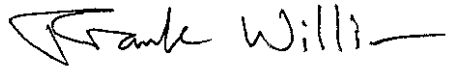
If EPA has any material data linking operations at the Brix facility to sediment contamination, Brix will consider entering into good faith negotiations regarding a *de minimis* settlement. Pursuant to EPA's *de minimis* policy, you are mandated to encourage early, expedited settlements to reduce the transaction costs of all parties. The policy makes clear that there is no necessity to prepare a waste-in list or volumetric ranking prior to considering a party's eligibility

660 West Ewing Street • Seattle, WA 98119 • Phone (206) 281-3800 • FAX (206) 281-4702

for a *de minimis* settlement. In addition, the policy encourages settlement with individual parties rather than groups.

Please amend the site contact information for Foss and Brix to the undersigned. Feel free to contact me if you have any questions or would like to discuss this further.

Very truly yours,



Frank H. Williamson
Assistant General Counsel

Cc: Larry Johnson

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
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Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

April 20, 2000

Mr. Larry Johnson
Manager, Marine Operations
Foss Maritime Company
9030 NW St. Helens Road
Portland, OR 97231

**Re: Comments**
**Expanded Preliminary Assessment**
**Foss Maritime Company**
**Portland Oregon**
**ESCI No. 2364**

Dear Mr. Johnson:

The Oregon Department of Environmental Quality (DEQ) has reviewed the "Expanded Preliminary Summary Report" prepared for the above referenced site in accordance with our Letter Agreement, dated November 18, 1999. This report was prepared by Anchor Environmental, L.L.C. and is dated February 15, 2000.

This report does not satisfy DEQ's requirements for a preliminary assessment (PA) or expanded PA (XPA). The report does not contain sufficient information to assess whether the site is releasing, has released, or could release hazardous substances to the environment and in particular whether the site has contributed to sediment contamination in Portland Harbor. The PA contains minimal information that was not contained in DEQ's November 8, 1999 Strategy Recommendation. The PA should contain detailed information regarding current and past uses of hazardous substances and their potential to have impacted the site. In order for DEQ to approve the document, the PA must be rewritten in accordance with DEQ's PA Guidance Documents (attached). Specifically, the PA must include the following:

- **Ownership and Operation History**. This discussion must include past and current practices, operations, and hazardous substances used.
- **Regulatory History**
- **Past Inspections**
- **Waste Characteristics** including
  - Potential source areas. Potential contaminant source areas should be identified based on a review of historical site information and current site operations. The identification of potential source areas should include

both upland and over or in water operations that may have resulted in a release of hazardous substances to soil, groundwater, surface water, and/or Willamette River sediments.

- Contaminants of Potential Concern (COPC). Hazardous substances used on site (current and past) must be identified and evaluated.

- **Evaluation of Pathways of Exposure**

In addition, the conclusions in this report are not supported by site specific information or findings. Adequate data or documentation is needed to support site conclusions. It is DEQ's expectation that the PA will fully evaluate all upland, in-water, and over-water activities that might have resulted in the release of hazardous substances and that focused sampling will be performed to determine if a release has occurred. Prior to collecting samples, a sampling plan should be prepared in accordance with DEQ's XPA Guidance (attached).

**Specific Comments**

1. Page 1. Site Background. The PA must document the historical property uses. The statement that the property was unused and undeveloped must be supported and documented. For example, copies of historical aerial photographs and maps (e.g., Sanborne, historical tax lot maps) should be included in the report, as well as a review of reverse directories (e.g., Cole or Polk Directories).

   The PA should discuss any dredging that has occurred adjacent to the facility, if any, and present any analytical results associated with historic dredging activities.

2. Page 2. Underground Storage Tanks. The report should include a discussion regarding the closure of the two underground storage tanks (USTs) in 1998 (i.e., Were the tanks closed in accordance with DEQ UST regulations? Was a release reported? Did DEQ's tank program issue a no further action (NFA) finding for these tanks?)

3. Page 2. Underground Storage Tanks. The report should include a discussion of the existing USTs. Why aren't these tanks considered a potential on-site source of contamination?

4. Page 2. Outfalls. Is site storm water discharge regulated? Do the four-inch pipes discharge directly to the Willamette River?

5. Page 3. Adjacent Site Uses. This section does not describe adjacent properties.

6. Page 3. Sediment Quality. The PA should focus on evaluating the potential for a release of hazardous substance at the site and the site's potential contribution to sediment contamination in the Willamette River. The PA should not evaluate risk

using screening tables. Specific sediment quality criteria will be determined for Portland Harbor through the harbor-side remedial investigation/feasibility study. The PA/XPA focus should be evaluating and documenting potential contaminant sources at the Foss facility and determining whether or not these sources have impacted the environment using site specific sampling results.

7. Page 4. Evaluation of Potential Pathways. This section does not adequately assess potential sources of contamination on the site or potential contamination migration or exposure pathways. The identification of potential source areas should include both upland and over or in water operations that may have resulted in a release of hazardous substances to soil, groundwater, surface water, and/or Willamette River sediments. The report identifies several potential contaminant sources uses (e.g., maintenance shop, maintenance barge, USTs,) that may use or have used and/or generated hazardous substances. These areas and the types of contamination that could be present in each should be identified. For example, the general maintenance operations performed at this facility should be described. This information should be used to identify COPCs (e.g., herbicides, petroleum products, fuels, paints, solvents) for the sampling activities.

   The PA should identify and evaluate potential contaminant migration pathways (e.g., groundwater discharge, storm water discharge, direct release, volatilization, dust entrainment) and potentially affected media (e.g., groundwater, soil, Willamette River sediments, surface water) at the subject property. XPA sampling efforts should focus on primary migration pathways.

   The PA should identify and evaluate potential contaminant exposure pathways (e.g., ingestion, direct contact, inhalation) to humans and ecological receptors associated with the potentially affected media (e.g., groundwater, soil, Willamette River sediments, surface water) at the subject property. XPA sampling efforts should focus on primary migration and exposure pathways.

8. The report does not include a proposed sampling plan. DEQ requests that focused sampling be conducted to determine if a release has occurred at the facility. The PA should include a sampling and analyses plan that is based on a conceptual site model that describes the potential sources of contamination, migration pathways, exposure routes, and contaminants of interest. The PA and XPA needs to take a broad approach of what could be present at the facility based on the specific site uses (both current and historical). The PA identifies the following potential contaminant source areas:

   - USTs/fueling area
   - Maintenance Building
   - Maintenance Barge
   - Storm water runoff

- Storage Areas
- Spills (the location, size, and source of the spilled material should be provided)
- City Storm water outfall

The following should be considered/discussed as potential sources:

- PCB containing transformers or capacitors
- Dock Area (spills from refueling, discharges from barges/ships berthed at the Foss dock)

Sufficient sampling should be proposed to determine whether the above potential sources have resulted in a release of hazardous substance(s).

DEQ would be happy to meet with you and your consultant to discuss our comments. DEQ requests that a revised PA report and sampling plan be submitted to DEQ by May 31, 2000. Please do not hesitate to call me at 229-5562 if you have any questions.

Sincerely,

Rodney G. Struck

Rodney G. Struck, R.G.
Project Manager
Voluntary Cleanup and Portland Harbor Section

Enclosure: State Preliminary Assessment (PA) Guidance
Example Report – Preliminary Assessment
Expanded Preliminary Assessment (XPA) Sample Plan Guidance
Expanded Preliminary Assessment (XPA) Report Guidance

cc: ECSI File No. 2364
Mike Rosen, DEQ/NWR
Eric Blischke, DEQ/NWR

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

November 18, 1999

Mr. Larry Johnson
Manager, Marine Operations
Foss Maritime Co.
9030 NW St. Helens Road
Portland, Oregon 97231

SUBJECT: Voluntary Cleanup Letter Agreement

Dear Mr. Johnson:

This letter serves as an agreement between the Oregon Department of Environmental Quality (DEQ) and Foss Maritime Co. for performance of a preliminary assessment with sampling regarding hazardous substances at your property located at: 9030 NW St. Helens Road in Portland, Oregon.

You agree to perform a preliminary assessment and submit it to DEQ within 30 business days of your execution of this Letter Agreement. The preliminary assessment will provide the information described in DEQ guidance for the completion of a preliminary assessment and a proposed sampling program. DEQ will review documents submitted by you or on your behalf regarding the preliminary assessment and investigation of the above referenced site.

A sub-account of the Hazardous Substances Remedial Action Fund has been established to be drawn upon by DEQ as project costs are incurred. When you have signed this letter agreement, you will be invoiced monthly for DEQ project costs, including the costs of preparing the DEQ strategy recommendation and any ongoing review and oversight costs. You will pay DEQ invoices within 30 days of receipt. A sample invoice is attached.

DEQ project costs will include direct costs and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ and of the Waste Management and Cleanup Division (WMCD) allocable to DEQ oversight of this Letter Agreement which are not charged as direct, site-specific costs. Review and oversight costs shall not include any unreasonable costs or costs not otherwise recoverable by DEQ under ORS 465.255.



Confidential Business Information

This Letter Agreement is not and shall not be construed as an admission by Foss Maritime Co. of any liability under ORS 465.255 or any other law or as a waiver of any defense to such liability. This Letter Agreement is not and shall not be construed as a waiver, release or settlement of claims DEQ may have against Foss Maritime Co. or any other person or as a waiver of any enforcement authority DEQ may have with respect to Foss Maritime Co. or the property. Upon DEQ's request and as necessary to oversight of your work under this Letter Agreement, Foss Maritime Co. shall provide DEQ with data and records related to investigation and cleanup activities at the property, excluding any privileged documents identified as such by you.

Following execution of the letter agreement, a DEQ Project Manager will be assigned for the review of the preliminary assessment and oversight of investigation activities associated with your property.

DEQ looks forward to working with you.

Sincerely,

Michael C Parsons for

Neil Mullane
Administrator
Northwest Region

If the terms of this Letter Agreement are acceptable to Foss Maritime Co., please have it executed by an authorized representative in the space provided below and returned to us.

Accepted and agreed to this _____ day of_____,

By: _____

Title: _____

Attachment

**DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION**

**Site Name:** Foss Maritime Co.

**Site CERCLIS Number:** (none)

**DEQ ECSI Number:** 2364

**Site Address:** 9030 NW St. Helens Road
Portland, Oregon 97231

**Recommendation By:** Tom Gainer, Voluntary Cleanup and Site Assessment Section, DEQ Northwest Region

**Approved By:** Michael E. Rosen, Portland Harbor Manager, DEQ Northwest Region

FOR MER

**Date:** November 8, 1999

**NOTE**: This site (Figure 1) is within a 6-mile stretch of the Lower Willamette River in which the U.S. Environmental Protection Agency (EPA) conducted a sediment study in 1997. This area, referred to as the *Portland Harbor*, is between the upstream ends of Sauvie Island (River Mile 3.5) and Swan Island (RM 9.5). The purpose of this Strategy Recommendation is to determine whether a specific hazardous substance release or a specific past operation at the site can be linked to contamination documented by EPA in sediments adjacent to the site. Because of this focus, the Strategy Recommendation may omit some historical site information, regulatory issues, or further-action conclusions that might otherwise be included in a DEQ Strategy Recommendation.

## Background, Portland Harbor Sediment Evaluation

In September and October 1997, EPA's contractor, Roy F. Weston, Inc., collected 187 near-shore sediment samples within the Portland Harbor area defined above. Most samples (150) were collected as shallow grab samples within the upper 6 to 17 centimeters (cm) of sediments. 37 deeper composite core samples, from depths of between 55 and 139 cm, were also collected. All samples were analyzed for total metals, semi-volatile organic compounds (SVOCs), total organic carbon (TOC), and sediment grain size. Selected samples were also variously analyzed for organotins (TBTs), pesticides,



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polychlorinated biphenyls (PCBs), chlorinated herbicides, and polychlorinated dioxins and dibenzofurans.

Based on analytical results from this study, which showed extensive sediment contamination, EPA is currently considering Portland Harbor for inclusion on the federal National Priority List (NPL - also known as Superfund).

Between late 1998 and mid-1999, DEQ examined EPA's analytical data to determine potential sources for sediment contamination in the Harbor. Potential sources associated with the most contaminated areas of sediment were sites already active in DEQ's Cleanup Programs.

DEQ categorized other areas of sediment contamination (i.e., those areas not thought to be associated with active Cleanup Program sites) by defining the areas:

- having the highest detected concentration of a given contaminant;
- with contaminant concentrations in the upper five percent of a given contaminant's detected concentrations; and
- having contaminant concentrations above an apparent "baseline range" most commonly detected throughout the harbor area.

DEQ categorized in this manner because there are no established freshwater sediment contaminant concentration guidelines or well-defined background contaminant concentrations for the harbor area. The contaminant "baseline range" was developed by examining the geometric distribution of concentrations for each contaminant detected. Any sediment concentrations that appeared to depart significantly from the ranges most commonly detected were suspected of lying near a potential contaminant source.

As shown on Figure 2, shallow sediment samples were collected approximately 500 feet upstream and 100 feet downstream of the Foss Maritime facility (SD055 and SD052, respectively). Sediment data for sample SD055 presented in Table 1 indicates that upstream sites are not likely impacting the subject site, since none of the tested compounds were detected at concentrations above the Portland Harbor baseline levels. The subject site may be contributing towards downstream sediment concentrations of butylbenzylphthalate and low- and high-molecular weight polynuclear aromatic hydrocarbons (LPAHs and HPAHs, respectively) that exceed baseline levels in sample SD052. The lack of these contaminants further downstream in sample SD050 suggests that activities at the Foss site and/or the City of



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Portland stormwater outfall at the Foss site are the source of contamination observed in sample SD052.

## Operational History

The 4.46-acre site was originally developed in 1979 for maritime maintenance and repair activities. Foss purchased the property from Brix Maritime Co. and started their operations in 1993. According to information provided by Foss, the site consists of an office building, office trailers, a maintenance building, an outdoor storage area, small storage sheds, and a maintenance barge for equipment repairs. Paint, propane, acetylene, diesel #2, gasoline, and lubricating oil are used on site.

## Regulatory History

***Spills***

Sixteen spills from the Foss site to the Willamette River were reported to DEQ between 1995-1999. The spilled materials were generally petroleum products such as diesel, lube oil, and bilge water, originating from boat operation and maintenance activities at their dock. The quantity spilled was not clear, but typical spills were 1-25 gallons and resulted in a sheen on the river. The numerous reported spills and use of the dock for boat fueling and maintenance are likely sources of petroleum contamination in river sediment.

***Underground Storage Tanks***

In January 1993, prior to Foss' purchase of Brix, a release of lube oil was reported to DEQ (LUST #26-93-009). Brix conducted an investigation and removed 45 cubic yards of oil-contaminated soil; however, it is not clear why the site did not receive DEQ closure.

A 2,000-gallon gasoline UST and a 6,000-gallon lube oil UST were removed in October 1998. The remaining two 20,000-gallon diesel USTs and one 6,000-gallon lube oil UST were certified and upgraded in 1998.

***Hazardous Waste***

The facility operates as a Conditionally Exempt Hazardous Waste Generator.

***Water Quality***

The Foss facility does not have DEQ water quality permits. A City of Portland storm water outfall discharges at the northern (downstream) portion of the property, and Foss identified another "historical outfall" near the center of their shoreline. The



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outfalls may have contributed towards sediment contamination observed downstream in sample SD052.

## Site Hydrogeology

The site lies in the northern-most Portland Basin, a major north-southeast trending sediment filled structural depression found in the northern part of the Willamette River valley and adjoining Columbia River valley (Swanson et al, 1993). The basin is filled with recent alluvium, Pleistocene cataclysmic flood deposits, Miocene to Holocene nonmarine sedimentary rocks, and is underlain by Eocene to Miocene volcanic and sedimentary rocks that are exposed along the basin margins.

The youngest deposits are recent alluvium (silt, sand and gravel mixtures) characteristic of an active fluvial environment. These are made up of shoreline, river channel, and adjacent floodplain deposits.

The subject property lies between U.S. Highway 30 (St.Helens Road) and the Willamette River, at the base of the Portland Hills. The facility was constructed on varying thicknesses of fill comprised of fine to medium sands and silts overlying alluvial floodplain deposits. Aquifers in the fill and floodplain deposits generally are unconfined and localized due to heterogeneity of the deposits. Occurring at various depths in the site vicinity, Columbia River Basalts (CRB) underlie these alluvial deposits. Deep wells installed in fractured CRB can be very productive and important supply wells. Site elevation is about 30 feet above mean sea level.

## Pathway Summary

The Foss site lies in an area of mixed industrial, commercial, and residential use. Approximately 22 residences lie within 1/4 mile of the site. The residences are located on the west side of St. Helens Road approximately 50 to 200 feet higher in elevation than the site, so surface or subsurface contaminant migration from the site to the residences is unlikely.

Site access is limited; however, trespassers or utility trench workers could potentially be exposed to surface and/or subsurface contaminants through direct contact, inhalation, or incidental ingestion.

Oregon Water Resources Department has well logs for one domestic well within one mile of the Foss site. The well appears to be approximately one-quarter mile from the site and is not likely affected by the contaminants at the Foss facility. The nearest significant wetlands are located approximately 3 miles downstream at



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the mouth of the Multnomah Channel. Forest Park lies within 0.5 miles of the site.

Both recreational and subsistence fishing occur within the Lower Willamette River. Commercial fishing within the Portland Harbor is limited to a small Pacific lamprey fishery. Recreational boating, water skiing, swimming, and beach use also occur within the Harbor.

The Lower Willamette River provides habitat for 39 fish species, including populations of wild cutthroat trout, rainbow trout, and mountain whitefish. White sturgeon are plentiful within the Harbor. The Harbor is also an important migratory corridor, nursery habitat, and adult foraging area for two runs of chinook salmon, two runs of steelhead trout, and individual runs of coho and sockeye salmon.

Upper Willamette River populations of chinook and steelhead, which migrate through the Harbor, are listed as threatened species under the Federal Endangered Species Act. The Pacific lamprey is considered a federal species of concern.

Great blue herons, cormorants, osprey, mergansers, kingfishers, peregrine falcons, and bald eagles routinely forage within the Harbor. The area is also part of the wintering range for the Aleutian Canada goose. All are protected under the Migratory Bird Treaty Act. The peregrine falcon is federally listed as an endangered species, while the Aleutian Canada goose is federally listed as threatened species. The bald eagle also is a threatened species, but was recently proposed to be removed from this list.

There is little data on the nature and extent of the benthic community within Portland Harbor sediments. However, it is known that contamination in the benthos, which is a protected beneficial use, can be the source of food-chain effects that radiate up to the species listed above, including humans.

The Lower Willamette River is water quality limited for the following toxic compounds:

- Dioxins/furans (water column and sediments);
- Mercury (fish tissue);
- Pesticides (water column and sediments);
- Polynuclear Aromatic Hydrocarbons - PAHs - (water column and sediments); and
- Trace metals (water column and sediments).

DEQ's Water Quality Division is developing Total Maximum Daily Load requirements (TMDLs) within the lower Willamette River for these contaminants. A TMDL for 2,3,7,8-TCDD was established in 1991.



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## Conclusions/Recommendations

**NOTE**: As indicated previously, this review is limited to establishing a link between site activities and contamination in adjacent Portland Harbor sediments. It does not necessarily represent a thorough review of available site data, and the conclusions and recommendations presented below may reflect this limited focus.

The following conclusions are based on the contents of this review:

- Concentrations of butylbenzylphthalate, LPAHs, and HPAHs in shallow sediment 100 feet downstream of the Foss site are greater than baseline levels for the Portland Harbor. Although sediment data is not available immediately adjacent to the subject site, data from downstream samples indicates that the Foss site may have contributed towards the observed sediment contamination.

- Numerous reported spills and use of the dock for boat fueling and maintenance are likely sources of petroleum contamination in river sediment. However, the extent of Foss' contaminant contribution is not clear, as other potential contributing sources include the onsite City of Portland storm water outfall.

Contamination of river sediments in the vicinity of the Foss site may represent a threat to human health and aquatic life within the river. An Expanded Preliminary Assessment (XPA) on the subject property should be conducted to evaluate sediment contamination, potential upland site contaminant sources and past waste management practices, and to determine the extent and source(s) of observed sediment contamination at sample station SD052. Sediment sampling should include subsurface samples to further define the extent of contamination. As necessary, the XPA should present recommendations aimed at preventing potential further contamination of adjacent sediment. DEQ has determined that these actions warrant a high priority for follow-up.

There is insufficient information to propose adding the site to DEQ's Confirmed Release List or Inventory at this time.

## References

DEQ consulted the following general references in preparing this Strategy Recommendation:

1. Portland Harbor Sediment Investigation Report, prepared by Roy F. Weston, Inc. for USEPA, May 1998.



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2. Foss Maritime Company's response to DEQ Site Assessment Information Request, March 31, 1999.

3. DEQ LUST Database.

4. DEQ HWIMSy Hazardous Waste Generator Database.

5. DEQ SPINS Spill Database.

6. MetroScan Property Records, Multnomah County, Oregon.

**Attachments**

Table 1: River Sediment Contaminant Concentrations

Figure 1: Site Location Map

Figure 2: Sediment Sampling Points



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# TABLE 1

## River Sediment Contaminant Concentrations (1997)
## Foss Maritime Co.

| Contaminant | Units | Up-Stream SD055 | Downstream SD052 | Downstream SD050 | Apparent Portland Harbor Sediment Baseline Maximum Value |
|---|---|---|---|---|---|
| Aluminum | ppm | 16600 | 37600 | 33200 | 42800 |
| Antimony | ppm | <4 | <5 | <5 | <5 |
| Arsenic | ppm | <4 | <5 | <5 | <5 |
| Barium | ppm | 111 | 179 | 162 | 195 |
| Beryllium | ppm | 0.39 | 0.66 | 0.55 | 0.7 |
| Cadmium | ppm | 0.2 | 0.4 | 0.3 | 0.6 |
| Chromium | ppm | 19 | 36 | 32 | 41 |
| Cobalt | ppm | 13 | 18 | 17 | 19.7 |
| Copper | ppm | 19 | 38 | 36 | 60 |
| Iron | ppm | 29800 | 41500 | 37400 | 45000 |
| Lead | ppm | 9 | 16 | 13 | 30 |
| Manganese | ppm | 356 | 716 | 595 | 810 |
| Mercury | ppm | 0.02 | 0.05 | 0.05 | 0.1 |
| Nickel | ppm | 17 | 28 | 26 | 32 |
| Selenium | ppm | 9 | 10 | 9 | 15 |
| Silver | ppm | 0.7 | 1 | 0.7 | 1.4 |
| Thallium | ppm | <4 | <5 | **20** | 13 |
| Titanium | ppm | 1520 | NA | NA | 2075 |
| Vanadium | ppm | 72 | 101 | 93 | 112 |
| Zinc | ppm | 67 | 99 | 85 | 118 |
| 2-Methylnaphthalene | ppb | <19 | 50 | 32 | 150 |
| 4-Methylphenol | ppb | <19 | 600 | 21 | 680 |
| Benzoic Acid | ppb | <190 | <200 | <200 | <200 |
| Benzyl Alcohol | ppb | <19 | <20 | <20 | <20 |
| bis(2-Ethylhexyl)phthalate | ppb | <73 | <19 | 150 | 390 |
| Butylbenzylphthalate | ppb | <19 | **29** | <20 | <20 |
| Carbazole | ppb | 31 | 100 | 30 | 100 |
| Di-N-Butylphthalate | ppb | <19 | <20 | <20 | <20 |
| Di-N-Octylphthalate | ppb | <19 | <20 | <20 | <20 |
| Dibenzofuran | ppb | <19 | 30 | 26 | 100 |
| Dimethylphthalate | ppb | <19 | <20 | <20 | <20 |
| Pentachlorophenol | ppb | <97 | <99 | <100 | Detect |
| Phenol | ppb | <19 | <20 | <20 | <20 |
| LPAHs (total) | ppb | 212 | **803** | 595 | 700 |
| HPAHs (total) | ppb | 1750 | **3907** | 1941 | 2400 |
| DDTs (total) | ppb | 7 | NA | NA | 220 |
| PCBs (total) | ppb | <39 | NA | NA | <180 |
| Organotins (total) | ppb | <30 | NA | NA | 300 |
| 2,4-D | ppb | NA | NA | NA | <3.3 |
| 2,4-DB | ppb | NA | NA | NA | <5 |
| TOC | % | 1 | 1.3 | 1.1 | 2 |
| | | | | | |
| Water Depth | Ft | 23 | 37 | 35 | |
| Sediment Sample Depth | cm | 0-8 | 0-17 | 0-16 | |

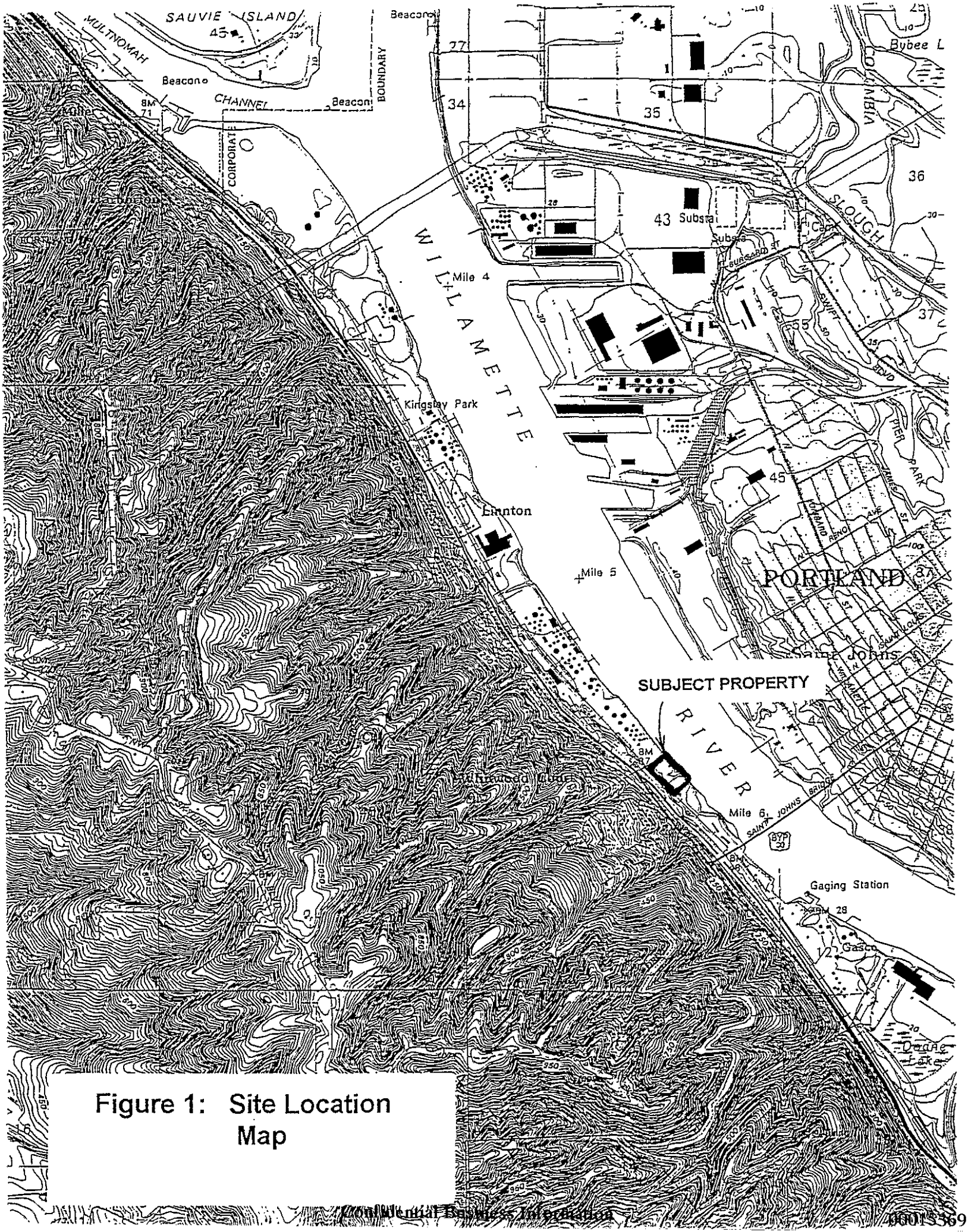



Figure 1: Site Location Map

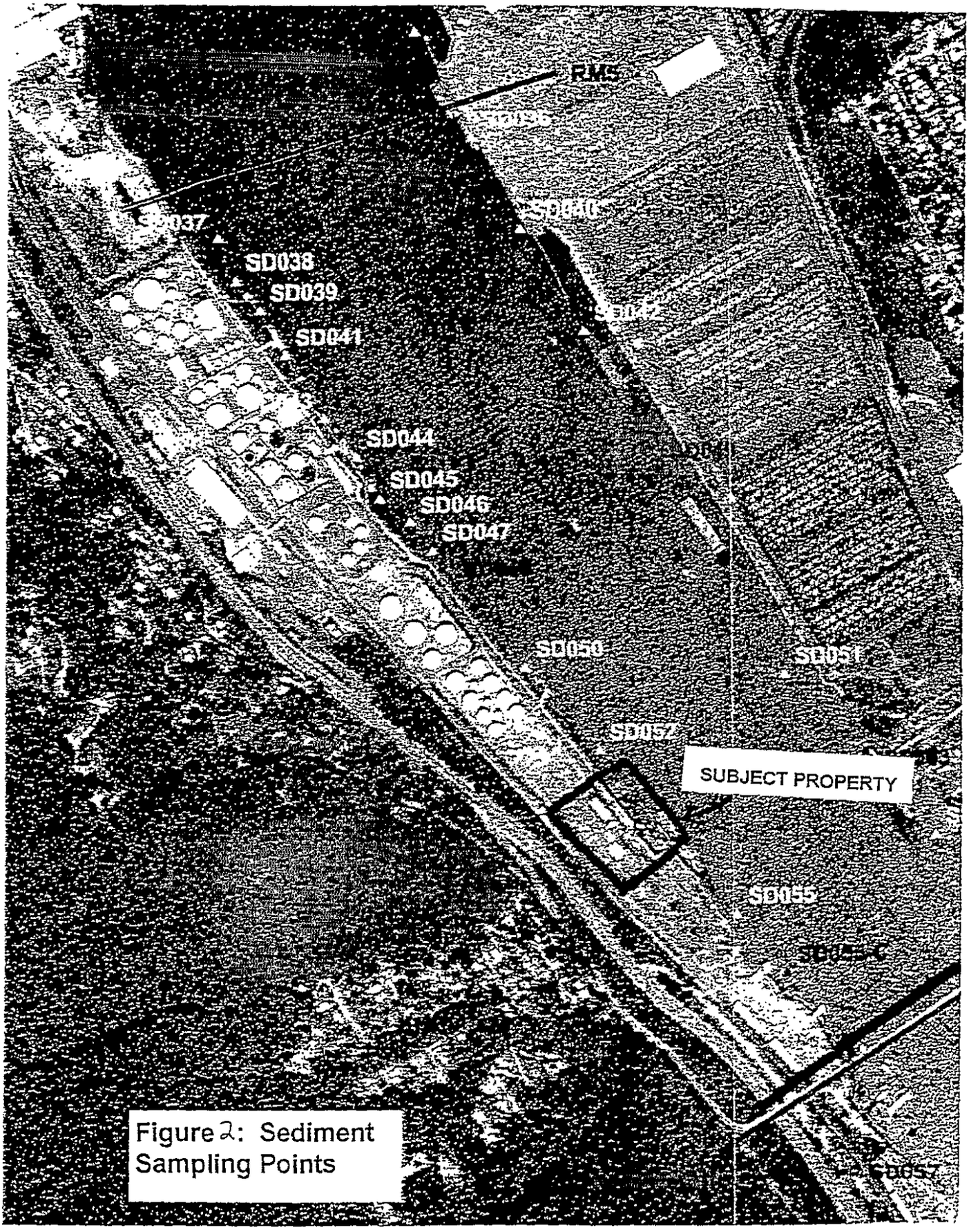



Figure 2: Sediment Sampling Points

FOSS
MARITIME

March 7, 2001

Mr. Rodney G. Struck, R.G.
Oregon Dept. of Environmental Quality
2020 SW Fourth Ave., Suite 400
Portland, OR 97201-4987

Re: Supplementary Preliminary Assessment
9030 N.W. St. Helens Rd., Portland, Oregon

Dear Mr. Struck:

We received your latest letter regarding the above-referenced Supplemental Preliminary Assessment Summary Report. Brix is reviewing your comments and will respond in due course, but your proposed deadline of March 15, 2001 for a response does not allow sufficient time to fully and thoroughly review the issues that you have raised.

For your information, Brix Maritime Co., a wholly-owned subsidiary of Foss Maritime Company, has joined the Portland Harbor PRP Group. Therefore, Brix is cooperating with the agencies in determining what further studies are necessary. Foss Maritime Company has never operated at this site. Your statement that Foss Maritime is merely the assumed business name of Brix Maritime Co. is incorrect. Foss Maritime Company is a Washington corporation which was incorporated in 1969 and has offices in Washington and California. Brix Maritime Co. does business under the Foss name, but that does not alter the separate nature of the two corporations.

Finally, Kim Johannessen has been retained to represent Brix in this matter. Please direct all future correspondence to Kim regarding Brix's Portland facility at the following address:

Kim Johannessen
Johannessen & Associates
5413 Meridian Ave. N., Suite C
Seattle, WA 98103-6138
(206) 632-2000 (telephone)
(206) 632-2500 (facsimile)

Very truly yours,

Frank Williamson

Frank H. Williamson
Assistant General Counsel

Cc: Kim Johannessen

660 West Ewing Street • Seattle, WA 98119 • Phone (206) 281-3800 • FAX (206) 281-4702

cc- Frank Williamson

# Oregon

Theodore R. Kulongoski, Governor

RECEIVED
JUN 16 2004

**Department of State Lands**
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us.

**State Land Board**

Theodore R. Kulongoski
Governor

Bill Bradbury
Secretary of State

Randall Edwards
State Treasurer

June 14, 2004

RE: Opportunity for Review and Comment on Temporary Use Permit LI-32527

| | | |
|---|---|---|
| ☐ ODFW – STAHL | ☐ WATERMASTER 20 | ☐ STATE PARKS |
| ☐ DEQ | ☐ WATERMASTER 18 | ☐ CITY OF PORTLAND |
| ☐ DOGAMI | ☐ MULTNOMAH SWCD | ☐ CORPS – BARCO |
| ☐ DLCD - SITZMAN | ☑ | ☐ CORPS – |
| ☐ MARINE BOARD | ☐ FORESTY | ☐ LIST |

The Department of State Lands (DSL) has received the attached application from Lower Willamette Group to complete certain investigative and sediment sampling work as described in the Administrative Order On Consent (AOC) and a Statement of Work as required by the U. S. Environmental Protection Agency (EPA) and dated September, 2001. Access to this AOC and its related Statement of Work is available on the EPA website at http://yosemite.epa.gov/R10/HOMEPAGE.NSF, click on Oregon, next click on Superfund Sites, and finally click on Portland Harbor, Oregon. The Department is providing notice for review and comment on this application.

The DSL Coordinator is Cyril Young, at extension 245. Comments must be received by **Wednesday June 30, 2004**. Please reference Lower Willamette Group LI-32527.

Sincerely,

Cyril J Young
Property Manager

BRIX MARITIME CO
9030 NW ST HELENS RD
PORTLAND OR
97231-1127

Application for Federal Superfund Access

J:\Property Manager Cy\Enviro GENERAL_DEQ_EPA\Pub Cmt Portland Harbor Lwr Wil Gp.doc

DEPARTMENT OF STATE LANDS
PROPERTY MANAGER – CY YOUNG
775 SUMMER STREET NE SUITE 100
SALEM OR 97301-1279

# Temporary Use Permit Application Form

AGENCY WILL ASSIGN NUMBER
Oregon Department of State Lands Application No. _____

**SEND ONE SIGNED COPY OF YOUR APPLICATION TO:**

**(If your project is West of the Cascade Crest)**
**WESTERN REGION**
Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
503-378-3805

RECEIVED
MAY 26 2004
DIVISION OF STATE LANDS

**(If your project is East of the Cascade Crest)**
**EASTERN REGION**
Department of State Lands
20300 Empire Avenue
Bend, OR 97701
541-388-6112

| | | | |
|---|---|---|---|
| ❶ Applicant Name and Address | Lower Willamette Group<br>c/o Port of Portland<br>121 NW Everett<br>PO Box 3529<br>Portland, OR 97208 | | Business Phone #<br>Home Phone#<br>FAX # |
| O Co-Applicant<br>X Authorized Agent<br>O Contractor<br>Name and Address | James J McKenna<br>Port of Portland<br>121 NW Everett<br>PO Box 3529<br>Portland, OR 97208 | Bob Wyatt<br>NW Natural<br>220 NW 2nd Ave<br>Portland, OR 97209 | Business Phone #<br>McKenna: 503.944.7325<br>Wyatt: 503.226.4211 x5425<br>FAX #<br>McKenna: 503.944.7353<br>Wyatt: 503.273.4815 |
| Riparian Property Owner (vested title); if different than applicant Name and Address | The spreadsheet attached as Exhibit D was obtained from the METRO RLIS TAXLOT file from February 2004; the Applicant has not verified the accuracy of this information. | | Business Phone #<br>Home Phone #<br>FAX # |

❷ **PROJECT LOCATION**

| Street, Road or other descriptive location | | Legal Description | | | |
|---|---|---|---|---|---|
| | | Quarter | Section | Township | Range |
| In or Near (City or Town) | County | Tax Map # | | Tax Lot # | |
| Waterway<br>Willamette River | River Mile<br>2.0 to 11.0 | County Property Tax Account Number | | | |

Is consent to enter property granted to the Department of State Lands? O Yes O No

❸ **PROPOSED PROJECT INFORMATION**

Activity Type (Check all that apply): Area requested (length x width)

1. O Log rafts/log storage areas _____
2. O Commercial marina and floating home moorages _____
3. O Noncommercial marina and owner-oriented floating home moorages _____
4. O Marine industrial; marine services; fish processing facilities _____
5. O Non-marine uses (restaurant, retail sales, offices, motel, residences, etc.) _____
6. O Historical vessel moorage _____

**OTHER: See project description attached as Exhibit C**

| | | | |
|---|---|---|---|
| Are you aware of any Endangered Species on the project site? | X Yes | O No | If yes, please explain in the project description (on page 2, block 4) |
| Are you aware of any Cultural Resources on the project site? | O Yes | X No | |
| Is the project site near a Wild and Scenic River? | O Yes | X No | |

❹ **PROPOSED PROJECT PURPOSE & DESCRIPTION**

O Existing Facility O Proposed for Construction

**Project Purpose and Need:**

Applicant is an unincorporated group of businesses and local governments, whose members include the ten signatories to the EPA Administrative Order on Consent for a Remedial Investigation and Feasibility Study at the Portland Harbor Superfund Site (US EPA Docket Number CERCLA-10-2001-0240) ("the AOC"). A copy of the AOC, including its Statement of Work, is attached as Exhibit A. Applicant seeks access to submerged and submersible lands owned by DSL between Willamette River miles 2.0 and 11.0 for purposes of performing the Remedial Investigation and Feasibility Study required by the AOC. RI/FS activities will be performed in compliance with an EPA-approved Work Plan and EPA-approved Field Sampling Plans. The LWG is currently awaiting EPA's final approval of its April 23, 2004 Programmatic Work Plan. EPA has conditionally approved the LWG's April 17, 2004 Round 2A Field Sampling Plan for sediment sampling, and the LWG is preparing a final plan responsive to EPA comments. Pursuant to a Memorandum of Understanding, a copy of which is attached as Exhibit B, the Oregon Department of Environmental Quality (DEQ) has reviewed and commented to EPA on both the Programmatic Work Plan and the Round 2A Field Sampling Plan for sediment sampling. A summary of sampling anticipated to be performed in 2004 is attached as Exhibit C.

**Project Description:**

See attached Exhibits A and C.

Applicant understands that the following threatened or endangered species may be present within the Lower Willamette River or adjacent uplands:
Bald Eagle (threatened)
Lower Columbia River Chinook (threatened)
Columbia River Chum (threatened)
Lower Columbia River Steelhead (threatened)

Additionally, Lamprey (all species) and Lower Columbia River Coho are the subject of petitions for listing under consideration by NOAA.

Finally, Oregon Chub are listed as endangered but are not found below Willamette Falls.

Estimated Start Date July 12, 2004 Estimated Completion Date December 31, 2007

## ❺ ADDITIONAL INFORMATION

Please provide the name, address and phone number for all adjoining property owners

See attached Exhibit D.

Has the proposed activity or any related activity received the attention of the Corps of Engineers or the State of Oregon in the past, e.g., wetland delineation, violation, permit, lease request, etc.? ☒ Yes* ○ No

**The Oregon DEQ is the support agency for the Portland Harbor RI/FS. See attached Exhibit B. EPA has involved the Corps of Engineers in many aspects of the Portland Harbor RI/FS.**

If yes, what identification number(s) were assigned by the respective agencies:

Corps # _____

State of Oregon # _____

## ❻ CITY / COUNTY PLANNING DEPARTMENT AFFIDAVIT (to be completed by local planning official)*

***The Applicant seeks a TUP for purposes of sediment sampling in the Willamette River. A TUP for the proposed use is not a permit affecting land use such that a LUCS or other land use compatibility determination is necessary.**

○ This project is not regulated by the local comprehensive plan and zoning ordinance.

○ This project has been reviewed and is consistent with the local comprehensive plan and zoning ordinance.

○ This project has been reviewed and is **not** consistent with the local comprehensive plan and zone ordinance.

○ Consistency of this project with the local planning ordinance cannot be determined until the following local approval(s) are obtained:

- ○ Conditional Use Approval
- ○ Development Permit
- ○ Plan Amendment
- ○ Zone Change
- ○ Other_____

An application ○ has ○ has not been made for local approvals checked above.

| Signature of local planning official | Title | City / County | Date |
|---|---|---|---|
| | | | |

❼ **ATTACH ALL OF THE FOLLOWING:**

**See other figures attached with Exhibit F**

__N/A__ A. Full size assessor map (16 inches x 16 inches), scale: 1 inch = 100 feet, that contains the riparian uplands. Do not mark on this map.

__N/A__ B. A copy of the current year's property tax statement which identifies the present owner's name(s), land values , land size and tax account numbers of the riparian uplands.

__N/A__ C. A separate drawing to a scale of 1 inch = 100 feet of all existing and proposed structures for the lease area. Label each separate activity type stated in Section 3 and show the dimensions of each area by length and width, as stated in Section 3.

__N/A__ D. A street or highway location map with road directions to the site from the nearest main highway or road.

❽ **SIGNATURE FOR JOINT APPLICATION**

**The maximum term for a temporary use permit is 1 (one) year.***

Applicant requests that the Temporary Use Permit remain in affect until EPA provides notice to the AOC signatories that the AOC signatories have completed their obligations under the AOC.

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I understand that the granting of other permits by local, county, state or federal agencies does not release me from the requirement of obtaining the permits requested before commencing the project. I understand that payment of the required state application fee does not guarantee permit issuance.

Robert J. Wyatt
Print /Type Name

Co-Chair
Title

Applicant Signature

May 24, 2004
Date

I appoint the person named below to act as my duly authorized agent.

Print /Type Name

Title

Authorized Agent Signature

Date

Revised 1/8/04

# Portland Harbor Upland Cleanup Sites

Black sites – Not a source of continuing contamination to the river (9)

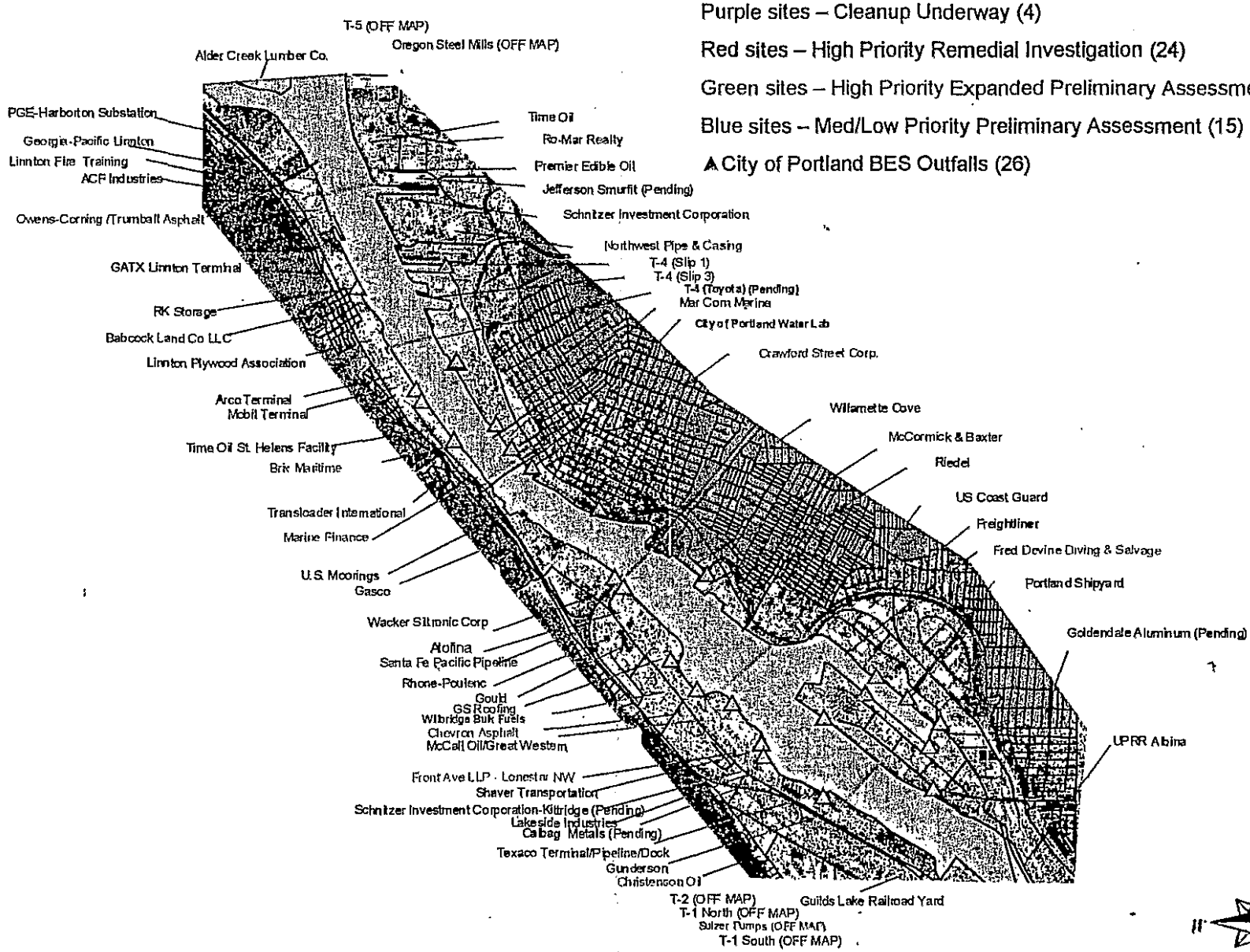
Purple sites – Cleanup Underway (4)

Red sites – High Priority Remedial Investigation (24)

Green sites – High Priority Expanded Preliminary Assessment (11)

Blue sites – Med/Low Priority Preliminary Assessment (15)

▲ City of Portland BES Outfalls (26)




DEQ

State of Oregon
Department of
Environmental
Quality

www.deq.state.or.us/nwr/ph.htm

10/2003

# Summary of Portland Harbor Sites

Cleanup Underway, High Priority Remedial Investigation,* and Expanded Preliminary Assessment**

| Site Name | River Mile | Current Site Use | Contamination | | | | |
|---|---|---|---|---|---|---|---|
| | | | TPH | Metals | PAHs | PCBs | Pest/Herb |
| ACF Industries | 3.5 | Vacant/limited Use | X | X | X | X | |
| ARCO | 4.9 | Bulk Fuel Storage | X | X | X | | |
| Atofina | 7.3 | Vacant/limited Use | X | X | X | X | X |
| Brix Maritime (Foss) | 5.5 | Marine Maintenance | X | X | X | | |
| Chevron Asphalt | 7.9 | Asphalt Mnfg | X | X | X | | |
| Christenson Oil | 8.7 | Bulk Fuel Storage | X | | X | | |
| Crawford St Corp | 6.2 | Vacant/limited Use | | X | X | X | |
| Fred Devine | 8.5 | Marine Operations | | | X | | |
| Front Ave LP | 8.1 | Fabricating & Storage | X | X | X | X | |
| Gasco (NW Natural) | 6.3 | Bulk Fuel/Gas Storage | X | X | X | | |
| Georgia Pacific Linnton | 3.5 | Terminal/Storage | X | | X | | |
| Guilds Lake Rail Yard | 9 | Rail Yard | X? | X? | X? | | |
| Gunderson | 9 | Rail Car Mnfg | | | | | |
| Kinder Morgan (GATX) | 4.2 | Bulk Fuel Storage | X | X | X | | |
| Linnton Oil Fire Training | 3.5 | Vacant/limited Use | X | | X | | |
| Linnton Plywood | 4.7 | Vacant/limited Use | X | X | X | X | |
| MarCom Marine | 5.5 | Barge & Ship Repair | X | X | X | | |
| Marine Finance | 5.8 | Marine Operations | X | X | X | X | |
| McCall Oil | 7.9 | Bulk Fuel Storage | X | X | X | | |
| McCormick & Baxter | 7 | Vacant | X | X | X | | |
| Mobil | 5.2 | Bulk Fuel Storage | X | X | X | | |
| NW Pipe Company | 4 | Pipe Manufacturing | X | X | X | | |
| Oregon Steel Mills | 2.3 | Steel Mill | X | X | X | X | |
| Owens/Corning Trumball | 3.7 | Asphalt Roofing | X | X | X | | |
| Portland Shipyard | 8.5 | Ship Repair | X | X | X | X | |
| Premier Edible Oils | 3.5 | Food Oil Storage | X | | | | |
| Rhone Poulenc | 7.2 | Vacant/limited Use | X | X | X | X | X |
| Schnitzer- Burgard | 4 | Scrap Metal | X | X | X | X | |
| Sulzer Pump | 10.4 | Pump Mnfg | X? | | X? | | |
| Terminal 4, (Port of PDX) | 4.3 | Port Terminal | X | X | X | | |
| Texaco Unloading Dock | 8.7 | Petroleum Unloading | X | X | X | | |
| Time Oil | 3.5 | Bulk Fuel Storage | X | X | X | X | |
| Triangle Park (Rieder) | 7.4 | Vacant/limited Use | X | X | X | X | |
| UPRR Albina Rail Yard | 10.5 | Rail Yard | X | X | X | X | |
| Wacker Siltronics | 6.7 | Silicon Wafer Mnfg | X | X | X | | |
| Willamette Cove | 6.8 | Vacant | X | X | X | X | |
| Willbridge | 7.7 | Bulk Fuel Storage | X | X | X | | X |

*High Priority Remedial Investigation determines the nature and extent of contamination at a site (what hazardous substances are present, how much there is, where it is, etc.). Includes the completion of one or more Risk Assessments.

**A Preliminary Assessment is an initial investigation of a potentially contaminated site that includes a review of the site's history and a study of the surrounding area to determine whether the site is contaminated and what threats may be posed by that contamination. An Expanded Preliminary Assessment includes initial sampling of air, soil, groundwater, surface water and sediments to confirm whether contamination exists.

**TPH** Total Petroleum Hydrocarbons (gasoline diesel, etc)
**PAHs** Polynuclear Aromatic Hydrocarbons (oil, creosote, coal tar, etc)
**PCBs** Polychlorinated Biphenyls
**Pest/Herb** Pesticides/Herbicides

KNAPPTON CORPORATION
9030 N.W. St. Helens Road
Portland, Oregon 97231

Palantine Investment Co

I, Arthur A. Riedel the holder of 12796.56 shares of stock of Knappton Corporation, do appoint PETER BRIX (ADMIRAL) as my proxy to attend the annual meeting of stockholders of Knappton Corporation to be held on April 19, 1982 or at any continuation or adjournment of the meeting with full power to vote and act for me to the extent to which I might act if I were personally present, giving to the named proxy full power of substitution and revocation. Each proxy given by me to any person before the giving of this proxy is revoked.

Dated this 12 day of APRIL, 1982.

In presence:

Donna J Cole

DONNA COLE

FILED

SEP 30 1982 1:30 PM

AGREEMENT AND PLAN OF MERGER

THIS AGREEMENT AND PLAN OF MERGER (the "Merger Agreement") made and entered into as of the 29th day of September, 1982 by and between Knappton Corporation ("New Knappton"), a corporation organized and existing under the laws of the State of Delaware, and Knappton Corporation ("Knappton"), a corporation organized and existing under the laws of the State of Washington, said New Knappton and Knappton hereinafter sometimes referred to collectively as the "Constituent Corporations."

WITNESSETH:

WHEREAS, the authorized capital stock of New Knappton consists of 1,000 shares of common stock, par value $1.00 per share, of which 1,000 shares were outstanding as of July 30, 1982 and held by Twin City Barge, Inc. ("TCB"), a Delaware corporation.

WHEREAS, the authorized capital stock of TCB consists of 6 million shares of common stock, par value $1.00 per share ("TCB Common Stock"), of which approximately 2.1 million shares were outstanding as of June 30, 1982 with approximately 140,000 additional shares held in treasury; and 10,000 shares of preferred stock, par value $1,000.00 per share, of which no shares were issued or outstanding at June 30, 1982.

WHEREAS, the authorized capital stock of Knappton consists of 400,000 shares of common stock, no par value, of which 95,045.7 Class A voting and 39,634.74 Class B nonvoting shares were outstanding as of July 30, 1982 with 40,187 additional Class A voting shares and 575.84 additional Class B nonvoting shares held in treasury.

WHEREAS, concurrently with the execution and delivery of this Merger Agreement, TCB, New Knappton, Knappton, and certain stockholders of Knappton (the "Stockholders") are entering into a supplemental agreement dated as of the date hereof (the "Supplemental Agreement") setting forth certain representations, warranties, conditions and agreements relating to the merger provided for herein (the "Merger").

WHEREAS, it is intended that the Merger take place pursuant to the laws of the States of Delaware and Washington (as applicable to the respective Constituent Corporations), and qualify as a Reorganization contemplated at Sections 368(a)(1)(A) and 368(a)(2)(D) of the Internal Revenue Code.

WHEREAS, the respective Boards of Directors of New Knappton, Knappton, and TCB deem the Merger desirable and in the best interests of their respective stockholders; the respective Boards of Directors of New Knappton and Knappton have duly adopted resolutions approving this Merger Agreement and directing that the same be submitted to their respective stockholders for consideration and approval or rejection; and the Board of Directors of TCB has duly adopted resolutions approving the Merger Agreement without need for approval by TCB's stockholders.

NOW THEREFORE, in consideration of the premises and of the mutual covenants and agreements contained herein, and for the purpose of prescribing the terms and conditions of the Merger, the mode of carrying the same into effect, the manner of converting the shares of Knappton capital stock into cash and securities of TCB, and such other provisions as are deemed necessary or desirable, the parties hereto have agreed and do hereby agree, subject to the terms and conditions hereinafter set forth, as follows.

## ARTICLE I

In accordance with the provisions of this Merger Agreement and the applicable statutes of the States of Delaware and Washington, Knappton will be merged with and into New Knappton, which will be and is herein sometimes referred to as the "Surviving Corporation" and the name of which will remain unchanged.

## ARTICLE II

This Merger Agreement having been duly approved by the respective Boards of Directors of TCB and each of the Constituent Corporations, and by the respective stockholders of each of the Constituent Corporations, the Merger will become effective (the "Effective Time of Merger") upon filing as provided in the applicable statutes of the States of Delaware and Washington. For corporate accounting purposes, however, TCB and New Knappton may show the Merger to be effective from the first day of any month within the 30 days immediately preceding the approval of the Merger by the respective stockholders of each of the Constituent Corporations.

## ARTICLE III

As of the Effective Time of Merger, by virtue of the Merger and without any action on the part of the holder of any share of capital stock of either of the Constituent Corporations: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Section 1. All shares of capital stock of Knappton (the "Knappton Shares") that are held as treasury stock and any Knappton Shares owned by TCB or any subsidiary of TCB will be cancelled, and no securities of any corporation or cash or other property will be delivered in exchange therefor under this Merger Agreement.

Section 2. All other issued and outstanding Knappton Shares will be exchanged automatically for cash and securities of TCB in accordance with Sections 3 and 4 below. The shares of TCB Common Stock to be so exchanged will be rounded up or down to a full share of TCB Common Stock to eliminate fractional shares, and will include all shares of TCB Common Stock held as treasury stock.

Section 3. In the event all 134,680.44 currently issued and outstanding Knappton Shares are exchanged in the Merger, the cash and securities of TCB exchanged therefor in the Merger will be as follows:

Exchange Schedule

| From TCB | For Each Knappton Share | For All Knappton Shares in the Aggregate |
|---|---|---|
| (i) Shares of TCB Common Stock, par value $1.00 per share. | 6.170161 Shs. | 831,000 Shs. |
| (ii) Cash on closing. | $11.73668865 | $1,580,702 |

Section 4. In the event less than all 134,680.44 currently issued and outstanding Knappton Shares are exchanged in the Merger, whether due to prior redemption by Knappton or otherwise, the aggregate amount of cash on closing and the aggregate number of shares of TCB Common Stock described at Section 3 above will be reduced pursuant to the following calculation:

(i) The amount of $3,550,000 will be reduced by the amount paid by Knappton in so reducing the number of Knappton Shares to be exchanged in the Merger;

(ii) The aggregate amount of cash on closing will be determined by dividing $1,300,000 by a fraction the numerator of which is 110,763.78 and the denominator of which is the number of Knappton Shares remaining for exchange in the Merger;


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(iii) The aggregate number of shares of TCB Common Stock to be exchanged in the Merger, excluding a constant base of 700,000 shares, will be determined by subtracting the result of step (ii) above from the result of step (i) above and then dividing the balance by 15.

In any event each Stockholder currently owning more than five percent of the Knappton Shares will so exchange all of his Knappton Shares in the Merger. Further, the total of (x) all redemption payments so made by Knappton, (y) the result of step (ii) above, and (z) the number of shares calculated at step (iii) above times $15 (excluding the constant base of 700,000 shares) will equal $3,550,000. To give effect to the cost of any such redemption, an appropriate adjustment will be made in the number of shares of TCB Common Stock issued for each Knappton Share that remains for exchange in the Merger.

ARTICLE IV

Section 1. The cash and securities to be issued by TCB in connection with the Merger will be deemed issued at the Effective Time of Merger. After the Effective Time of Merger, upon the surrender by the stockholders of Knappton to the Secretary of TCB (the "Exchange Agent") of the certificate or certificates that prior to the Effective Time of Merger evidenced ownership of Knappton Shares, the Exchange Agent will deliver to such former owners of Knappton Shares the cash and securities of TCB to which they are entitled pursuant to Article III hereof. After the Effective Time of Merger, the Knappton Shares will cease to be shares of stock of Knappton, regardless of whether surrendered. Until so surrendered, each certificate evidencing ownership of Knappton Shares at the Effective Time of Merger will be deemed to evidence the ownership of the cash and securities of TCB to be exchanged therefor in the Merger. No dividends or interest with respect to TCB securities exchanged in the Merger will be paid to holders of any unsurrendered certificate evidencing ownership of Knappton Shares at the Effective Time of Merger, however, until such holder surrenders such certificate. In no event will such holder entitled to receive such dividends or interest be entitled to receive any interest thereon, or any interest upon the cash he is entitled to receive pursuant to Article III hereof. If any TCB securities are to be issued in a name other than the name in which the certificate for Knappton Shares surrendered in exchange therefor is registered, as a condition to such change the person requesting the change will pay to the Exchange Agent any transfer or other taxes required



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by reason of the issuance of TCB securities in a name other than the registered holder of the certificate surrendered, or will establish to the satisfaction of the Exchange Agent that such tax has been paid or is not applicable. Notwithstanding the foregoing, neither the Exchange Agent nor either of the Constituent Corporations or TCB will be liable to a holder of Knappton Shares for any cash or TCB securities or dividends or interest thereon delivered to a public official pursuant to any applicable abandoned property, escheat, or similar law.

Section 2. At the Effective Time of Merger, the stock transfer books of Knappton will be closed, and no transfer of Knappton Shares will thereafter be made.

ARTICLE V

At the Effective Time of Merger, the Certificate of Incorporation of New Knappton will continue to be its Certificate of Incorporation. Until further altered or amended as provided therein or as provided by law, said Certificate of Incorporation will constitute the Certificate of Incorporation of the Surviving Corporation. Such Certificate of Incorporation, separate and apart from this Merger Agreement and from the Supplemental Agreement, will be, and may be separately certified as, the Certificate of Incorporation of New Knappton as the Surviving Corporation. From and after the Effective Time of Merger, the Surviving Corporation reserves the right to amend, alter, change or repeal its Certificate of Incorporation as therein provided.

ARTICLE VI

Section 1. The By-Laws of New Knappton as in effect at the Effective Time of Merger will be the By-Laws of the Surviving Corporation from and after the Effective Time of Merger until duly altered, amended or repealed.

Section 2. The directors and officers of New Knappton as the Surviving Corporation immediately after the Effective Time of Merger will be as follows, to serve until their respective successors are elected and qualified:


Confidential Business Information

Directors

Peter J. Brix
James B. Thayer
Ben E. Fellows

Officers

| | |
|---|---|
| Peter J. Brix | President and Chief Executive Officer |
| Edward S. Beall | Executive Vice President and Chief Operating Officer |
| Robert J. Hasler | Senior Vice President |
| Robert A. Hindman | Senior Vice President and Treasurer |
| Fred O. Meyer | Senior Vice President |
| J. Michael Wallace | Vice President |
| Wendy M. Anderson | Secretary |

The directors and officers designated will so serve without further action by the Boards of Directors or shareholders of TCB and the Constituent Corporations.

Section 3. If at the Effective Time of Merger a vacancy exists on the Board of Directors or in any of the offices of New Knappton, the vacancy may thereafter be filled in the manner provided in the By-Laws of the Surviving Corporation.



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## ARTICLE VII

Section 1. Certain conditions precedent to the consummation of the Merger, as well as the representations, warranties and agreements of the parties made in connection with this Merger Agreement, are set forth in the Supplemental Agreement.

Section 2. This Merger Agreement may be terminated or abandoned, at any time prior to the filing of the Merger Agreement with the respective Secretaries of State of the States of Delaware and Washington, by the Boards of Directors of either New Knappton or Knappton, whether prior to or after approval of this Merger Agreement by the stockholders of Knappton and New Knappton, in the event of (a) the mutual written agreement of both such Boards of Directors or (b) termination of the Supplemental Agreement.

## ARTICLE VIII

At the Effective Time of Merger, without further action, the separate existence of Knappton will cease, and the corporate existence and identity of New Knappton as the Surviving Corporation will continue under the name specified in its Certificate of Incorporation. New Knappton will have all of the rights, privileges, immunities and powers and will be subject to all the duties and liabilities of a corporation organized under the State of Delaware General Corporation Law. New Knappton will thereupon and thereafter, to the extent consistent with its Certificate of Incorporation, possess all the rights, privileges, immunities, and franchises as well of a public as of a private nature of each of the Constituent Corporations; all property, real, personal, and mixed, and all debts due on whatever account, including subscriptions to shares, and all other choses in action, and all and every other interest, of or belonging to or due to each of the Constituent Corporations, will be taken and deemed to be transferred to and vested in New Knappton without further act or deed; and the title to any real estate, or any interest therein, vested in any of the Constituent Corporations will not revert or be in any way impaired by reason of the Merger.

New Knappton will thenceforth be responsible and liable for all the liabilities and obligations of each of the Constituent Corporations; and any claim existing or action or proceeding pending by or against any of the Constituent Corporations may be prosecuted to judgment as if the Merger had not taken place, or New Knappton may be substituted in its place. Neither the rights of creditors nor any liens upon the property of any of the Constituent Corporations will be impaired by the Merger.


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## ARTICLE IX

From time to time at and after the Effective Time of Merger as and when requested by New Knappton, or by its successors or assigns, the last acting officers of Knappton will execute and deliver or cause to be executed and delivered all such deeds and other instruments, and will take or cause to be taken all such further or other actions in the name of Knappton, as New Knappton, and its successors or assigns, may deem necessary or desirable in order to vest in and confirm to New Knappton and its successors or assigns title to and possession of all the property, rights, privileges, powers and franchises referred to in Article VIII hereof and otherwise to carry out the intent and purposes of this Merger Agreement. If New Knappton will at any time deem that any further assignments or assurances of law or any other acts are necessary or desirable to vest, perfect or confirm of record or otherwise the title to any property or to enforce any claims of Knappton acquired pursuant to this Merger Agreement, the officers of New Knappton at that time are hereby specifically authorized as attorneys-in-fact of Knappton, and each of them (this appointment being irrevocable as one coupled with an interest), to execute and deliver any and all such proper deeds, assignments and assurances of law and to do all such other acts, in the name and on behalf of New Knappton or otherwise, as such officers may deem necessary or appropriate to accomplish such end.

## ARTICLE X

For the convenience of the parties hereto and to facilitate the filing and recording of this Merger Agreement, any number of counterparts hereof may be executed, and each such counterpart will be deemed to be an original instrument, and all such counterparts will together constitute the same agreement.

This Merger Agreement will not be altered or otherwise amended except pursuant to an instrument in writing executed and delivered on behalf of each of the parties hereto, which instrument, when so executed and delivered, will thereupon become a part of this Merger Agreement, and the provisions thereof will be given effect as if contained in this Merger Agreement at the date hereof.


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This Merger Agreement and the legal relations between the parties hereto will be governed by and construed in accordance with the laws of the State of Delaware, except as otherwise required.

Except as otherwise specifically provided herein, nothing expressed or implied in this Merger Agreement is intended, or will be construed, to confer upon or give any person, firm or corporation, other than the Constituent Corporations and their respective stockholders, any rights or remedies under or by reason of this Merger Agreement.

IN WITNESS WHEREOF, each of the Constituent Corporations, pursuant to the approval and authority duly given by resolutions adopted by their respective Boards of Directors, has executed this Merger Agreement as of the date first above written.

[SEAL]

KNAPPTON CORPORATION
(Delaware)

By John W. Lambert
John W. Lambert
President

ATTEST:

Robert E. Maher
Robert E. Maher
Secretary

Signatures of Directors:

John W. Lambert
John W. Lambert

John A. McFarland
John A. McFarland

Robert E. Maher
Robert E. Maher

Being a majority of the members of the Board of Directors of Knappton Corporation, a Delaware corporation.

[SEAL]

KNAPPTON CORPORATION
(Washington)

By _____
Peter J. Brix
President

ATTEST:

_____
Wendy M. Anderson
Secretary

Signatures of Directors:

_____
Peter J. Brix

_____
James B. Thayer

_____
John B. Altstadt

Being a majority of the members of the Board of Directors of Knappton Corporation, a Washington corporation.



Confidential Business Information

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## CERTIFICATION

I, Robert E. Maher, hereby certify that I am the duly elected, qualified, and acting secretary of Knappton Corporation, a Delaware corporation (the "Corporation"); that I have in my custody the minutes of meetings and consents in lieu thereof of the Board of Directors and stockholders of the Corporation; and that I am duly authorized to make this certification on its behalf.

I further certify that, after the foregoing Agreement and Plan of Merger (the "Merger Agreement") was duly signed by a majority of the members of the Board of Directors of the Corporation, notice of a special meeting of the stockholders of the Corporation was given, such meeting was held on August 20, 1982, and shares representing at least two-thirds of the outstanding shares of common stock of the Corporation including all shares entitled to vote at the meeting were voted in favor of the adoption of the Merger Agreement, all in accordance with the provisions of the Delaware General Corporation Law; and that by said stockholder vote the Merger Agreement was duly approved by the stockholders of the Corporation.

Dated: August 20, 1982

Robert E. Maher

Robert E. Maher
Secretary
Knappton Corporation, a
Delaware corporation


Confidential Business Information
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CERTIFICATION

I, Wendy M. Anderson, hereby certify that I am the duly elected, qualified, and acting secretary of Knappton Corporation, a Washington corporation (the "Corporation"); that I have in my custody the minutes of meetings and consents in lieu thereof of the Board of Directors and stockholders of the Corporation; and that I am duly authorized to make this certification of its behalf.

I further certify that, after the foregoing Agreement and Plan of Merger (the "Merger Agreement") was duly signed by a majority of the members of the Board of Directors of the Corporation, notice of a special meeting of the stockholders of the Corporation was given, such meeting was held on August 16,1982, and shares representing at least two-thirds of the outstanding shares of common stock of the Corporation including all shares entitled to vote at the meeting were voted in favor of the adoption of the Merger Agreement, all in accordance with the provisions of the Washington Business Corporation Act; and that by said stockholder vote the Merger Agreement was duly approved by the stockholders of the Corporation.

Dated: August 20, 1982

Wendy M. Anderson

Wendy M. Anderson
Secretary
Knappton Corporation, a
Washington corporation


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EXECUTION AND ACKNOWLEDGEMENT

The foregoing Agreement and Plan of Merger ("Merger Agreement"), having been executed by the President and Secretary and a majority of the members of the Board of Directors of each party thereto (collectively, the "Constituent Corporations") and having been adopted by the stockholders of each Constituent Corporation in accordance with the requirements of the state of incorporation of each Constituent Corporation, and that fact having been certified by the Secretary of each Constituent Corporation, the President and Secretary of each Constituent Corporation hereby execute the Merger Agreement on behalf of their respective corporations this 23rd day of September, 1982.

[SEAL]

KNAPPTON CORPORATION
(Delaware)

By John W. Lambert
John W. Lambert
President

ATTEST:

Robert E. Maher
Robert E. Maher
Secretary

STATE OF MINNESOTA )
) SS
COUNTY OF DAKOTA )

On this 23rd day of September, 1982, before me appeared John W. Lambert, to me personally known, who, being by me duly sworn did say that he is the President of Knappton Corporation, a Delaware corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed on behalf of said corporation by authority of its Board of Directors; and he acknowledged said instrument to be the free act and deed of the corporation.

Charlene Danich
Notary Public

My commission expires:

CHARLENE DANICH
NOTARY PUBLIC-MINNESOTA
DAKOTA COUNTY
MY COMM. EXPIRES SEPT. 14, 1988

[SEAL]

KNAPPTON CORPORATION
(Washington)

By Peter J. Brix
Peter J. Brix
President

ATTEST:

Wendy M. Anderson
Wendy M. Anderson
Secretary

STATE OF OREGON )
) SS
COUNTY OF MULTNOMAH )

On this 27th day of September, 1982, before me appeared Peter J. Brix, to me personally known, who, being by me duly sworn did say that he is the President of Knappton Corporation, a Washington corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed on behalf of said corporation by authority of its Board of Directors; and he acknowledged said instrument to be the free act and deed of the corporation.

Rosemarie Torrence
Notary Public

My commission expires:

3-19-84



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00015671

RECORDED DOCUMENT SEARCH LIST

1. Warranty Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Martin W. Hawkins and Bertha B. Hawkins, his wife |
| Grantee: | Portland Manufacturing Co., an Oregon Corporation |
| Recorded: | August 8, 1935, Book: 303, Page: 91 |
| Affects | Portion lying Southeasterly of N. line of W.W. Baker Donation Land Claim with additional property |

2. Easement to: Portland General Electric Company
   Recorded: July 25, 1944, Book: 854, Page: 298
   Exact location not disclosed

3. Warranty Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Portland Manufacturing Company, an Oregon Corporation |
| Grantee: | State of Oregon, by and through its State Highway Commission |
| Recorded: | June 9, 1961, Book: 2066, Page: 32 |
| Affects | Boundary Parcel lying Westerly of railroad strip |

4. Easement from: Portland Manufacturing Company
   To: Olympic Pipe Line Company, a Delaware corporation
   Recorded: January 28, 1965, Book: 220, Page: 389
   For: pipe lines

5. Bargain and Sale Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Portland Manufacturing Company |
| Grantee: | Oregon Asset Company, an Oregon Corporation |
| Recorded: | February 18, 1965, Book: 234, Page: 203 |
| Affects | Additional property except portion between Easterly line of Donation Land Claims and the low water mark of the Willamette River |

6. Statutory Warranty Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Portland Manufacturing Company |
| Grantee: | Oregon Asset Company, an Oregon Corporation |
| Recorded: | June 10, 1965, Book: 312, Page: 27 |
| Affects | a portion lying between the East line of the Watts Donation Land Claim and the low water mark with additional property |



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7. Memorandum of Contract
   From: Oregon Asset Company
   To: Glen A. Widing
   Recorded: November 18, 1971, Book: 825, Page: 338
   Affects: additional property

8. Right of Encroachment Agreement
   Between: The City of Portland, a municipal corporation of the State of Oregon
   And Olympic Pipe Line Co., a Delaware corporation
   Recorded: April 5, 1972, Book: 849, Page: 178

9. Easement for a road for access purposes as disclosed by warranty deed
   From: Glen A. Widing
   To: General Construction Company, a corporation
   Recorded: January 29, 1973, Book: 907, Page: 551

10. Bargain and Sale Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Oregon Asset Company |
| Grantee: | Glen A. Widing |
| Recorded: | January 29, 1973, Book: 907, Page: 555 |
| Affects | Additional property |

11. Warranty Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Glen A. Widing |
| Grantee: | Portland Terminals Co., a Nevada corporation |
| Recorded: | February 7, 1973, Book: 908, Page: 1420 |
| Affects | Boundary property Northwesterly of the subject property |

12. Bargain and Sale Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Glen A. Widing |
| Grantee: | Arthur A. Riedel |
| Recorded: | February 21, 1973, in Book: 911, Page: 1 |
| Affects | Subject property |

13. Easement for sewers
   From: Glen A. Widing
   To: The City of Portland
   Recorded: March 14, 1973, Book: 914, Page: 1895



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14. Bargain and Sale Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Arthur A. Riedel |
| Grantee: | The Siegrfied Company, an Oregon partnership consisting of Arthur A. Riedel and Peter J. Brix |
| Recorded: | July 6, 1981, in Book: 1535, Page: 796 |
| Affects | The subject property |

15. Quit claim Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | The Siegrfied Company, an Oregon general partnership consisting of Arthur A. Riedel and Peter J. Brix and Arthur A. Riedel, individually |
| Grantee: | Peter J. Brix |
| Recorded: | September 21, 1993, Book: 2754, Page: 1728 |
| Affects | The subject property |

16. Statutory Warranty Deed, including the terms and provisions thereof.

| | |
|---|---|
| Grantor: | Peter J. Brix |
| Grantee: | Brix Maritime Co., a Delaware Corporation |
| Recorded: | September 22, 1993, in Book: 2755, Page: 879 |
| Affects | The subject property |

Thank you very much for doing business with Western American Property Research. If you have any questions, please contact Michael L. Murdoch, the title Examiner or Thomas R Moore, Unit Supervisor at 796-6616.

WESTERN AMERICAN PROPERTY RESEARCH



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00015694

EXHIBIT "A"

A tract of land situated in the Northeast one-quarter of Section 11, Township 1 North, Range 1 West of the Willamette Meridian, in the County of Multnomah and State of Oregon, more particularly described as follows:

Beginning at a brass cap set at the intersection of the North line of the W.W. Baker Donation Land Claim and the Northeasterly line of the S.P.& S. Railroad Co. 60.00 foot right-of-way; thence South 40°42'25" East along said right-of-way a distance of 39.79 feet to a point of tangent curve, thence along the arc of a 11,429.16 foot radius curve to the left, through a central angle of 2°39'43", an arc distance of 531.00 foot (the long chord bears South 42°02'17" East a distance of 530.95 feet) to a point; thence North 53°19'15" East a distance of 382.01 feet to the Willamette River Harbor Line; thence North 38°15'21" West along said Harbor line, a distance of 510.37 feet to a point; thence South 62°37'35" West parallel with said North line of the W.W. Baker Donation Land Claim, a distance of 406.17 feet to a point in the Northeasterly line of the S.P. & S. Railroad Co. 100.00 foot right-of-way; thence South 40°42'25" East along said right-of-way a distance of 10.89 feet to the North line of the W.W. Baker Donation Land Claim; thence South 62°37'35" West along said North line a distance of 20.55 feet to the point of beginning AND TOGETHER WITH a non-exclusive easement to build and maintain a road for access purposes over a strip of land 25 feet wide, said 25 foot wide strip being described as follows: Beginning at a point on the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way which is North 40°42'25" West 10.89 feet from the intersection of said Northeasterly right-of-way line with the Northerly line of the W.W. Baker Donation Land Claim; thence South 40°42'25" East 10.89 feet to said intersection; thence South 11° East 40.35 feet to an iron rod in the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way, said iron pipe being South 40°42'25" East 39.79 feet from the Northerly line of the W.W. Baker Donation Land Claim; thence along said Northeasterly line of the 60 foot railroad right-of-way, along the arc of an 11,429.16 foot radius curve to the left, the chord of which bears South 42°08'45" East, an arc distance of 574.05 feet to the an iron rod; thence continuing along said Northeasterly line of the 60 foot railroad right-of-way, South 43°35'05" East, 647.97 feet to the Northerly line of Block "C", SPRINGVILLE, being the Southerly line of what was formerly part of N.W. Ferry Street; thence North 53°19'15" East along said Southerly line of Old N.W. Ferry Street to a point which bears North 46°24'55" East 25 feet from, at right angles to, said railroad right-of-way; thence Northwesterly along a line parallel with and 25 feet Northeasterly from, when measured at right angles to, the Northeasterly right-of-way line of the S.P. & S. Railroad Co. 60 foot right-of-way, a distance of 1224 feet, more or less, to a point which bears North 48°17'35" East 25 feet from the iron rod first designated above, (said iron rod being on the Northeasterly line of the S.P. & S. Railroad Co. 60 foot right-of-way at a point which is south 40°42'25" East 39.79 feet from the Northerly line of the W.W. Baker Donation Land Claim); thence North 11° West 40.35 feet to a point which bears North 48°17'35" East 25 feet from the intersection of the Northerly line of the N.W. Baker Donation Land Claim with the Northeasterly line of the S.P. & S. Railroad Co. 100 foot right-of-way; thence North 40°42'25" West 5.0 feet, more or less, to a point which bears North 62°37'35" East from the point of beginning; thence South 62°37'35" West 26 feet, more or less, to the point of beginning.



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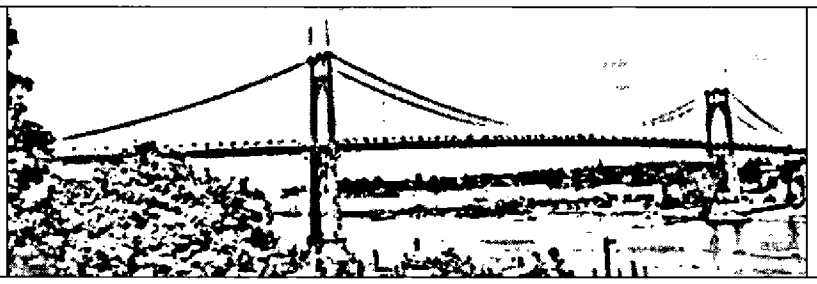

# PORTLAND HARBOR
# JOINT SOURCE CONTROL STRATEGY

**FINAL**

**DECEMBER 2005**

This document provides information and technical assistance to the public and employees of the Oregon Department of Environmental Quality (DEQ) and U.S. Environmental Protection Agency (EPA) regarding the agencies cleanup programs. The information contained in this document should be interpreted and used in a manner that is fully consistent with the State's and EPA's environmental cleanup laws and implementing rules. This document does not constitute rulemaking by the Oregon Environmental Quality Commission or by EPA, and may not be relied upon to create a right or benefit, substantive or procedural, enforceable in law or equity, by any person, including the DEQ or EPA. DEQ or EPA may take action at variance with this document.

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# Joint Source Control Strategy Principles

The following bullets present the Oregon Department of Environmental Quality's (DEQ) and U.S. Environmental Protection Agency's (EPA) underlying principles of the Joint Source Control Strategy (JSCS):

- The JSCS represents a framework for making upland source control decisions at the Portland Harbor Superfund Site. All source control determinations are site specific based on facts determined through upland remedial investigations and the Portland Harbor Remedial Investigation and Feasibility Study (RI/FS).
- The overarching goal of the JSCS is to identify, evaluate, and control sources of contamination that may reach the Willamette River, in a manner consistent with the objectives and schedule of the Portland Harbor RI/FS. Upland source control should be completed to the extent practicable prior to sediment cleanup in the Portland Harbor Superfund Site.
- Upland sources of contamination that adversely impact or have the potential to adversely impact the Willamette River, within the Portland Harbor Superfund Site, should be addressed in accordance with the MOU[1] and the JSCS.
- DEQ is implementing a timeline by which, unless an upland facility is recalcitrant, the goal of screening, identifying, and evaluating sites needing source control should be complete by the time EPA issues the Portland Harbor Record of Decision (ROD).
- Uncontrolled upland sources of contamination in the Portland Harbor Superfund Site may be considered for CERCLA[2] cleanup in an EPA Portland Harbor Record of Decision (ROD).
- The Upland Potentially Responsible Party (PRP) is responsible for upland source control and the focus of their work should be to identify, evaluate, and control or eliminate upland sources of contamination to the Willamette River. It is the Upland PRP's responsibility to collect in-water data if the data are needed to determine if there is a current or potentially complete contaminant migration pathway to the river; make source control decisions; or design and implement source control measures.
- The Lower Willamette Group (LWG)[3] is responsible for characterizing and evaluating the impacts of the off-shore contamination from upland sources to the river through the Portland Harbor remedial investigation/feasibility study (RI/FS).
- Source Control Screening Level Values (SLVs) used in this JSCS to assess potential threats to the Willamette River from upland sources include medium-specific (*e.g.*, water,

[1] MOU – Memorandum of Understanding between EPA, DEQ, and other governmental parties, dated February 8, 2001.

[2] CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act commonly known as Superfund, was enacted by Congress on December 11, 1980 (U.S. Code – Title 42 Chapter 103). CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

[3] EPA entered into an Administrative Order on Consent (AOC) with a group of responsible parties who are members of the Lower Willamette Group (LWG).



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soil) and chemical-specific standards or guidelines. SLVs may be used in two ways: first, they will be used in screening level risk assessments and second, they may be used as helpful comparisons to prioritize source control tasks. The EPA Portland Harbor ROD(s) will establish contaminant specific cleanup levels based on identified applicable or relevant and appropriate requirements (ARARs) or risk-based levels.

- Upland sources of contamination threatening the river will be screened against the SLVs. Exceedance of an SLV does not necessarily indicate the upland source of contamination poses an unacceptable risk to human health or the environment, but does require further consideration of the need for source control using a weight-of-evidence evaluation. Screening results and consideration of other factors identified in Section 4.4 will be used by DEQ and EPA to prioritize the sites as high, medium, and low priority. The initial point of compliance for screening should be near the point of discharge[4] to the river.
- A high-priority site will typically be defined as having an ongoing source of contamination that significantly exceeds an SLV at the point of discharge to the river or represent an imminent and substantial threat to human health or the environment, based on a consideration of site specific information. High-priority sites identified by the DEQ and EPA must move forward with aggressive evaluation of pathway specific source control measures and source control implementation as deemed necessary by DEQ and EPA.
- A medium-priority site will typically be defined as exceeding an SLV at the point of discharge to the river. Medium priority sites will undergo a weight-of-evidence evaluation, and upland information may be supplemented by in-water data during the process. DEQ and EPA will then determine if source control is necessary.
- A low-priority site will typically be defined as not exceeding appropriate SLV at the point of discharge to the river. No further source control efforts will be required at this time for low-priority sites.
- An excluded site is defined as having no contaminant source and/or no current or reasonably likely complete contaminant pathway to the river.
- Consistent with the February 2001 MOU, the DEQ is lead agency for the identification, evaluation, and control of upland contaminant sources to the Portland Harbor Superfund Site. The DEQ will provide opportunity for EPA and its partners to offer input on source control documents, as needed. The JSCS identifies the source control decisions that DEQ will submit to EPA and its partners for review and comment.
- Source control evaluations and implementation of source control measures must be integrated into an overall project schedule. DEQ will keep EPA and its partners apprised of source control progress through tracking spreadsheets and periodic meetings.
- Upland source control and in-water cleanup actions should be integrated, where appropriate.

[4] "Point of Discharge" – screening locations are defined by media in Section 5 of this document. Representative sampling points for site prioritization and source control decisions should be defined appropriately for each contaminant migration pathway.



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- Information contained in the EPA Portland Harbor ROD(s) will help confirm whether upland sources have been controlled sufficiently to ensure protection of human health and the environment.

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**PORTLAND HARBOR JOINT SOURCE CONTROL STRATEGY**

**Final**

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**Appendix D: Framework for Portland Harbor Storm Water Screening Evaluations**



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# LIST OF ACRONYMS

| | |
|---|---|
| **ACG** | Analytical concentration goal |
| **AOC**: | Administrative Order on Consent |
| **ARAR**: | Applicable or relevant and appropriate requirements |
| **AWQC**: | Ambient Water Quality Criteria |
| **BMP**: | Best Management Practice |
| **CERCLA**: | Comprehensive Environmental Response, Compensation, and Liability Act (also know as "Superfund") |
| **CLP**: | Contract Laboratory Program |
| **COI**: | Chemicals (or contaminants) of interest |
| **COPC**: | Chemicals (or contaminants) of potential concern |
| **CSM**: | Conceptual site model |
| **CSO**: | Combined sewer overflow |
| **DEQ**: | Oregon Department of Environmental Quality |
| **DNAPL**: | Dense non-aqueous phase liquid |
| **ECSI**: | Environmental Cleanup Site Information database |
| **EE/CA**: | Engineering Evaluation/Cost Analysis |
| **EPA**: | U.S. Environmental Protection Agency |
| **FFS**: | Focused feasibility study |
| **FS**: | Feasibility Study |
| **FSP**: | Field Sampling Plan |
| **g/day**: | Grams per day |
| **IRM**: | Interim remedial measure |
| **ISA**: | Initial Study Area |
| **JSCS**: | Joint Source Control Strategy |
| **$K_{oc}$**: | Organic carbon-normalized soil-water partition coefficient |
| **$K_{ow}$**: | Octanol-water partition coefficient |
| **LCV**: | Lowest chronic value |
| **LNAPL**: | Light non-aqueous phase liquid |
| **LWG**: | Lower Willamette Group |
| **MCL**: | Maximum contaminant level |



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## LIST OF ACRONYMS
## (Continued)

**mg/kg**: Milligrams per kilogram

**mg/L**: Milligrams per liter

**MOU**: Memorandum of Understanding

**MRL**: Method Reporting Limit

**NAPL**: Non-aqueous phase liquid

**NCP**: National Oil and Hazardous Substances Pollution Contingency Plan

**NFA**: No Further Action

**NPDES**: National Pollution Discharge Elimination System

**NPL**: National Priorities List

**NRWQC**: National Recommended Water Quality Criteria

**OAR**: Oregon Administrative Rules

**ORNL**: Oak Ridge National Laboratory

**ORS**: Oregon Revised Statute

**PA**: Preliminary Assessment

**PAH**: Polynuclear aromatic hydrocarbons

**PCB**: Polychlorinated biphenyls

**PEC**: Probable effects concentration

**PQL**: Practical Quantification Limit

**PRG**: Preliminary remediation goal

**PRP**: Potentially responsible party

**RCRA**: Resource Conservation and Recovery Act

**RI**: Remedial Investigation

**RI/FS**: Remedial Investigation and Feasibility Study

**RM**: River mile

**ROD**: Record of Decision

**SARA**: Superfund Amendments and Reauthorization Act

**SI**: Site Investigation

**SLV**: Screening Level Value



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## LIST OF ACRONYMS
## (Continued)

**TCT**: Technical Coordination Team

**TEC**: Threshold Effects Concentration

**µg/L**: Micrograms per liter

**VOC**: Volatile organic compound

**XPA**: Expanded preliminary assessment



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# Section 1 Introduction

## 1.1 Joint Source Control Strategy Objectives

On December 1, 2000, a section of the Willamette River within the City of Portland, the Portland Harbor, was added to the Superfund National Priority List (NPL). The Portland Harbor cleanup includes upland and in-water contamination. In February 2001, Oregon Department of Environmental Quality (DEQ), United States Environmental Protection Agency (EPA), and other governmental parties signed a Memorandum of Understanding (MOU) that provided a framework for coordination and cooperation in the management of the Portland Harbor Superfund Site to optimize federal, state, tribal, and trustee expertise and available resources.

Under the February 2001 MOU, it was agreed that the DEQ, using state cleanup authority, has lead technical and legal responsibility for the upland contamination and for coordinating with the EPA on upland contamination which may impact the river (*e.g.,* sediment, groundwater, transition zone water, and/or surface water). EPA, using federal Superfund authorities, has lead technical and legal responsibility for in-water contamination. In order to coordinate upland source control, the MOU specifies that DEQ and EPA will jointly *develop a source control strategy that defines a process for identifying and controlling potential sources of contamination* threatening the river.

The **overarching goal** of the Portland Harbor Joint Source Control Strategy (JSCS) is to identify, evaluate, and control sources of contamination that may impact the Willamette River in a manner that is consistent with the objectives and schedule for the Portland Harbor remedial investigation and feasibility study (RI/FS). Timely upland source control is necessary so that cleanup of the river can proceed without risk of significant recontamination.

To achieve this overarching goal, the **objectives** of the JSCS are:

1) Outline the process DEQ will use to identify upland sources of contamination threatening the river.

2) Provide screening level values (SLVs) or standards to:
   A) Screen and prioritize upland sources of contamination to identify those that require further evaluation;
   B) Identify those sites that may pose a threat to the river (and may require source control efforts); and
   C) Assist in developing preliminary cleanup goals for source control measures.

3) Establish the process to share data from the upland source control work and the in-water Portland Harbor RI/FS data to ensure more informed upland source control decisions and in-water remedial decisions.

4) Present the process to prioritize upland sources by magnitude of the threat and/or degree of impact on the river and recontamination potential including:
   A) High priority sources, which must move forward with aggressive source control measures without delay;



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B) Medium priority sources for which additional evaluation (*e.g.*, additional sampling, modeling) is required to determine if source control is needed and prioritize the implementation of source control measures; and

C) Low priority sources for which source control measures will not be required unless determined necessary by the Portland Harbor RI/FS or ROD(s).

5) Present the approach for evaluating storm water discharges to the river. Evaluating storm water discharges are considered a high priority for the JSCS. DEQ has been working with the City of Portland to investigate and control sources to municipal lines and DEQ plans to continue investigating storm water discharges in early 2006 and 2007 to allow completion of upland source control decisions and to provide needed data to the in-water RI/FS.

6) Provide a schedule for control of upland sources and the process DEQ will use to ensure source control activities comply with the anticipated EPA Portland Harbor Record of Decision (ROD) schedule.

7) Provide a quarterly milestone reporting process that both DEQ and EPA can use to measure source control status and to provide a process for integrating and/or evaluating upland DEQ investigations and remedial actions consistent with the Portland Harbor RI/FS.

It is also important to acknowledge that once the in-water EPA Portland Harbor ROD(s) and cleanup goals are established by EPA, upland source control decisions will need to be reviewed by DEQ and EPA for protectiveness, and to determine if additional cleanup may be required.

## 1.2 Document Organization

**Section 1: Introduction.** This section presents the objectives of the Joint Source Control Strategy and describes the organization of the strategy.

**Section 2: Background**. This section provides a description of the background of the Portland Harbor project, the regulatory framework for the project, the roles and responsibilities of DEQ and EPA, and coordination of the upland investigations and source control measures with the in-water RI/FS.

**Section 3: Screening Level Values.** This section presents the Screening Level Values (SLVs). Contaminant concentrations representing upland sources threatening the river should be compared to SLVs to help DEQ decide whether source control measures will be required.

**Section 4: Source Control Decision Process**. This section presents how upland source control decisions will be made and how source control decisions will be prioritized.

**Section 5: Source Control Screening**. This section describes upland source control screening in detail for each significant contaminant migration pathway including soil, groundwater, and storm water.



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**Section 6: Upland Source Control Schedule.** The section presents a general schedule for completion of upland source control identification, evaluation, and control activities and a brief description of how DEQ will use its regulatory authority to ensure source control activities comply with the schedule.

**Section 7: Source Control Documentation and Tracking**. This section describes the process DEQ will use for tracking and reporting milestone measure source control status to EPA and its partners.

**Section 8: References.** This section provides both specific references cited in the Joint Source Control Strategy and general references that may be useful in the making source control decisions.

**Appendix A: Regulatory Framework, Standards, and Criteria.** This appendix presents an overview of the regulatory framework for upland investigations and includes a partial list of local, state, and federal regulations that may be applicable to upland source control decisions. This list should not be considered complete or comprehensive and is presented for informational purposes only.

**Appendix B: DEQ Identification of Potential Upland Contaminant Sources.** This appendix presents DEQ's process for identifying and evaluating potential upland sources of contamination to the Willamette River. This appendix is provided for information purposes only.

**Appendix C: DEQ Characterization of Potential Upland Contaminant Sources**. This appendix presents DEQ's process for characterizing potential upland contaminant sources and potential considerations for determining if characterization is complete and assessing if a contaminant migration pathway from an upland source to the river exists. This appendix is provided for DEQ project managers and for general information only and focuses on groundwater and storm water migration pathways.

**Appendix D: Framework for Portland Harbor Storm Water Screening Evaluations.** This appendix presents DEQ's guidance for sampling and characterizing upland catch basin sediment and storm water.



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# Section 2 Background

This section briefly describes the project background and the site description. It also references to documents that describes the types of contaminants found in the harbor and potential upland sites, types of sources of contamination threatening the river, and contaminant transport.

## 2.1 Project Background

On December 1, 2000, a section of the Willamette River within the City of Portland was added to the NPL under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, "Superfund") and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Initial Study Area (ISA) for this site, as defined in the Administrative Order on Consent (AOC), is a stretch of the river that extends approximately six miles from River Mile (RM) 3.5 to RM 9.2, as shown on Figure 2-1[1]. EPA will define the boundaries of the Superfund Site in the EPA Portland Harbor ROD(s).

## 2.2 Site Description

Portland Harbor is an 11.6-mile reach of the Lower Willamette River between downtown Portland and the confluence with the Columbia River. Sections 1 and 2 of the EPA approved Portland Harbor Programmatic RI/FS Work Plan (LWG, 2004a) present detailed descriptions of the site background for Portland Harbor. Section 3.0 of the RI/FS work plan and the LWG's Conceptual Site Model Update (LWG, 2004b) presents a preliminary description of: 1) the types of contaminants found in the harbor and potential upland sites, 2) general sources of contamination threatening the river, and 3) contaminant transport.

## 2.3 Regulatory Framework

The JSCS will use existing regulatory and management authorities to address source control needs for the Portland Harbor Superfund Site. Regulatory authority for source control is shared between DEQ and EPA. The role and responsibility of each agency is described in Section 2.4.

Potentially Responsible Parties (PRPs) (*e.g.*, private property owners, public agencies, municipalities, businesses, industries) located within the Portland Harbor Superfund Site may be required to implement and/or operate under appropriate regulations that address protection of the Willamette River. Source Control Decision documents for each upland site should identify the regulations that apply to the contaminated media and the recommended source control measure. Appendix A presents an overview of regulations that may apply to upland sites within the Portland Harbor Superfund Site; this list is presented for informational purposes only and should not be considered comprehensive or complete.

[1] It should be noted that the term "high priority" in Figure 2-1 is not referring to a site's source control priority. The term "high priority" was assigned based on DEQ's initial evaluation of the potential threats posed by contamination at the site and for the need for additional site characterization (See Appendix B for further discussion of DEQ's site evaluation process).



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Source control measures should meet all applicable or relevant and appropriate local, state, and federal regulations. Upland investigations, source control evaluations, and source control measures will be performed in accordance with DEQ environmental cleanup regulations. High priority sites, which appear to be an ongoing and substantial source of contamination to the river, may be required to perform a remedial investigation and evaluate (*e.g.,* focused feasibility study (FFS), engineering evaluation and cost analysis (EE/CA)), design, and implement necessary source control measures. If the responsible party refuses to perform the required work, DEQ may, at its discretion, issue a unilateral order for the performance of the necessary investigation and source control measure. If the party refuses to comply with the unilateral order, DEQ has the option of enforcing the order, declaring the site a State orphan site and performing the work itself, or referring the site to EPA.

## 2.4 Roles and Responsibilities

The MOU established the relationship between the following governmental parties: EPA, DEQ, signatory Tribes,[2] and other state and federal Parties.[3] The MOU was based on CERCLA statute, the NCP, and the Portland Harbor Cleanup Statement of General Principles developed jointly by EPA and DEQ and attached to Governor John Kitzhaber's NPL listing concurrence letter. The MOU is also based on the signatory Tribes' and other state and federal Parties' express authority under CERCLA, and rights and responsibilities as set forth in the United States Constitution, treaties, statutes, executive orders, and court decisions. If, at the time of the EPA Portland Harbor ROD(s), upland sources are uncontrolled, they may be considered for CERCLA cleanup.

Under the MOU, the DEQ was designated the lead for the identification and control of upland contaminant sources to the Portland Harbor Superfund Site. DEQ is using its state environmental cleanup laws[4] and other state authorities to implement and require needed source control measures. The EPA was designated lead for investigating the nature and extent of in-water contamination, estimating the risks to human health and the environment from exposure to the in-water contamination, identifying and evaluating remedial action alternatives, and selecting a remedial action to address in-water contamination.

The MOU also specifically requires the DEQ and EPA to jointly develop a source control strategy. That strategy, which is documented herein, addresses the release of hazardous substances from:

- Upland sites being investigated under Oregon Revised Statute (ORS) 465;
- Waste management activities;
- Permitted and unpermitted storm water discharges;
- Other permitted and unpermitted discharges;
- Overland run-off and other non-point sources; and

[2]The Confederated Tribes of Siletz Indians, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe.

[3] U.S. Fish and Wildlife, National Oceanic and Atmospheric Administration, Oregon Department of Fish and Wildlife, the U.S. Department of the Interior,

[4] Oregon Revised Statute (ORS) 465.200 et seq. and Oregon Administrative Rules (OAR) 340-122-0010 to 0140.



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- Direct discharges resulting from spills and other over or in-water releases.

DEQ may require individual responsible parties to identify, evaluate, and control, the release of hazardous substances and pollutants to the Willamette River such that Federal and State standards and criteria and remedial action objectives established for the Portland Harbor Superfund Site are achieved to the extent practicable. This document contains the framework and schedule for identifying and evaluating those sources and outlines a process for developing effective controls. Such efforts include identifying potential sources resulting from current or historic operations, confirming whether these sources have a complete migration pathway to Portland Harbor, determining whether control measures are required to address ongoing sources of contaminant migration to the harbor, and designing and implementing source control measures. DEQ's site discovery and site evaluation process is described in Appendix B for informational purposes.

The EPA has entered into an Administrative Order on Consent (AOC) with a group of responsible parties who are members of the Lower Willamette Group[5] (LWG). Under the terms of the AOC, the LWG is responsible for the performance of a RI/FS that addresses the in-water portion of the site. EPA approved the work plan for the Portland Harbor RI/FS in April 2004 (LWG, 2004a and 2004b). The JSCS is a companion document to the RI/FS work plan.

## 2.5 Upland Source Control Coordination with In-Water RI/FS

Because upland source control efforts and the in-water characterization are proceeding in parallel, coordination is required between the upland work overseen by the DEQ and the in-water work overseen by the EPA. The in-water portion of the Portland Harbor RI/FS is designed to characterize the nature and extent of contamination in the river (*e.g.*, sediment, groundwater, transition zone water, and/or surface water) and to evaluate the risks to human health and the environment for in-water receptors. The results of the in-water risk evaluation will be used to establish contaminant specific cleanup levels for the Portland Harbor Superfund Site if applicable or relevant and appropriate requirements (ARARs) do not exist or more stringent risk-based levels are needed. Upland sources that prevent the in-water cleanup levels from being achieved should be controlled.

DEQ and EPA coordination hinges on effective information sharing during the Portland Harbor RI/FS and upland source control evaluation and implementation. This section provides a brief description of the basic tools that will be used by DEQ, EPA, and partners to ensure effective coordination.

### 2.5.1 Technical Coordination Team

The MOU established a Technical Coordination Team (TCT) comprised of members of the lead governmental parties (EPA, DEQ, and Tribes and other state and federal Parties signatory to the MOU). The TCT is the principal means of coordination and communication of data and information concerning the Portland Harbor Superfund Site. Through the MOU, it was agreed

[5] As of June 2005, the following companies have signed the AOC: ATOFINA (a.k.a. Arkema) Chemicals, Inc.; Chevron U.S.A. Inc.; Gunderson, Inc.; Northwest Natural Gas; City of Portland; Port of Portland; Time Oil Co.; Tosco Corporation; Union Pacific Railroad Company; and Oregon Steel Mills.



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that EPA and DEQ would regularly review the activities of the other in TCT meetings. The meetings also allow the parties to discuss project progress, issues, and schedules. DEQ will also hold source control-specific meetings with representatives of EPA and other governmental parties on the TCT for purposes such as source control site prioritization and source control status updates as described in Section 7.0.

In DEQ's support role to EPA's oversight of the in-water investigation, upland information will be shared during the TCT meetings that may be relevant to: the in-water RI/FS; the design, evaluation, and implementation of in-water early actions; and the design, evaluation, and implementation of upland source control measures. Likewise, EPA will share in-water RI/FS information with DEQ that would assist in upland investigation and source control.

In the event implementation issues arise, the MOU provides for a dispute resolution process.

### 2.5.2 Portland Harbor Conceptual Site Model –Site Summary Reports

The *Portland Harbor Conceptual Site Model* (CSM) report developed by the LWG (LWG, 2004c) provides a preliminary description of Willamette River hydrology, regional geology, potential contamination sources, and migration pathways to the river. An updated CSM is expected to be included in the Comprehensive Round 2 Site Characterization Summary Report and the Remedial Investigation Report. These reports are expected to include updated "Site Summary Reports" for selected upland facilities identified in the CSM report. These summary reports summarize the history of the facility and available environmental data and are submitted to EPA for review and approval. For upland sites with a DEQ project manager, these summary reports are reviewed for accuracy and completeness. The LWG is required to update these summaries on a periodic basis as described in the CSM report. In addition, DEQ may require, at its discretion, upland facilities to update these summaries at key points in the project to facilitate information sharing or to support upland facility source control decisions. While CSMs are a useful tool to communicate upland site impacts on the river, the key documents for presenting pertinent source control information are the Source Control Evaluation, Source Control Decision and implementation documents, as discussed in the following sections.

### 2.5.3 Upland Site Investigations

DEQ, in its lead for upland investigation and source control decisions, will use its regulatory authorities to identify and evaluate potential sources of contamination to the river and require facilities to characterize and control contaminant releases. DEQ's source control decision process is presented in Section 4.0. Additionally, Appendices B, C, and D provide the general processes for: identifying potential sources of contamination; characterizing contaminant sources and assessing if a complete contaminant migration pathway from the source to the river exists; and investigating storm water. These appendices present DEQ's guidance for upland source control and are provided as general information only.

In-water characterization efforts performed by upland PRPs for the purpose of source control evaluation will be designed to the extent practicable to support the in-water RI/FS. Similarly, the elements and results of the in-water characterization and risk assessment for the purpose of the RI/FS may be used to evaluate contaminant discharges from upland sources to the Willamette River and to determine if source control is required. Elements of the RI/FS include consideration



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of the results of the cultural resource survey, bathymetric surveys, the evaluation of sediment transport processes within Portland Harbor, natural attenuation potential, and the evaluation of background concentrations of chemicals in Willamette River sediments.

Upland investigations and source control activities will proceed on a parallel track with the in-water RI/FS and will be coordinated with the RI/FS efforts to the extent practicable. Upland and in-water work will be integrated by achieving the following goals:

- Upland data gaps will be filled in a time-frame compatible with the overall Portland Harbor RI/FS;
- Upland sources will be controlled in a time-frame compatible with the evaluation, selection, design and implementation of remedial actions within the Portland Harbor Superfund Site;
- In-water data regarding the nature and extent of contamination in all media will be integrated into the evaluation, design and implementation of upland source control measures to the extent necessary to ensure effective source control; and
- Upland source control may be necessary for implementation of early cleanup actions in the river.

Source Control Evaluation, Source Control Decision and implementation documents that contain basic relevant site information to support source control determinations will be shared with EPA for review and comment as described in Section 7.0.

Additionally, DEQ may coordinate upland site visits for EPA and its partners to expedite review or to facilitate integration of upland and in-water investigations or source control activities.



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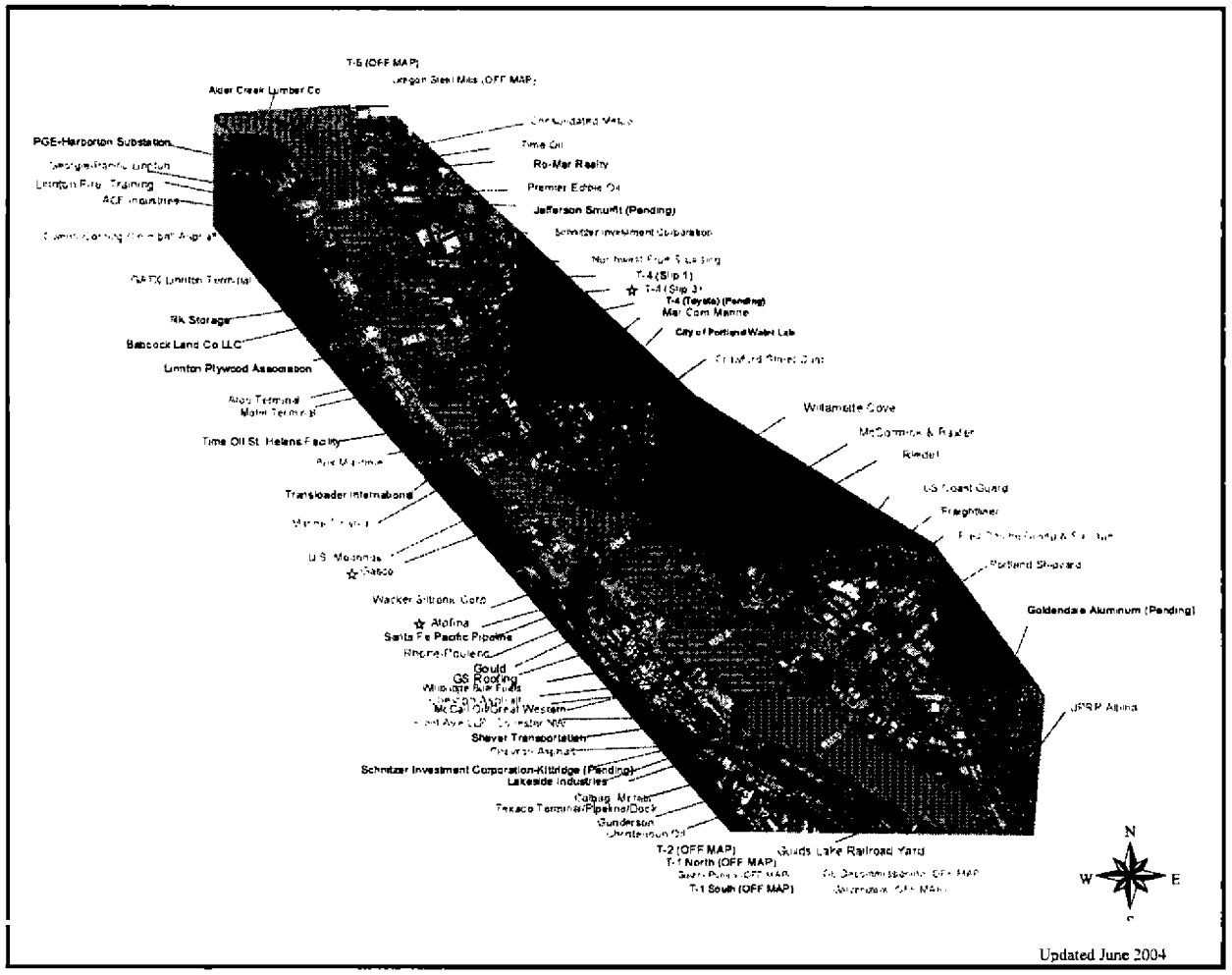


**Portland Harbor Upland Cleanup Sites**

| | |
|---|---|
| Black sites – | Not a source of continuing contamination to the river (9) |
| Purple Sites – | Cleanup Underway (4) |
| Red Sites – | High Priority* Remedial Investigation (23) |
| Green Sites – | High Priority* Expanded Preliminary Assessment (14) |
| Blue Sites – | Medium/Low* Priority Preliminary Assessment (15) |

T City of Portland BES Outfalls (~20)

Ú Early Action Sites

* The priority noted on this map refers to the DEQ assigned priority for further remedial action (See Appendix B for further information and not the assigned source control priority (See Section 4.4 for further information).

Note: For map updates and to view the map in more detail visit DEQ's website at:

http://www.deq.state.or.us/nwr/PortlandHarbor/phmap.pdf

**Figure 2-1: Portland Harbor Upland Site Map**



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# Section 3 Screening Level Values

## 3.1 General

This section describes the screening level values (SLVs) used in the JSCS to assess threat to the Willamette River from upland sources. The JSCS SLVs are presented in Table 3-1. First, the sources of contamination and the nature and extent of contamination at a site are adequately characterized. When a potentially complete contaminant migration pathway to the river is identified, site-specific contaminant concentrations for each potential contaminant migration pathway (e.g., soil, storm water, groundwater) are compared to appropriate SLVs. If a pathway SLV is exceeded, DEQ will evaluate the site, using the factors described in Section 4.4, to determine the priority for implementing upland source control measures. Additionally, contaminants exceeding an SLV will be considered site-specific contaminants of potential concern (COPC) for the site and should be carried forward into subsequent source control decisions.

An exceedance of an SLV does not necessarily indicate the upland source of contamination poses an unacceptable risk to human or ecological receptors, but does require the further consideration of source control efforts using a weight-of-evidence evaluation. Decisions to implement source control, prior to the EPA Portland Harbor ROD(s), due to an exceedance of an SLV will be prioritized and evaluated on a case-by-case basis, as described in Sections 4.0 and 5.0.

## 3.2 Screening Level Value Definition

The SLVs presented in Table 3-1 were chosen to evaluate the potential threat from upland hazardous substance releases to the Willamette River. The SLVs were developed to conservatively identify potential threats to human health and the environment including potential toxicity to ecological receptors and bioaccumulation. Prior to using Table 3-1, DEQ's website should be checked for updates to this table[1]. SLVs presented in Table 3-1 may be revised or augmented in the event that the standards, criteria, or guidelines, or toxicological data are updated and/or Portland Harbor site-specific preliminary remediation goals or risk criteria are approved by EPA. It should be noted that the SLVs are not cleanup levels; they are comparisons used to establish priority for potential source control. The EPA Portland Harbor ROD(s) will establish contaminant specific cleanup levels for the Superfund Site using applicable or relevant and appropriate requirements (ARARs) or risk-based levels.

DEQ and EPA recognize that some of the SLVs are below naturally occurring background levels. Both DEQ cleanup regulations and CERCLA allow consideration of naturally occurring background in site characterization, risk assessment, and when developing cleanup levels. Regional background concentrations for upland soils, groundwater, and storm water sediment are not currently available. DEQ will consider background information submitted by upland PRPs for naturally occurring chemicals in the screening process presented in Section 4.0 and in the source control weigh-of-evidence process described in Sections 4.0 and 5.0.

[1] Any references to Table 3-1 should include the revision date. Updates to Table 3-1 may be found on DEQ's Portland Harbor Website at http://www.deq.state.or.us/nwr/PortlandHarbor/jscs.htm.



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The strategy for defining SLVs for the JSCS was broken into the following steps:

**Step 1- Determine which Portland Harbor Chemicals of Interest (COI) are Potential Bioaccumulative Chemicals-** Potential bioaccumulative chemicals in the Portland Harbor project include: (1) those COIs that were detected in Round 1 organisms, and/or (2) those COIs that may accumulate in and on an organism due to the net accumulation of those chemicals in the organism as a result of uptake from all environmental sources, including water, sediments, and diet. The purpose of identifying potential Portland Harbor bioaccumulative COIs is that specific sediment bioaccumulation SLVs exist for many of the COI, and those bioaccumulative SLVs are of special interest in the source control screening process.

The octanol-water partition coefficient ($K_{ow}$) is often used to estimate bioaccumulation potential. Toxic compounds that are both hydrophobic (*i.e.,* have a low aqueous solubility) and persistent (*i.e.,* do not break down easily) have a tendency to bioaccumulate. Compounds with a log ($K_{ow}$) that are equal to or greater than 3.5 are considered potential bioaccumulatives for the purpose of this document and are designated by as "+" in the "Potential Bioaccumulative Chemical" column of Table 3-1. It should be noted that literature values for log $K_{ow}$ can vary for an individual chemical. Therefore, if sampling results show that a contaminant exists at a site with a log $K_{ow}$ in the neighborhood of 3.5, a range of the log $K_{ow}$ values may be considered as part of the weight-of-evidence evaluation for a medium-priority site as described in Sections 4.0 and 5.0.

Table 3-1 includes columns for (1) indicating the COI detected in Portland Harbor Round 1 fish tissue; and (2) the chemicals that have a potential to bioaccumulate based on log $K_{ow}$. In the "COI Detected in Portland Harbor Round 1 Fish Tissue" column, a " * " means that the contaminant was analyzed and detected in fish tissue. However, it is important to note that limited fish tissue was collected; tissue was not collected in all areas; tissue samples were not analyzed for all compounds listed in Table 3-1 (*e.g.,* volatile organic compounds (VOCs)); and the laboratory detection limits may not have been adequate for all analyses. For example, , the method reporting limits (MRLs) for polynuclear aromatic hydrocarbons (PAHs) in Round 1 fish tissue were elevated above the Portland Harbor RI/FS project analytical concentration goals (ACGs), and perhaps as a result, limited PAHs were detected in Round 1 fish tissue. Therefore, human health fish consumption ambient water quality criteria (AWQC) and other criteria relevant to the fish consumption pathway should be applied to PAHs and other chemicals for which the AWQC are available even though these chemicals have not been detected in fish tissue, because of high MRLs or other causes. It should be noted that additional tissue sampling may identify additional bioaccumulative COIs. If acceptable empirical data indicate a chemical is not accumulating in aquatic biota of Portland Harbor (as determined by DEQ and EPA), then a chemical may not be treated as bioaccumulutive chemical regardless of its $K_{ow}$.



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**Step 2- SLVs for Chemicals in Water Taken up by Fish for Human Consumption-** Two different sets of criteria for assessing potential bioaccumulation and bioconcentration[2] using two separate fish consumption rates are presented in the four columns composing the SLVs for human consumption of fish in Table 3-1. The first criteria are EPA's 2002 National Recommended Water Quality Criteria (NRWQC) for ingestion of organisms only, and the second criteria are from DEQ's 2004 Table 33[3] Ambient Water Quality Criteria (AWQC) for ingestion of organisms only from Oregon Administrative Rules (OAR) 340-41. Both EPA's NRWQC and DEQ's AWQC were developed using a fish consumption rate of 17.5 g/day. EPA under CERCLA authority has identified NRWQC or AWQC as potential ARARs. The hierarchy to be used to determine which SLVs to use is to first use EPA's NRWQC and second to use DEQ's AWQC. These values will be used as SLVs to screen groundwater, transition zone water, and direct discharge (*e.g.*, storm water) concentrations.

The most protective fish consumption rate to be used in the Portland Harbor Superfund project will be 175 g/day. This value will be used for screening surface water concentrations within the Willamette River. The hierarchy to be used for surface water to determine which SLVs to use is to first use EPA's NRWQC adjusted to the 175g/day fish consumption rate and second to use DEQ's AWQC adjusted to the 175g/ day fish consumption rate.

It should be noted that while site-specific NRWQC and AWQC for the organism only are considered protective of human health, these values do not consider exposures to piscivorous birds and mammals through the fish consumption pathway or to the fish itself.

Federal and state water quality criteria are also available for the combined intake of water and organisms which can be lower than the criteria for ingestion of the organism only. These values are not included in Table 3-1; however, EPA under CERCLA authority may identify these combined water and organism criteria as applicable or relevant and appropriate requirements (ARARs) in the EPA Portland Harbor ROD(s). Therefore, these criteria may be considered in the weight-of-evidence evaluations described in Sections 4 and 5.

Water quality criteria are not available for some contaminants (*e.g.*, cadmium, lead, tributyltin) that can bioaccumulate or bioconcentrate in biota. DEQ and EPA will consider using conservative exposure assumptions and chemical data to develop site-specific SLVs for these COI, and revise Table 3-1 at a later time. Until NRWQC or AWQC are available for these chemicals, other criteria may need to be applied for the purposes of determining the need for source control measures. The results of the Portland Harbor baseline risk assessment may also be used to determine whether upland sources chemicals without water quality criteria for aquatic life represent a risk to human health or the environment. If additional chemicals are identified as COI in Portland Harbor, these will be added to Table 3-1.

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[2] Bioconcentration is the net accumulation of a substance by an aquatic organism as the result of uptake directly from the ambient water, through gill membranes or other external body sources.

[3] Table 20 from OAR 340-40 was superceded by Tables 33A, 33B, and 33C. As noted above, 33A and 33C were adopted by the Oregon Environmental Commission and were effective in February 2005. Implementation of Table 33B (*i.e.*, metals) is pending EPA approval; Table 20 is used for the compounds listed in Table 33B, pending approval and implementation.



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**Step 3- Determine SLVs for Chemicals in Water for Human Ingestion-** Human health drinking water screening levels (Maximum Contaminant Levels (MCLs) and EPA Region 9 tap water Preliminary Remediation Goals (PRGs)) are included in Table 3-1. The Lower Willamette River has a DEQ designated beneficial use for public or private domestic water supply, "*with adequate pretreatment and natural quality that meets drinking water standards.*" (OAR 340-041-0340 Table 340A). EPA under CERCLA authority has identified the Safe Drinking Water Act's MCLs as potential ARARs for Portland Harbor to evaluate the potential threat contamination poses to future river uses and to determine the potential need for source control measures. Thus, MCLs and tap water PRGs are appropriate to conservatively screen potential future uses of the Willamette River and groundwater or surface water discharging into the Willamette River. The final determination of whether MCLs are ARARs, and associated remedial targets, will be made in the EPA Portland Harbor ROD(s). In order to fully address what may be a future remedial goal for the Portland Harbor Superfund Site, representative contaminant concentrations in groundwater and storm water entering the river should be compared to drinking water levels (*i.e.*, MCLs and PRGs) for screening purposes.

**Step 4- Determine Toxicity SLVs for Chemicals in Water for Ecological Exposure-** Water fraction ecological toxicity values are listed in three columns under "Ecological Receptors" in Table 3-1. The first of the columns contains EPA's 2002 NRWQC chronic values. The second of the columns contains DEQ's recently adopted Table 33A chronic AWQC. The third column contains Oak Ridge National Laboratory (ORNL) Toxicological Benchmark Lowest Chronic Values (LCVs) that were identified as Analytical Concentration Goals (ACGs) in the LWG's 2004 Portland Harbor Surface Water Field Sampling Plan (FSP). As with the human health water quality criteria, EPA under CERCLA authority may identify NRWQC or AWQC as potential ARARs in the EPA Portland Harbor ROD(s).

The hierarchy to be used to determine which toxicity SLVs to use is to first use EPA's chronic NRWQC. If no NRWQC chronic value exists for certain COI, then DEQ's Table 33A chronic AWQC values should be selected *(Note: Some values, primarily volatile organic compounds (VOCs), are taken from Table 33C, which are DEQ guidance values and are not criteria. Some metal concentrations are taken from DEQ's preceding Table 20*[4]*, which are more stringent that DEQ values proposed for Table 33B and are currently under discussion with EPA.).* Finally, if no EPA NRWQC or DEQ AWQC exists, then use the lower value of acute AWQC or the ORNL Toxicological Benchmark values.

**Step 5- Determine Toxicity SLVs for Chemicals in Soil and Storm Water Sediment-** Sediment toxicity values used to screen upland soil and storm water sediment (e.g., catch basin, conveyance line, suspended sediment) are listed under the "Toxicity" column in Table 3-1. Because some dilution and attenuation is expected to occur as upland soil/storm water sediment are transported and deposited in the river as sediment, probable effect concentrations (PECs) are used rather than threshold effect concentrations (TECs). PECs predict sediment toxicity, whereas TECs predict the absence of sediment toxicity. There are several sources of PECs. The hierarchy used in the JSCS is to first use MacDonald's PEC (MacDonald, *et. al.*, 2000). If no

[4] Table 20 from OAR 340-40 was superceded by Tables 33A, 33B, and 33C. As noted above, 33A and 33C were adopted the Oregon Environmental Commission and were effective in February 2005. Implementation of Table 33B (*i.e.*, metals) is pending EPA approval; Table 20 will be used for the compounds listed in Table 33B, pending approval and implementation.



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MacDonald PEC values exist for certain COI, then other probable effect levels found in various literature sources (see Table 3-1 footnotes) will be used as screening levels.

**Step 6- Determine the SLVs for Potential Bioaccumulative Chemicals in Soil and Storm Water Sediments for Ecological Exposure-** Sediment bioaccumulation SLVs that were largely taken from DEQ's December 2001 *"Level II Ecological Risk Assessment Guidance"* are listed under the "Bioaccumulation" column in Table 3-1. The bioaccumulative SLVs are considered to be protective of a reasonable general class of piscivorous birds (Great Blue Heron) and/or mammals (mink) based on an acceptable drinking water concentration toxicity threshold value; they are not necessarily protective of human receptors. This acceptable drinking water value is converted into a sediment value using equilibrium partitioning. DEQ is currently developing Sediment Bioaccumulation Guidance. As part of preparing the guidance, DEQ will develop acceptable fish tissue values protective of piscivorous birds and mammals. These acceptable fish tissue values can then be back-calculated to develop water and sediment SLVs. Table 3-1 will be modified once these values are developed and accepted.

## 3.3 Practical Quantitation Limits (PQLs)

DEQ and EPA recognize that some of the SLVs presented in Table 3-1 are less than laboratory practical quantitation limits[5] (PQLs) using standard methods for a number of chemicals. In these cases, upland parties should evaluate whether alternative sampling approaches (e.g., cumulative sampling techniques, high volume) or alternative laboratory methods can be used to achieve the desired PQLs.

DEQ and EPA recognize that achieving the prescribed quantitation limits may require some modifications to the identified analytical method, such as additional sample cleanup steps or the use of alternate gas chromatographic column or detector systems for the analyses of certain matrices. Modifications should be within the framework of the applicable method, and any such modifications should be documented in the data validation report. When two or more analytical methods are available, the method with the lowest quantitation limit should be used.

Achieving the desired PQL is highly matrix dependent. Sample cleanups may be employed to attempt to overcome matrix interferences so that the PQLs for analytes can be met. For example, catch basin sediment and conveyance line sediment samples are often oily and require sample cleanup to reach acceptable PQLs. Sample dilution must be not be used as a substitute for sample cleanup.

If upland PRPs demonstrate, to DEQ's satisfaction, that the analyte cannot be detected at or below the SLV using the best commercially available analytical techniques after consideration of alternative sampling or analytical techniques, then alternative PQLs may be used, in lieu of SLVs for screening if the PRP demonstrates:

- PQLs are based on the best available sampling and analytical techniques;

[5] The PQL as the lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operation conditions



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- PQLs are developed, based on best commercially available analytical method detection limits[6]; and
- All analytical data used for the option are of known precision and accuracy.

[6] Method detection limits are defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the true value is greater than zero.



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Table 3-1

Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI? [E] | |
| | Human Health [F] | | | | | | Ecological Receptors [G] | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) 17.5 g/day consumption rate | Portland Harbor specific fish consumption rate 175 g/day consumption rate | DEQ's 2004 AWQC (organism only) 17.5 g/day consumption rate | Portland Harbor specific fish consumption rate 175 g/day consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [H] | MacDonald PECs and other SQVs [I] | DEQ 2001 Bioaccumulative Sediment SLVs [E] | COI Detected in Portland Harbor Round 1a Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [E] |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| **Metals/Inorganics** | Metals in these columns are expressed as dissolved metal in the water column except where noted | | Metals in these columns are expressed in terms of total recoverable metal in the water column | | | | Metals in this column are expressed as dissolved metal in the water column except where noted | Metals in this column are expressed in terms of total recoverable metal in the water column | | | | | |
| Aluminum (pH 6.5 - 9.0) [15] | | | | | (50-200) [29] | 36,000 | 87 | | | | | * | |
| Antimony | 640 | 64 | 640 | 64 | 6 | 15 | | 1600 [16] | 30 | 64,000 [5] | 10,000 | * | |
| Arsenic | 0.14 | 0.014 | 0.14 | 0.014 | 10 | 0.045 | 150 | | 3.1 [16] | 33,000 [2] | | * | |
| Arsenic III | | | | | | | | 190 [16] | | | 4,000 | | |
| Cadmium [15] | | | | | 5 | 18 | 0.094 | 0.38 [16] | | 4,980 [7] | 1 | * | |
| Chromium, total | | | | | 100 | | | | | 111,000 [2] | 4,200,000 | * | |
| Chromium, hexavalent | | | | | | 110 | 11 | 11 [16] | | | | | |
| Copper [15] | | | | | 1,300 = TT | 1,500 | 2.7 | 3.6 [16] | | 149,000 [2] | 10,000 | * | |
| Lead [15] | | | | | 15 = TT | | 0.54 | 0.54 [16] | | 128,000 [2] | 128,000 | * | |
| Manganese | 100 | 10 | 100 | 10 | (50) [29] | 880 | | | 120 | 1,100,000 [6,8] | | * | |
| Mercury | | | 0.146 | 0.0146 | 2 | 11 | 0.77 | 0.012 | 1.2 [16] | 1,060 [2] | | * | [31] * |
| Methyl Mercury | 300 µg/kg [20] | 30 µg/kg [20] | 300 µg/kg [20] | 30 µg/kg [20] | | 3.6 | | | 0.0028 | | | * | [21] * |
| Nickel [15] | 4,600 | 460 | 4,600 | 460 | | 730 | 16 | 49 [16] | | 48,600 [2] | 316,000 | * | |
| Selenium | 4,200 | 420 | 4,200 | 420 | 50 | 180 | 5 [16] | 35 [16] | | 5,000 [4] | 100 | * | |
| Silver [15] | | | | | (100) [29] | 180 | | 0.12 [16] | 0.36 | 5,000 [1,4] | | * | |
| Zinc [15] | 26,000 | 2,600 | 26,000 | 2,600 | (5,000) [29] | 11,000 | 36 | 33 | | 459,000 [2] | 3,000 | * | |
| Perchlorate | | | | | | 3.6 | | | | | | | |
| Cyanide [19] | 340 | 14 | 140 | 14 | 200 | 730 | 5.2 | 5.2 | | | | | |
| **Butyltins [11]** | | | | | | | | | | | | | |
| Monobutyltin | | | | | | | | | | | | | |
| Dibutyltin | | | | | | | | | | | | | |
| Tributyltin | | | | | | 11 | 0.072 | | | | 190 | * | * |
| Tetrabutyltin | | | | | | | | | | | | | * |
| **PCBs Aroclors** | | | | | | | | | | | | | |
| Aroclor 1016 | | | | | | 0.96 | | | | 530 [9] | 420 | * | * |
| Aroclor 1221 | | | | | | | | | 0.28 | | | * | * |
| Aroclor 1232 | | | | | | | | | 0.58 | | | * | * |
| Aroclor 1242 | | | | | | | | | 0.053 | | 2 | * | * |
| Aroclor 1248 | | | | | | | | | 0.081 | 1,500 [9] | 4 | * | * |
| Aroclor 1254 | | | | | | 0.034 | | | 0.033 | 300 [9] | 10 | * | * |
| Aroclor 1260 | | | | | | | | | 94 | 200 [9] | | * | * |
| Aroclor 1262 | | | | | | | | | | | | * | * |
| Aroclor 1268 | | | | | | | | | | | | * | * |



Note This table may be revised when new data becomes available. Check http://www.deq.state.or.us/nw/Portland Harbor/jscs for updates (1)



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Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI [E] | |
| | Human Health [F] | | | | | | Ecological Receptors [F] | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) | Portland Harbor specific fish consumption rate | DEQ's 2004 AWQC (organism only) | Portland Harbor specific fish consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [G] | MacDonald PECs and other SQVs [1] | DEQ 2001 Bioaccumulative Sediment SLVs [H] | COI Detected in Portland Harbor Round 1a Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [I] |
| | 17.5 g/day consumption rate | 175 g/day consumption rate | 17.5 g/day consumption rate | 175 g/day consumption rate | | | | | | | | | |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| Total PCBs | 0.000064 | 0.0000064 | 0.000064 | 0.0000064 | 0.5 | 0.034 | 0.014 | 0.014 | 0.14 | 676 [1] | | * | + |
| PCB Congeners | | | | | | | | | | | | | + |
| All 209 PCB congener target analytes | | | | | | | | | | | | | |
| **Chlorinated Herbicides** | | | | | | | | | | | | | |
| Dalapon | | | | | 200 | 1,100 | | | | | | | |
| Dicamba | | | | | | 1,100 | | | | | | | |
| MCPA | | | | | | | | | | | | | |
| Dichlorprop | | | | | | | | | | | | | |
| 2,4-D | | | | | 70 | 360 | | | | | | | |
| 2,4,5-TP (Silvex) | | | | | 50 | 290 | | | | | | | |
| 2,4,5-T | | | | | | 360 | | | | | | | |
| 2,4-DB | | | | | | 290 | | | | | | | - |
| Dinoseb | | | | | 7 | 36 | | | | | | | + |
| MCPP | | | | | | 360 | | | | | | | |
| **Organochlorine Pesticides** | | | | | | | | | | | | | |
| α - BHC | 0.0049 | 0.00049 | 0.0049 | 0.00049 | | 0.011 | | | 2.2 [G] | | | | + |
| β - BHC | 0.017 | 0.0017 | 0.017 | 0.0017 | | 0.037 | | | | | | | + |
| γ - BHC (Lindane) | 1.8 | 0.18 | 1.8 | 0.18 | | 0.052 | | 0.08 | | 4.99 [2] | | | + |
| δ - BHC | | | | | | 0.037 | | | | | | | + |
| Heptachlor | 0.000079 | 0.0000079 | 0.000079 | 0.0000079 | 0.4 | 0.015 | 0.0038 | 0.0038 | 0.0069 | 10 [5] | | * | + |
| Heptachlor epoxide | 0.000039 | 0.0000039 | 0.000039 | 0.0000039 | 0.2 | 0.0074 | 0.0038 | 0.0038 | | 16 [2] | | * | + |
| Aldrin | 0.00005 | 0.000005 | 0.00005 | 0.000005 | | 0.004 | | | | 40 [6] | | | + |
| Chlordane | 0.00081 | 0.000081 | 0.00081 | 0.000081 | 2 | 0.19 | 0.0043 | 0.0043 | | 17.6 [2] | | * | + |
| Endosulfan alpha- | 89 | 8.9 | 89 | 8.9 | | 220 | 0.056 | 0.056 | 0.051 | | | | + |
| Endosulfan beta- | 89 | 8.9 | 89 | 8.9 | | 220 | 0.056 | 0.056 | 0.051 | | | | + |
| Endosulfan sulfate | 89 | 8.9 | 89 | 8.9 | | | | | | | | * | + |
| 4,4'-DDE | 0.00022 | 0.000022 | 0.00022 | 0.000022 | | 0.2 | | | | 31.3 [7] | 0.3 | * | + |
| 4,4'-DDD | 0.00031 | 0.000031 | 0.00031 | 0.000031 | | 0.28 | | | 0.011 [4] | 28 [1] | 0.3 | * | + |
| 4,4'-DDT | 0.00022 | 0.000022 | 0.00022 | 0.000022 | | 0.2 | 0.001 | 0.001 | 0.013 [4] | 62.9 [7] | 0.3 | * | + |
| DDT - total | | | | | | 0.2 | | | | | 0.3 | * | + |
| Dieldrin | 0.000054 | 0.0000054 | 0.000054 | 0.0000054 | | 0.0042 | 0.056 | 0.0019 [14] | | 61.8 [2] | | * | + |
| Endrin | 0.06 | 0.006 | 0.06 | 0.006 | 2 | 11 | 0.036 | 0.0023 [14] | 0.061 | 207 [5] | | | + |
| Endrin aldehyde | 0.3 | 0.03 | 0.3 | 0.03 | | | | | | | | * | + |
| Endrin ketone | | | | | | | | | | | | | + |
| Methoxychlor | | | | | 40 | 180 | 0.03 | 0.03 | 0.019 | | | * | + |
| Toxaphene | 0.00028 | 0.000028 | 0.00028 | 0.000028 | 3 | 0.061 | 0.0002 | 0.0002 | | | | | + |
| oxy chlordane | | | | | | 0.19 | | | | | | | + |
| cis - nonachlor | | | | | | 0.19 | | | | | | | + |
| trans - nonachlor | | | | | | 0.19 | | | | | | * | + |
| **Volatile Organic Compounds** | | | | | | | | | | | | | |
| 1,1,1,2- Tetrachloroethane | | | | | | 0.43 | | | | | | | |
| 1,1,1- Trichloroethane (TCA) | | | | | 200 | 3,200 | | | 11 | | | | |
| 1,1,2,2- Tetrachloroethane | 4 | 0.4 | 4 | 0.4 | | 0.055 | | 2,400 [16] | 610 | | | | |
| 1,1,2- Trichloroethane | 16 | 1.6 | 16 | 1.6 | 5 | 0.2 | | 9,400 [16] | 1,200 | | | | |

Note This table may be revised when new data becomes available. Check http://www.deq.state.or.us/nwr/Portland Harbor/jscs for updates (1)



Confidential Business Information

00016054

Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI? [E] | |
| | Human Health* | | | | | | Ecological Receptors* | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) | Portland Harbor specific fish consumption rate | DEQ's 2004 AWQC (organism only) | Portland Harbor specific fish consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [G] | MacDonald PECs and other SQVs [I] | DEQ 2001 Bioaccumulative Sediment SLVs [K] | COI Detected in Portland Harbor Round 1a Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [J] |
| | 17.5 g/day consumption rate | 175 g/day consumption rate | 17.5 g/day consumption rate | 175 g/day consumption rate | | | | | | | | | |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| 1,1- Dichloroethane | | | | | | 810 | | | 47 | | | | |
| 1,2,3- Trichloropropane | | | | | | 0.0056 | | | | | | | |
| 1,2- Dichloroethane (EDC) | .37 | .37 | .37 | .37 | 5 | 0.12 | | 20,000 [H] | 910 | | | | |
| cis-1,2-Dichloroethylene | | | | | 70 | 61 | | | | | | | |
| 1,2- Dichloropropane | 15 | 1.5 | 15 | 1.5 | 5 | 0.36 | | | | | | | |
| 1,2- Dibromoethane (EDB) | | | | | | 0.0056 | | | | | | | |
| 2- Butanone (MEK) | | | | | | 7,000 | | | 14,000 | | | | |
| 2- Chloroethyl Vinyl Ether | | | | | | | | | | | | | |
| 2- Hexanone | | | | | | | | | 99 | | | | |
| 4- Methyl-2-Pentanone (MIBK) | | | | | | | | | 170 | | | | |
| Acetone | | | | | | 5,500 | | | 1,500 | | | | |
| Acrolein | 290 | 29 | 290 | 29 | | 0.042 | | 21 [H] | | | | | |
| Acrylonitrile | 0.25 | 0.025 | 0.25 | 0.025 | | 0.039 | | 2,600 [H] | | | | | |
| Bromochloromethane | | | | | | | | | | | | | |
| Bromodichloromethane | | | | | | 0.18 | | | | | | | |
| Bromoform | 140 | 14 | 140 | 14 | | 8.5 | | | | | | | |
| Bromomethane | | | | | | 8.7 | | | | | | | |
| Carbon Disulfide | | | | | | 1,000 | | | 0.92 | | | | |
| Carbon Tetrachloride | 1.6 | 0.16 | 1.6 | 0.16 | 5 | 0.17 | | | 9.8 | | | | |
| Chlorobenzene | 1600 | 160 | 1,600 | 160 | 100 | 110 | | 50 [H] | 64 | | | | |
| Chlorodibromomethane | 13 | 1.3 | 13 | 1.3 | | | | | | | | | |
| Chloroethane | | | | | | 4.6 | | | | | | | |
| Chloroform | 470 | 47 | 470 | 47 | | 0.17 | | 1,240 [H] | 28 | | | | |
| Chloromethane | | | | | | 160 | | | | | | | |
| cis-1,3-Dichloropropene | | | | | | | | | 0.055 | | | | |
| Dibromomethane | | | | | | | | | | | | | |
| Dichlorodifluoromethane | | | | | | 390 | | | | | | | |
| Iodomethane (Methyl Iodide) | | | | | | | | | | | | | |
| Isopropylbenzene | | | | | | | | | | | | | |
| Methylenechloride | 590 | 59 | 590 | 59 | | 4.3 | | | 2,200 | | | | |
| Styrene | | | | | 100 | 1,600 | | | | | | | |
| trans-1,4-Dichloro-2-butene | | | | | | | | | | | | | |
| Trichlorofluoromethane | | | | | | 1,300 | | | | | | | |
| Vinyl Acetate | | | | | | 410 | | | 16 | | | | |
| Benzene | 51 | 5.1 | 51 | 5.1 | 5 | 0.35 | | | 130 | | | | |
| EthylBenzene | 2,100 | 210 | 2,100 | 210 | 700 | 1,300 | | | 7.3 | | | | |
| m,p-Xylene | | | | | | | | | 1.8 [F] | | | | |
| o-Xylene | | | | | | | | | 13 [G] | | | | |
| Xylenes (total) | | | | | 10,000 | | | | | | | | |
| Methyl-tert-butyl ether | | | | | | 11 | | | | | | | |
| Tetrachloroethene (PCE) | 3.3 | 0.33 | 3.3 | 0.33 | 5 | 0.1 | | 840 [H] | 98 | 500 [I] | | | |
| Toluene | 15,000 | 1,500 | 15,000 | 1,500 | 1,000 | 720 | | | 9.8 | | | | |
| trans-1,2-Dichloroethene | 10,000 | 1,000 | 10,000 | 1,000 | 100 | 0.12 | | | 590 | | | | |
| trans-1,3-Dichloropropene | | | | | | 0.4 | | | 0.055 | | | | |
| Trichloroethene (TCE) | 30 | 3 | 30 | 3 | 5 | 0.028 | | 21,900 [H] | 47 | 2,100 [I] | | | |
| Vinyl Chloride | 2.4 | 0.24 | 2.4 | 0.24 | 2 | 0.02 | | | | | | | |
| | | | | | | | | | | | | | |
| **Semivolatile Organic Compounds** | | | | | | | | | | | | | |



Note This table may be revised when new data becomes available. Check http://www.deq.state.or.us/wq/Portland Harbor/jscs for updates (!)



Confidential Business Information

00016055

Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI? [E] | |
| | Human Health [F] | | | | | | Ecological Receptors [G] | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) | Portland Harbor specific fish consumption rate | DEQ's 2004 AWQC (organism only) | Portland Harbor specific fish consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [I] | MacDonald PECs and other SQVs [1] | DEQ 2001 Bioaccumulative Sediment SLVs [E] | COI Detected in Portland Harbor Round 1 & Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [G] |
| | 17.5 g/day consumption rate | 175 g/day consumption rate | 17.5 g/day consumption rate | 175 g/day consumption rate | | | | | | | | | |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| **Halogenated Compounds** | | | | | | | | | | | | | |
| 1,2-Dichlorobenzene | 1,300 | 130 | 1,300 | 130 | 600 | 370 | | 763 [16] | 14 | 1,700 [7] | | | |
| 1,3-Dichlorobenzene | 960 | 96 | 960 | 96 | | 180 | | 763 [16] | 71 | 300 [7] | | | |
| 1,4-Dichlorobenzene | 190 | 19 | 190 | 19 | 75 | 0.5 | | 763 [16] | 15 | 300 [7] | | | |
| 1,2,4-Trichlorobenzene | 70 | 7 | 70 | 7 | 70 | 7.2 | | | 110 | 9,200 [7] | | | + |
| Hexachlorobenzene | 0.00029 | 0.000029 | 0.00029 | 0.000029 | 1 | 0.042 | | | | 100 [6] | | * | + |
| 2-Chloronaphthalene | 1,600 | 160 | 1,600 | 160 | | 490 | | | | | | | |
| Hexachloroethane | 3.3 | 0.33 | 3.3 | 0.33 | | 4.8 | | 540 [16] | 12 | | | * | + |
| Hexachlorobutadiene | 18 | 1.8 | 18 | 1.8 | | 0.86 | | 9.3 [16] | | 600 [6] | | * | + |
| Hexachlorocyclopentadiene | 1,100 | 110 | 1,100 | 110 | 50 | 220 | | 5.2 [16] | | 400 [6] | | | + |
| 2,2'-oxybis(1-chloropropane) | | | | | | | | | | | | | |
| Bis-(2-chloroethoxy) methane | | | | | | | | | | | | | |
| Bis-(2-chloroethyl) ether | 0.53 | 0.053 | 0.53 | 0.053 | | 0.01 | | | | | | | |
| 4-Chlorophenyl-phenyl ether | | | | | | | | | | | | | + |
| 4-bromophenyl-phenyl ether | | | | | | | | | | | | | + |
| 3,3'-Dichlorbenzidine | 0.028 | 0.0028 | 0.028 | 0.0028 | | 0.15 | | 763 [16] | | | | | + |
| 4-Chloroaniline | | | | | | 150 | | | | | | | |
| **Organonitrogen Compounds** | | | | | | | | | | | | | |
| Nitrobenzene | 690 | 69 | 690 | 69 | | 3.4 | | | | | | | |
| Aniline | | | | | | 12 | | | | | | | |
| 2-Nitroaniline | | | | | | 116.0 | | | | | | | |
| 3-Nitroaniline | | | | | | 3.2 | | | | | | | |
| 4-Nitroaniline | | | | | | 3.2 | | | | | | | |
| N-Nitrosodimethylamine | 3 | 0.3 | 3 | 0.3 | | 0.0013 | | | | | | | |
| N-Nitroso-di-n-propylamine | 0.51 | 0.051 | 0.51 | 0.051 | | 0.0096 | | | | | | | |
| N-Nitrosodiphenylamine | 6 | 0.6 | 6 | 0.6 | | 14 | | | 210 | | | | |
| 2,4-Dinitrotoluene | 3.4 | 0.34 | 3.4 | 0.34 | | 73 | | | | | | | |
| 2,6-Dinitrotoluene | | | | | | 36 | | | | | | | |
| Carbazole | | | | | | 3.4 | | | | 1,600 [3] | | | + |
| **Oxygen-Containing Compounds** | | | | | | | | | | | | | |
| Benzoic Acid | | | | | | 150,000 | | | 42 | | | | |
| Benzyl Alcohol | | | | | | 11,000 | | | 8.6 | | | | |
| Dibenzofuran | | | | | | 12 | | | 3.7 | | | * | + |
| Isophorone | 960 | 96 | 960 | 96 | | 71 | | | | | | | |
| **Phenols and Substituted Phenols** | | | | | | | | | | | | | |
| Phenol | 1,700,000 | 170,000 | 1,700,000 | 170,000 | | 11,000 | | 2,560 [16] | | 50 [5, 6] | | * | |
| 2-Methylphenol (o-Cresol) | | | | | | 1,800 | | | 13 | | | | |
| 4-Methylphenol (p-Cresol) | | | | | | 180 | | | | | | * | |
| 2,4-Dimethylphenol | 850 | 85 | 850 | 85 | | 730 | | | | | | | |
| 2-Chlorophenol | 150 | 15 | 150 | 15 | | 30 | | 2,000 [16] | | | | | |
| 2,4-Dichlorophenol | 290 | 29 | 290 | 29 | | 110 | | 365 [16] | | | | | |
| 2,4,5-Trichlorophenol | 3,600 [24] | 360 [24] | 3,600 | 360 | | 3,600 | | | | | | | + |
| 2,4,6-trichlorophenol | 2.4 | 0.24 | 2.4 | 0.24 | | 3.6 | | 970 [16] | | | | | + |
| 2,3,4,6-Tetrachlorophenol | | | | | | 1,100 | | | | | | | + |
| Pentachlorophenol | 3 | 0.3 | 3 | 0.3 | 1 | 0.56 | 15 [22] | 13 [14,23] | | 1,000 [6] | | | + |



Note: This table may be revised when new data becomes available. Check http://www.deq.state.or.us/nwr/Portland Harbor/jscs for updates (1)



Confidential Business Information

00016056

Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI? [E] | |
| | Human Health [F] | | | | | | Ecological Receptors [F] | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) | Portland Harbor specific fish consumption rate | DEQ's 2004 AWQC (organism only) | Portland Harbor specific fish consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [G] | MacDonald PECs and other SQVs [1] | DEQ 2001 Bioaccumulative Sediment SLVs [2] | COI Detected in Portland Harbor Round 1a Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [H] |
| | 17.5 g/day consumption rate | 175 g/day consumption rate | 17.5 g/day consumption rate | 175 g/day consumption rate | | | | | | | | | |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| 4-Chloro-3-methylphenol | | | | | | | | | | | | | |
| 2-Nitrophenol | | | | | | | | 150 [16] | | | | | |
| 4-Nitrophenol | | | | | | | | 150 [16] | 300 | | | | |
| 2,4-Dinitrophenol | 5,300 | 530 | 5,300 | 530 | | 73 | | 150 [16] | | | | | |
| Methyl-4,6-Dinitrophenol 2- | 280 | 28 | 280 | 28 | | | | 150 [16] | | | | | |
| **Phthalate Esters** | | | | | | | | | | | | | |
| Dimethylphthalate | 1,100,000 | 110,000 | 1,100,000 | 110,000 | | 360,000 | | 3 [16] | | | | | |
| Diethylphthalate | 44,000 | 4,400 | 44,000 | 4,400 | | 29,000 | | 3 [16] | 210 | 600 [7] | | | |
| Di-n-butylphthalate | 4,500 | 450 | 4,500 | 450 | | 3,600 | | 3 [16] | | 100 [6] | | | + |
| Butylbenzylphthalate | 1900 | 190 | 1900 | 190 | | 7,300 | | 3 [16] | 19 | | | | + |
| Di-n-octylphthalate | | | | | | 1,500 | | 3 [16] | | | | * | + |
| bis(2-Ethylhexyl)phthalate | 2.2 | 0.22 | 2.2 | 0.22 | 6 | 4.8 | | 3 [16] | | 800 [3, 6] | 330 | * | + |
| **Polycyclic Aromatic Hydrocarbons** | | | | | | | | | | | | | |
| Naphthalene | | | | | 0.2 [26] | 6.2 | | 620 [16] | 12 | 561 [2] | | * | |
| 2-Methylnaphthalene | | | | | 0.2 [26] | | | | 2.1 [8] | 200 [11] | | * | + |
| Acenaphthylene | | | | | 0.2 [26] | | | | | 200 [6] | | | + |
| Acenaphthene | 990 | 99 | 990 | 99 | 0.2 [26] | 370 | | 520 [16] | | 300 [6] | | * | + |
| Fluorene | 5,300 | 530 | 5,300 | 530 | 0.2 [26] | 240 | | | 3.9 | 536 [2] | | * | + |
| Phenanthrene | | | | | 0.2 [26] | | | | | 1,170 [2] | | * | + |
| Anthracene | 40,000 | 4,000 | 40,000 | 4,000 | 0.2 [26] | 1,800 | | | 0.73 | 845 [2] | | | + |
| Fluoranthene | 140 | 14 | 140 | 14 | 0.2 [26] | 1,500 | | | | 2,230 [2] | | * | + |
| Pyrene | 4,000 | 400 | 4,000 | 400 | 0.2 [26] | 180 | | | | 1,520 [2] | | * | + |
| Benzo(a)anthracene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 [26] | 0.092 | | | 0.027 | 1,050 [2] | | | + |
| Chrysene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 [26] | 9.2 | | | | 1,290 [2] | | | + |
| Benzo(b)fluoranthene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 [26] | 0.092 | | | | | | | + |
| Benzo(k)fluoranthene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 [26] | 0.92 | | | | 13,000 [6] | | | + |
| Benzo(a)pyrene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 | 0.0092 | | | 0.014 | 1,450 [2] | | | + |
| Indeno(1,2,3-cd)pyrene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 [26] | 0.092 | | | | 100 [16] | | | + |
| Dibenz(a,h)anthracene | 0.018 | 0.0018 | 0.018 | 0.0018 | 0.2 [26] | 0.0092 | | | | 1,300 [6] | | | + |
| Benzo(g,h,i)perylene | | | | | 0.2 [26] | | | | | 300 [16] | | | + |
| **Chlorinated Dioxins and Furans** | | | | | | | | | | | | | |
| 2,3,7,8,-TCDD (Toxicity Equivalence Quotient) | 5.1E-09 | 5.1E-10 | 5.1E-09 | 5.1E-10 | 0.00003 | 4.5E-07 | | | | | | * | + |
| 2,3,7,8,-TCDD | 5.1E-09 | 5.1E-10 | 5.1E-09 | 5.1E-10 | | 4.5E-07 | | 0.00038 [16] | | 9.0E-3 [6] | 8.5E-7 | * | + |
| 2,3,7,8-TCDF | | | | | | | | | | | | * | + |
| 1,2,3,7,8-PeCDD | | | | | | | | | | | | * | + |
| 1,2,3,7,8-PeCDF | | | | | | | | | | | | * | + |
| 2,3,4,7,8-PeCDF | | | | | | | | | | | | * | + |
| 1,2,3,4,7,8-HxCDD | | | | | | | | | | | | * | + |
| 1,2,3,6,7,8-HxCDD | | | | | | | | | | | | * | + |
| 1,2,3,7,8,9-HxCDD | | | | | | | | | | | | * | + |



Note This table may be revised when new data becomes available. Check http://www.deq.state.or.us/nwr/Portland Harbor/jscs for updates. (1)



Confidential Business Information

00016057

Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI [E] | |
| | Human Health [F] | | | | | | Ecological Receptors [F] | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) | Portland Harbor specific fish consumption rate | DEQ's 2004 AWQC (organism only) | Portland Harbor specific fish consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [G] | MacDonald PECs and other SQVs [H] | DEQ 2001 Bioaccumulative Sediment SLVs [E] | COI Detected in Portland Harbor Round 1a Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [I] |
| | 17.5 g/day consumption rate | 175 g/day consumption rate | 17.5 g/day consumption rate | 175 g/day consumption rate | | | | | | | | | |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| 1,2,3,4,7,8-HxCDF | | | | | | | | | | | | * | + |
| 1,2,3,6,7,8-HxCDF | | | | | | | | | | | | * | + |
| 1,2,3,7,8,9-HxCDF | | | | | | | | | | | | | + |
| 2,3,4,6,7,8-HxCDF | | | | | | | | | | | | * | + |
| 1,2,3,4,6,7,8-HpCDD | | | | | | | | | | | | * | + |
| 1,2,3,4,6,7,8-HpCDF | | | | | | | | | | | | * | + |
| 1,2,3,4,7,8,9-HpCDF | | | | | | | | | | | | * | + |
| OCDD | | | | | | | | | | | | * | + |
| OCDF | | | | | | | | | | | | * | + |
| Total tetrachlorinated dioxins | | | | | | | | | | | | | + |
| Total pentachlorinated dioxins | | | | | | | | | | | | | + |
| Total hexachlorinated dioxins | | | | | | | | | | | | | + |
| Total heptachlorinated dioxins | | | | | | | | | | | | | + |
| Total tetrachlorinated furans | | | | | | | | | | | | | + |
| Total pentachlorinated furans | | | | | | | | | | | | | + |
| Total hexachlorinated furans | | | | | | | | | | | | | + |
| Total heptachlorinated furans | | | | | | | | | | | | | + |
| | | | | | | | | | | | | | |
| **Polybrominated Biphenyls** | | | | | | | | | | | | | |



Note: This table may be revised when new data becomes available. Check http://www.deq.state.or.us/wq/PortlandHarbor/jscs for updates. (1)



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Notes.

[A] Stormwater values in this table are intended for screening non-permitted discharges

[B] MRLs for PAHs in Round 1 fish tissue were elevated above project ACHs, and perhaps as a result, limited PAHs and other compounds were detected. Therefore, human health fish consumption AWQC's and other criteria relevant to the fish consumption pathway should be applied to potential bioaccumulatives because non-detects may be the result of high MRLs or other causes.

[C] EPA, under CERCLA authority, has identified the Safe Drinking Water Act's MCLs and AWQCs (federal and state, once approved) as potentialARARs under CERCLA. The final determination of whether MCLs or AWQC are ARARs will be made in the EPA Portland Harbor Record of Decision (ROD). Decisions to implement source control, prior to the EPA Portland Harbor ROD, due to an exceedance of an SLV in upland groundwater or stormwater will be prioritized and evaluated on a case-by-case basis.

[D] Stormwater sediment is defined as either catch basin sediment, conveyance line sediment, or stormwater particulates

[E] All values are Level II Screening Level Values taken from DEQ Guidance for Ecological Risk Assessment, December 2001

* indicates that the contaminant was analyzed and detected in the Round 1 Portland Harbor fish tissue (fillet or whole body analyses from sculpin, smallmouth bass, peamouth, northern pikeminnow, largescale sucker, chinook salmon, carp, brown bullhead, and black crappie; clam and crayfish data were not considered at this time). However, it is important to note that limited fish tissue was collected in Round 1, tissue was not collected in all areas, tissue samples were not analyzed for all compounds listed in this table ( e.g. volatile organic compounds (VOCs)); and the laboratory detection limits may not have been adequate for all analytes.

[F] indicates a octanol-water partition coefficient (Kow) equal to or greater than 3.5 and are considered potential bioaccumulatives for the purposes of this document.

[G] a blank cell indicates an SLV was not available at the time of the last update. DEQ or EPA may develop additional SLVs as determined necessary, on a case-by-case basis.

[1] The values were chosen by first referring to the PEC's in the paper listed in footnote 2. If the analyte was not found, we then used the other hierarchies listed in footnote 3 through 11 to find the value.

[2] These values were taken MacDonald DD, Ingersoll C G, Berger T A. (2000). Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Environmental Contamination and Toxicity 39: 20-31.

[3] Sediment quality value (Hyalella), Washington State, quoted in MacDonald et al. (1999), Appendix 3-1.

[4] Quoted in MacDonald et al. (1999); Appendix 3-1

[5] Lowest Apparent Effects Threshold (LAET), Table 11, WDOE (1997)

[6] Upper Effects Threshold (UET), Freshwater Sediment (NOAA, 1999)

[7] USEPA sediment quality advisory level, quoted in MacDonald et al. (1999), Appendix 3-1

[8] New York State acute criterion, quoted in MacDonald et al. (1999), Appendix 3-1

[9] Severe effect level, British Columbia, quoted in MacDonald et al. (1999). Appendix 3-1

[10] 5x conversion from measured "LOW" to estimated "HIGH". NOAEL to chronic LOAEL per USEPA (1997b)

[11] PEL, British Columbia, quoted in MacDonald et al. (1999), Appendix 3-1

[12] Based on Notice of Availability of Final Aquatic Life Criteria Document for Tributyltin (59 Fed. Reg. 2, 342). USGS web site (http://nwis.waterdata.usgs.gov/or/nwis/qwdata/?site_no=14211720&agency_cd=USGS).

[13] These values for aluminum are expressed in terms of "total recoverable" concentration of metal in the water column. The criterion applies at pH<6.6 and hardness<12 mg/L (as $CaCO_3$)

[14] These values were taken from OAR 340-41 Table 20 because they will remain the enforceable values for these particular analytes.

[15] This is a hardness dependent metal. All values were calculated based on 25 mg/l of $CaCO_3$.

[16] Values were taken from Table 33c (OAR 340-41), which are Water Quality Guidance Values, not criteria, that can be used in the application of Oregon's Narrative Toxics Criteria to waters of the state in order to protect aquatic life.

[17] The values for the Aroclors are based off the total PCB values

[18] Cyanide value is based on a free cyanide value per DEQ OAR 340-41 Table 33, and EPA values are based on total Cyanide

[19] This metal is listed as the total recoverable metal in the water column

[20] This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day

[21] Although methyl mercury and mercury have logKow values less than 3.5, they are considered bioaccumulative chemicals because they bind to sulfur containing amino acids

[22] Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Chronic = exp(1.005(pH)-5.134). The value displayed in the table corresponds to a pH of 7.8

[23] Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Chronic = exp(1.005(pH)-5.29). The value displayed in the table corresponds to a pH of 7.8

[24] Listed as a secondary pollutant by EPA

[25] Table 20 from OAR 340-40 was superceded by Tables 33A, 33B, and 33C. As noted above, 33A and 33C were adopted the Oregon Environmental Commission and were effective in February 2005. Implementation of Table 33B (i.e., metals) is pending EPA approval, Table 20 will be used for the compounds listed in Table 33B, pending approval and implementation.

Kow

[26] Log Kow were taken from the following sources

Table 30 of EPA's Soil Screening Levels Technical Document which can be found at http://www.epa.gov/SOLIS/soldoc.pdf

Meylan, Wm. M., 1997. Estimated Hydrolysis of Polycyclic Aromatic Hydrocarbons and Environmental Fate for Organic Chemicals

Arnold, A.P., A.J. Canty, P.W. Mason and G.B. Duncan. 1983. Methylmercury for methylmercuric(II) in water. Synthesis and determination of solubility properties of Methyl(II) complexes of lipoic and dihydrolipoic acids. J. Inorg. Biochem. 19: 115-127.

Syracuse Research Corp's website that estimates log Kow values from chemical structure - at http://www.syrres.com/esc/est_kowdemo.htm

Tier II SCV

(a) = value for Arsenic V

(b) = see notation for ORNL's Mercury value

(c) = SCV for BHC (other)

(d) = SCV for sum DDD

(e) = SCV for p,p DDT

(f) = SCV for m Xylene

(g) = SCV for Xylene mixture

(h) = SCV for 1-4dichlorobenzene

(i) = Tier II SCV values were taken from Suter II, G.W. and Tsao, C.L., 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. ORNL publication ES/ER/TM-96/R2

General

AWQC = ambient water quality criteria

MRL = minimum reporting limit

NRWQC = National Recommended Water Quality Criteria

ORNL = Oak Ridge National Laboratory

PRG = preliminary remediation goals

(1) Screening level values (SLVs) presented in this table may be revised or augmented as data becomes available from the Portland Harbor RI/FS or in the event the standards, criteria, guidelines or toxicological data are updated. Prior to using this Table, DEQ's website should be checked for updates to this table at http://www.deq.state.or.us/wq/PortlandHarbor/ecs

MCL

[28] MCL is based on benzo(a)pyrene

[29] National Secondary Drinking Water Standards

[31] = see footnote 5 on EPA NPD Drinking Water Standards

[30] MCL for Xylene mixture



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Table 3-1 Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water [A]

| Chemical | GROUNDWATER / SURFACE WATER / STORMWATER | | | | | | GROUNDWATER / SURFACE WATER / STORMWATER | | | UPLAND SOIL / STORMWATER SEDIMENT [B] | | ALL UPLAND COIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water [C] | | | | | | | | | Soil/Stormwater Sediment [D] | | Potential Portland Harbor Bioaccumulative COI? [E] | |
| | Human Health [F] | | | | | | Ecological Receptors [F] | | | Toxicity | Bioaccumulation | | |
| | Fish Consumption | | | | Drinking Water | | | | | | | | |
| | EPA's 2004 NRWQC (organism only) | Portland Harbor specific fish consumption rate | DEQ's 2004 AWQC (organism only) | Portland Harbor specific fish consumption rate | MCL | Tap Water PRGs | EPA's 2004 NRWQC (chronic) | DEQ's 2004 AWQC (chronic) | Oak Ridge National Laboratory's (Tier II SCV) [G] | MacDonald PECs and other SQVs [H] | DEQ 2001 Bioaccumulative Sediment SLVs [D] | COI Detected in Portland Harbor Round 3a Fish Tissue | Potential Bioaccumulative Chemical? (i.e. Log Kow ≥ 3.5) [I,J] |
| | 17.5 g/day consumption rate | 175 g/day consumption rate | 17.5 g/day consumption rate | 175 g/day consumption rate | | | | | | | | | |
| Units | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/kg | µg/kg | | |
| 1,2,3,4,6,7,8-HpCDD | | | | | | | | | | | | * | + |
| 1,2,3,4,6,7,8-HpCDF | | | | | | | | | | | | * | + |
| 1,2,3,4,7,8,9-HpCDF | | | | | | | | | | | | * | + |
| OCDD | | | | | | | | | | | | * | + |
| OCDF | | | | | | | | | | | | * | + |
| Total tetrachlorinated dioxins | | | | | | | | | | | | | + |
| Total pentachlorinated dioxins | | | | | | | | | | | | | + |
| Total hexachlorinated dioxins | | | | | | | | | | | | | + |
| Total heptachlorinated dioxins | | | | | | | | | | | | | + |
| Total tetrachlorinated furans | | | | | | | | | | | | | + |
| Total pentachlorinated furans | | | | | | | | | | | | | + |
| Total hexachlorinated furans | | | | | | | | | | | | | + |
| Total heptachlorinated furans | | | | | | | | | | | | | + |
| | | | | | | | | | | | | | |
| **Polybrominated Biphenyls** | | | | | | | | | | | | | |



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Notes

[A] Stormwater values in this table are intended for screening non-permitted discharges.

[B] MRLs for PAHs in Round 1 fish tissue were elevated above project ACHs, and perhaps as a result, limited PAHs and other compounds were detected. Therefore, human health fish consumption AWQCs and other criteria relevant to the fish consumption pathway should be applied to potential bioaccumulatives because non-detects may be the result of high MRLs or other causes.

[C] EPA, under CERCLA authority, has identified the Safe Drinking Water Act's MCLs and AWQCs (federal and state, once approved) as potentialARARs under CERCLA. The final determination of whether MCLs or AWQC are ARARs will be made in the EPA Portland Harbor Record of Decision (ROD). Decisions to implement source control, prior to the EPA Portland Harbor ROD, due to an exceedance of an SLV in upland groundwater or stormwater will be prioritized and evaluated on a case-by-case basis.

[D] Stormwater sediment is defined as either catch basin sediment, conveyance line sediment, or stormwater particulates

[E] All values are Level II Screening Level Values taken from DEQ Guidance for Ecological Risk Assessment, December 2001

* indicates that the contaminant was analyzed and detected in the Round 1 Portland Harbor fish tissue (fillet or whole body analyses from sculpin, smallmouth bass, peamouth, northern pikeminnow, largescale sucker, chinook salmon, carp, brown bullhead, and black crappie; clam and crayfish data were not considered at this time). However, it is important to note that limited fish tissue was collected in Round 1; tissue was not collected in all areas; tissue samples were not analyzed for all compounds listed in the table ( e.g., volatile organic compounds (VOCs)); and the laboratory detection limits may not have been adequate for all analyses.

+ indicates a octanol-water partition coefficient (Kow) equal to or greater than 3.5 and are considered potential bioaccumulatives for the purposes of this document.

[ ] a blank cell indicates an SLV was not available at the time of the last update. DEQ or EPA may develop additional SLVs as determined necessary, on a case-by-case basis.

[1] The values were chosen by first referring to the PECs in the paper listed in footnote 2. If the analyte was not found, we then used the other literature listed in footnotes 3 through 11 to find the value.

[2] These values were taken MacDonald DD, Ingersoll C G., Berger T A (2000). Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Environmental Contamination and Toxicity 39: 20-31.

[3] Sediment quality value (Hyalella), Washington State, quoted in MacDonald et al. (1999); Appendix 3-1.

[4] Quoted in MacDonald et al. (1999); Appendix 3-1

[5] Lowest Apparent Effects Threshold (LAET), Table 11, WDOE (1997)

[6] Upper Effects Threshold (UET), Freshwater Sediment (NOAA, 1999)

[7] USEPA sediment quality advisory level, quoted in MacDonald et al. (1999); Appendix 3-1

[8] New York State acute criterion, quoted in MacDonald et al. (1999); Appendix 3-1

[9] Severe effect level, British Columbia, quoted in MacDonald et al. (1999); Appendix 3-1

[10] 5x conversion from measured "LOW" to estimated "HIGH". NOAEL to chronic LOAEL per USEPA (1997b)

[11] PEL, British Columbia, quoted in MacDonald et al. (1999); Appendix 3-1

[12] Based on Notice of Availability of Final Aquatic Life Criteria Document for Tributyltin (69 Fed. Reg. 2, 342). USGS web site (http://www.waterdata.usgs.gov/nwis/qwdata?site_no=14211720&agency_cd=USGS).

[13] These values for aluminum are expressed in terms of "total recoverable" concentration of metal in the water column. The criterion applies at pH<6.6 and hardness<12 mg/L (as $CaCO_3$)

[14] These values were taken from OAR 340-41 Table 20 because they will remain the enforceable values for those particular analytes.

[15] This is a hardness dependent metal. All values were calculated based on 25 mg/l of $CaCO_3$.

[16] Values were taken from Table 33c (OAR 340-41), which are Water Quality Guidance Values, not criteria, that can be used in the application of Oregon's Narrative Toxics Criteria to waters of the state in order to protect aquatic life.

[17] The values for the Aroclors are based off the total PCB values.

[18] Cyanide value is based on a free cyanide value per DEQ OAR 340-41 Table 33, and EPA values are based on total Cyanide

[19] This metal is listed as the total recoverable metal in the water column

[20] The fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day

[21] Although methyl mercury and mercury have logKow values less than 3.5, they are considered bioaccumulative chemicals because they bind to sulfur containing amino acids

[22] Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Chronic = exp(1.005(pH)-5.134). The value displayed in the table corresponds to a pH of 7.8

[23] Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Chronic = exp(1.005(pH)-5.29). The value displayed in the table corresponds to a pH of 7.8

[24] Listed as a secondary pollutant by EPA

[25] Table 20 from OAR 340-40 was superceded by Tables 33A, 33B, and 33C. As noted above, 33A and 33C were adopted the Oregon Environmental Commission and were effective in February 2005. Implementation of Table 33B (i.e., metals) is pending EPA approval, Table 20 will be used for the compounds listed in Table 33B, pending approval and implementation

Kow

[26] Log Kow were taken from the following sources:

Table 19 of EPA's Soil Screening Levels Technical Document, which can be found at http://www.epa.gov/EcoTox/ecotoxhtml.pdf

Mackay, Ellen, MA, 1997. Handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals

Aaseth A.P., A.J. Cram, F. W. Mears and D.R. Duncan, 1981. Chelation therapy for methylmercury(II) poisoning. Synthesis and measurement of a chiral isomer of Hg(II)-complexes of thiol and dithiol chelators. J. Inorg. Biochem 15 319-327.

Syracuse Research Corp's website for estimating log Kow values from chemical structure - at http://www.syrres.com/esc/est_kowdemo.htm

Tier II SCV

(a) = value for Arsenic V

(b) = see notation for ORNL's Mercury value

(c) = SCV for BHC (other)

(d) = SCV for p,p' DDD

(e) = SCV for p,p' DDT

(f) = SCV for m-Xylene

(g) = SCV for Xylene mixture

(h) = SCV for 1-Methylnaphthalene

(i) = Tier II SCV values were taken from Suter II, G.W. and Tsao, C.L., 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. ORNL publication ES/ER/TM-96/R2

MCL

[28] MCL is based on benzo(a)pyrene

[29] National Secondary Drinking Water Standards

[30] = see footnote 7 on EPA NPD Drinking Water Standards

[31] MCL for Xylene mixture

General

AWQC = ambient water quality criteria

MRL = minimum reporting limit

NRWQC = National Recommended Water Quality Criteria

ORNL = Oak Ridge National Laboratory

PRG = preliminary remediation goals

(*) Screening level values (SLVs) presented in this table may be revised or augmented as data become available from the Portland Harbor RI/FS or in the event the standards, criteria, guidelines or toxicological data are updated. Prior to using this Table, DEQ's website should be checked for updates to this table at http://www.deq.state.or.us/wq/wq/PortlandHarbor/jsca.



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# Section 4 Source Control Decision Process

The source control decision process described in this section is intended to help DEQ project managers determine if source control measures are required at upland Portland Harbor sites and if so the priorities for source control implementation. This decision is ultimately based on whether the contaminant release or potential for contaminant release has a current or reasonably likely future adverse effect on water or sediment quality in the Willamette River. The process was developed with the goal to complete source control prior to sediment cleanup activities within the Portland Harbor Superfund Site. The success of the Portland Harbor Cleanup Project relies on the timely and successful implementation of upland source control measures. The schedule for the Portland Harbor project currently calls for an EPA Portland Harbor ROD(s) in 2008; thus, adherence to the established schedule is critical to meet the objective. The following sections present the source control decision process. Figure 4-1 provides a simplified overview of the source control decision process.

## 4.1 Contaminant Migration Pathways

In order to discuss the steps to identify and manage sources, it is important to understand potential, current and historic contaminant sources and pathways to the Willamette River within the Portland Harbor Superfund Site. Media relevant to source control that can be contaminated by human activity are water, soil, and air. The Portland Harbor conceptual site model presented in the Programmatic Work Plan (LWG, 2004a, 2004b) identifies potential upland contaminant migration pathways that may impact the river, such as:

- *Direct discharges*: Pollutants from commercial, industrial, private, or municipal outfalls may be directly discharged to the Portland Harbor Superfund Site. Many of these discharges are permitted under the National Pollutant Discharge Elimination System (NPDES). Permitted discharges include industrial wastes, storm water runoff, and combined sewer overflows (CSOs)[1].
- *Groundwater*: Contaminated groundwater may enter directly into the Portland Harbor Superfund Site via discharge through sediments, bank seeps, or it may infiltrate into storm drains/pipes, ditches or creeks that discharge to the river. Contaminant migration may occur as non-aqueous phase liquids (NAPLs) or as dissolved phase transport.
- *Erosion/Leaching*: River bank soil, contaminated fill, waste piles, landfills, and surface impoundments may release contaminants directly to the Portland Harbor Superfund Site through erosion, via soil erosion to storm water, or by leaching to groundwater.
- *Overwater Activities*: Contaminants from overwater activities (*e.g.*, sandblasting, painting, unloading, maintenance, repair, and operations) at riverside docks, wharves, or piers; discharges from vessels (*e.g.*, gray, bulge, ballast); fuel releases; and spills may impact the Portland Harbor Superfund Site.

[1] CSO events are untreated discharges of combined storm water, and sanitary sewage from residential, commercial, and industrial sources that overflow from the sewer system into the river during heavy rainfall periods when the amount of storm water and sewage exceeds the capacity of the collection system.



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- *Air pollution*: Air pollution (e.g., vehicle emissions, industrial smokestacks, fugitive dust, etc.) can enter the river directly or through storm water and become a possible source of contamination to the Portland Harbor Superfund Site.

The pathways of vessel traffic and air pollution are not specifically discussed because they are expected to be addressed under one of the other pathways (*e.g.*, upland air deposition or urban spills that are carried to the river through storm water runoff will be considered under storm water screening). These pathways can be controlled with physical actions (source removal, best management practices (BMPs), etc.) and/or administrative actions (orders, permits, etc.).

## 4.2 Upland Site Characterization

In general, upland site characterization activities follow the CERCLA Preliminary Assessment (PA), Site Investigation (SI), Remedial Investigation (RI) process outlined in DEQ and EPA guidance. Upland investigations should focus on identifying whether there is a complete contaminant migration pathway to the Willamette River and screening contaminants that may be present on-site (*i.e.*, COIs) to identify those contaminants that may adversely impact the river (*i.e.*, COPCs). A complete contaminant migration pathway to the river includes media impacted by contaminants at an upland facility (sources) and a process by which that contaminant is transported to the Willamette River. In some cases, PA or SI level information may be adequate to determine whether or not an upland facility is a source of contamination (*i.e.*, whether or not a complete contaminant migration pathway exists) to the Willamette River. However, it may be necessary to collect RI level data at upland sites to determine whether or not an upland facility is a source of contamination to the Willamette River. Most upland site investigations will be conducted under the oversight of DEQ, and in accordance with Oregon environmental regulations. DEQ's site discovery and evaluation process are presented in Appendix B and DEQ's expectations for site characterization for upland sites are presented in Appendix C. Figure 4-2 provides an overview of the DEQ site discovery and evaluation process. DEQ's discovery, evaluation, and characterization processes are provided for information purposes only.

## 4.3 Upland Source Control Screening

The source control screening process is an iterative process requiring the upland PRP or DEQ to evaluate and update the individual site source control information at the completion of each major phase of the investigation. The primary purposes of screening include:

- Determining if site characterization is sufficient to support informed source control decisions;
- Identifying COPCs for the upland facility and each potential contaminant migration pathway; and
- Prioritizing sites for further remedial action or source control activities.

Once a potential contaminant migration pathway (*e.g.*, groundwater, direct discharge, or erodable soil) to the Willamette River is determined to be or reasonably likely to be complete in the



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future, representative contaminant concentrations for the specific migration pathway should be compared to the appropriate source control SLVs in Table 3-1 to identify site-specific COPCs.

The source control screening process needs to be formally documented at the completion of the upland RI or prior to this if a decision is made by DEQ that source control is necessary for a specific pathway. DEQ may require that the upland PRPs prepare and submit a site-specific Source Control Evaluation for review and approval as described in Section 7.0.

## 4.4 Source Control Prioritization

The DEQ will evaluate upland sites to determine the priority for requiring addition evaluation or implementing upland source control measures. Sites will be prioritized, based on potential threats to the Willamette River environment.

Source control prioritization may include an evaluation of the following key factors:

- Complete (known or potentially complete) contaminant migration pathway from the uplands to the Willamette River);
- Magnitude by which the SLV was exceeded and the number of contaminant exceedances for site-specific COPCs;
- Location, extent, and duration of SLV exceedances from COPCs;
- Presence of bioaccumulative chemical(s) in upland media or adjacent sediments;
- Presence of chemicals in upland media identified as potential risk drivers for the in-water RI/FS;
- Estimated magnitude of potential contaminant mass loading to the river;
- Presence of bioaccumulative chemicals(s) in aquatic tissue;
- Fate and transport behavior of the COPC; and
- Propensity of contaminant(s) to accumulate in sediments.

High-priority sites are expected to move forward with aggressive source control measures without delay or be subject to enforcement action. Medium-priority sites are expected to perform a weight-of-evidence evaluation process to determine if source control measures are required. Source control measures will not be required at low-priority sites unless determined necessary by the results of the Portland Harbor RI/FS or ROD(s).

DEQ, in consultation with EPA, will determine if source control is or is not required. In the event that a PRP does not agree with DEQ's determination that source control is required, the PRP can pursue the issue via dispute resolution as provided in DEQ's Portland Harbor Agreements or DEQ can take enforcement action in accordance with Oregon environmental regulations.



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### 4.4.1 High Priority Source Control Sites

High priority source control sites are those facilities where DEQ and EPA determine that a complete contaminant migration pathway exists and the upland source is significantly impacting the river or poses a significant and imminent threat to the river based on an initial evaluation of the factors listed at the beginning of Section 4.4. A primary consideration is that one or more media significantly exceed applicable SLVs at the point of discharge to the river (*e.g.*, water at the end of a discharge pipe; soil or material at the riverbank) or the most reliable and cost-effective data point (*e.g.*, groundwater measured at the shoreline), or where a bioaccumulative chemical is detected at concentrations significantly above the SLV. In addition, if, at any point in the site characterization process, it is determined that an upland source is violating DEQ *narrative* water quality criteria[2] for the Willamette River, the site may be considered high priority. It should be noted that the detection of petroleum product (*i.e.*, dense or light nonaqueous phase liquid, DNAPL or LNAPL, respectively) in groundwater seeps along the riverbank or in the river are considered a violation of Oregon's narrative water quality criteria and are expected to initiate the immediate design and implementation of source control measures to control product releases to the Willamette River.

**Immediate Source Control Measures**

Actions that may be applicable to high priority source control sites include, but not be limited to:

- Installing sorbent booms to address product seeps or spills.
- Posting warning signs to prevent direct contact.
- Removing product to control direct discharges to the river.
- Removing accumulated sediments and debris from catch basins and storm water conveyance lines.
- Hydraulic containment to control high concentration discharges to the river.
- Bank stabilization efforts.

Sites identified, as high priority should move directly into evaluation of source control alternatives and source control implementation without delay. It is DEQ's expectation that sites identified as high priority for source control will initiate actions under DEQ's removal authority. The specific actions may parallel the CERCLA time critical or non-time critical removal path (EPA, 1993) as appropriate to select and implement source control. Source control should be implemented with little or no additional site characterization except as needed to define the extent of the problem and select or design an appropriate source control measure. The process for evaluation of potential source control measures is described in Section 4.6. The evaluation and design schedule should be developed to optimize source control implementation.

Source control measures implemented as interim actions will, to the extent practicable, contribute to the efficient performance of any long-term upland remedial action. Any interim action should be consistent with and not preclude implementation of an expected final remedy.

[2] Oregon Narrative Water Quality Criteria OAR Chapter 340, Division 41 includes, but is not limited to prohibiting the creation of: 1) tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish; 2) objectionable discoloration, scum, oily sheen or floating solids or coating of aquatic life with oil film; 3) aesthetic conditions offensive to the human senses; 4) formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry; etc.



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High priority source control measures will be discussed with the EPA and its partners as described in Section 6.0 and 7.0.

### 4.4.2 Medium Priority Source Control Sites

Medium priority source control sites are those facilities where DEQ determines that a complete contaminant migration pathway exists and the upland source is impacting the river or poses a significant and/or imminent threat to the river based on an initial evaluation of the factors listed at the beginning of Section 4.4. A primary consideration is that one or more media exceed applicable SLVs, but not significantly, at the point of discharge to the river, or where a bioaccumulative chemical is detected at concentrations above the SLV. Although exceedance of SLVs does not necessarily indicate a site poses a significant and/or imminent threat or needs to immediately implement source control measures, it does indicate that the site may pose a threat to human health or the environment and that additional evaluation may be needed to determine if source control measures are required to prevent, minimize or mitigate the migration of hazardous substances to the river. If the site exceeds one or more SLVs, the need for further characterization or for implementation of source control measures should be based on a site-specific weight-of-evidence determination.

The weight-of-evidence determination should be prepared by the PRP for agency review and approval. Detailed descriptions of the screening process and the weight-of-evidence criteria, by medium and pathway, are provided in Section 5.0. The weight-of-evidence evaluation should focus on upland evidence that a source is impacting, or may impact, the river. To determine if source control is needed, the evaluation of existing data or collection of additional data at the site should focus on the potential for:

- Ongoing release(s) based on the magnitude of the contamination source;
- Unacceptable impacts to the river based on the type(s), concentration(s), and number of contaminants;
- Contaminant loading to the river based on the nature of the contaminant and the presence of an environmental transport mechanism; and
- Propensity of contaminants to accumulate in Willamette River sediments.

Based on the weight-of-evidence evaluation, DEQ may decide, in consultation with EPA, that certain source control decisions should be performed in conjunction with specific in-water actions or deferred until such actions have been completed. In these cases, the results of the in-water characterization efforts, in-water early actions, or the in-water human health and/or ecological risk assessments may be required before the need for source control measures can be determined or adequately scoped.

Upland PRPs can elect at any time to proceed with source control at a medium priority site in lieu of performing additional investigation(s). Potential source control measures (*e.g.*, in-situ groundwater treatment; groundwater extraction; storm water management; removal of upland source materials; and natural attenuation) can be evaluated to determine if they would be adequate to ensure that the upland source does not represent a risk to human health or the environment, exceed ARARs, or represent and adverse effect on beneficial water uses.



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Evaluation of available in-water sediment, bioassay, fish tissue or other in-water characterization data can be used to supplement the upland data in supporting the need for source control measures.

### 4.4.3 Low Priority Source Control Sites

Low priority source control sites are those facilities where upland data (*e.g.,* PA, SI, RI) indicate, based on an initial evaluation of the factors listed at the beginning of Section 4.4, the site likely poses a low threat to the river (*e.g.*, concentrations are near or below SLVs) or where DEQ, in consultation with EPA, may issue an upland "No Further Action" (NFA) determination or lower the State's priority of the site for further upland investigation or remedial action under DEQ's cleanup authority. These sites may be revisited following completion of the in-water risk evaluation and/or EPA Portland Harbor ROD(s).

### 4.4.4 Excluded Source Control Sites

Facilities where DEQ and EPA determine that there is no contaminant source or there is not a current or reasonably likely complete contaminant pathway to the river will be excluded from source control requirements.

## 4.5 Tools to Manage Sources

Upland source control is an iterative process, where early steps may be revisited and conclusions refined by information gathered later in the process. It may be most effective to use a combination of tools, to address a particular source, including but not limited to the following:

- *Technical Assistance*: Technical assistance, often provided during inspections, provides technical information tailored to help individual businesses bring their facility into compliance with pertinent regulations. DEQ's Hazardous Waste Program is actively providing technical assistance to facilities within the Portland Harbor Superfund Site.
- *Inspections*: An inspection (*e.g., hazardous waste compliance, storm water permit)* may help identify and control sources of chemicals at businesses and other facilities. Inspectors identify potential sources of chemicals of concern, document activities and sources on site, educate business representatives on the regulations, and offer technical assistance to help businesses comply with regulations. The right to inspect is typically written into federal, state, and local regulations to ensure that appropriate actions are taken at regulated facilities or activities. Inspections are often followed by administrative actions.
- *Administrative Actions/Enforcement*: Administrative actions include licenses, permits, deed restrictions, requirements for site development plans and enforcement actions. Agencies rarely take enforcement actions without first writing memos or letters to record inspection findings, document requested changes, and give warnings and offers of technical assistance. When enforcement actions are warranted, they are usually taken in escalating order, starting with notices of violation, then moving to enforcement or compliance orders requiring specific changes by a specific date, and finally to monetary



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penalties. Formal cleanups performed under order or decree use oversight and enforcement to ensure that appropriate actions are taken in a timely manner.

- *Upland Contaminated Site Cleanups*: These are upland cleanups that address contaminated soil, groundwater, and storm water. Cleanup actions vary from site to site, and are typically implemented under Oregon environmental cleanup regulations, Resource Conservation and Recovery Act (RCRA), and/or Superfund authority. For the purposes of Portland Harbor source control, upland cleanups will focus on reducing or eliminating contaminant migration to the river.
- *Source Control of Active Discharges*: Tools to control active discharge include best management practices, industrial process changes, pollution prevention practices, and technology-based controls of effluent. Compliance is achieved voluntarily or through administrative actions, including permits or enforcement.
- *Storm Water Source Control*: Storm water source control is complex because discharges to storm drain systems are affected by many different sources (*e.g.*, land use activities, runoff from contaminated sites, and infiltration of contaminated groundwater into the storm drain system). It is also complex because storm water regulation may involve federal, state, and local agencies. Because of this complexity, all of the tools discussed above are useful for storm water source control and will be used as appropriate.

## 4.6 Source Control Alternative Evaluation and Design

As described above, the need for source control measures will be determined by DEQ, in consultation with EPA, based on a complete contaminant migration pathway, SLV exceedance(s), or other factors as appropriate. DEQ's RI Agreements with upland PRPs require source control measures to be performed as removal actions, or remedial actions, whichever can be completed to achieve source control by the time of the EPA Portland Harbor ROD(s) currently scheduled for 2008. "Removal actions" are interim cleanup actions that result in a significant reduction in the concentration, volume, toxicity or mobility of contamination. "Remedial actions" are final cleanup actions typically set forth in an upland DEQ ROD.

If DEQ determines that source control is required at a site prior to the completion of the upland RI, DEQ anticipates that the selection of the source control measure will be based on a focused feasibility study (FFS), developed in general accordance with the CERCLA Engineering Evaluation/Cost Analysis (EE/CA) process (EPA, 1993). If the need for source control is determined at the completion of the upland RI, the evaluation of source control alternatives will be incorporated into the upland feasibility study (FS). The site remedy will be selected by DEQ in accordance with OAR 340-122-0010 through 340-122-0115, in consultation with EPA and its partners, as described in Section 2.5.1.

For interim source control decisions, the EE/CA will consider how the source control measure may be integrated into a final remedy for the site and whether the source control measure would preclude implementation of future in-water remediation or additional source control measures.



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Following DEQ approval of the EE/CA, the PRP should submit a remedial design document for review and approval prior to implementing the source control measure. The design should include a performance-monitoring plan to evaluate the effectiveness of the source control measure.

When it is determined that source control is required, EPA and partners, will be provided an opportunity to provide input on the source control measure including: the objectives; the evaluation and selection process; design; the implementation schedule; and the integration with the in-water RI/FS, as described in Section 2.5.1.

**Source Control Alternative Evaluation**

DEQ anticipates that the selection of the removal action will be based on a focused feasibility study or an Engineering Evaluation/Cost Analysis* (EE/CA) including, but not limited to the following:

- Site characterization -
  - Site description and background;
  - Potential sources;
  - Nature and extent of contamination;
  - COPCs
  - Previous removal actions;
  - Source Control Screening evaluation
- Identification of source control measure objectives -
  - Statutory limits;
  - Source control measure scope; and
  - Source control measure schedule.
- Identification and analysis of source control measure alternatives -
  - Effectiveness;
  - Implementability;
  - Cost.
- Comparative analysis of source control measure alternatives
- Recommended source control measure alternative.

Note: Prior to selecting and implementing source control activities, the DEQ project manager will prepare a brief staff report describing the proposed source control measure, publish a public notice, hold a public comment period, and consider public response in accordance with DEQ Cleanup Rules.

* Conducting Non-Time-Critical Removal Actions Under CERCLA. EPA, December 1993. OSWER 9360.0-32FS. EPA/540/F-94/009.

## 4.7 Public Involvement

Public involvement requirements for source control decisions will be performed in accordance with state regulatory authorities used to implement source control. Public notices, comment periods, public meetings and presentations will be held with interested parties as appropriate to explain source control activities and plans and to supplement source information with local knowledge. Updates on source control activities will be included in DEQ or EPA fact sheets, newsletters, spreadsheets, or web-sites.

## 4.8 Confirming Source Control Measures are Protective

Completed upland source control measures will be documented in a Source Control Implementation Report. Once the Portland Harbor in-water risk evaluation has been completed and acceptable clean-up levels have been established for water and sediment, DEQ and EPA will re-evaluate upland source control decisions made prior to the EPA Portland Harbor ROD(s), as needed, to confirm whether upland sources have been controlled to levels that are consistent with cleanup requirements specified in the EPA Portland Harbor ROD(s). Depending on the timing of upland source control decisions, final source control determinations may be formalized in upland DEQ RODs, EPA Portland Harbor ROD(s), or other Source Control Decision documents. Facilities where source control is not implemented at the time of the EPA Portland Harbor ROD(s) may be included in the EPA Portland Harbor ROD(s) or it may be determined that further action is required for the upland source control measure to be protective of the river.



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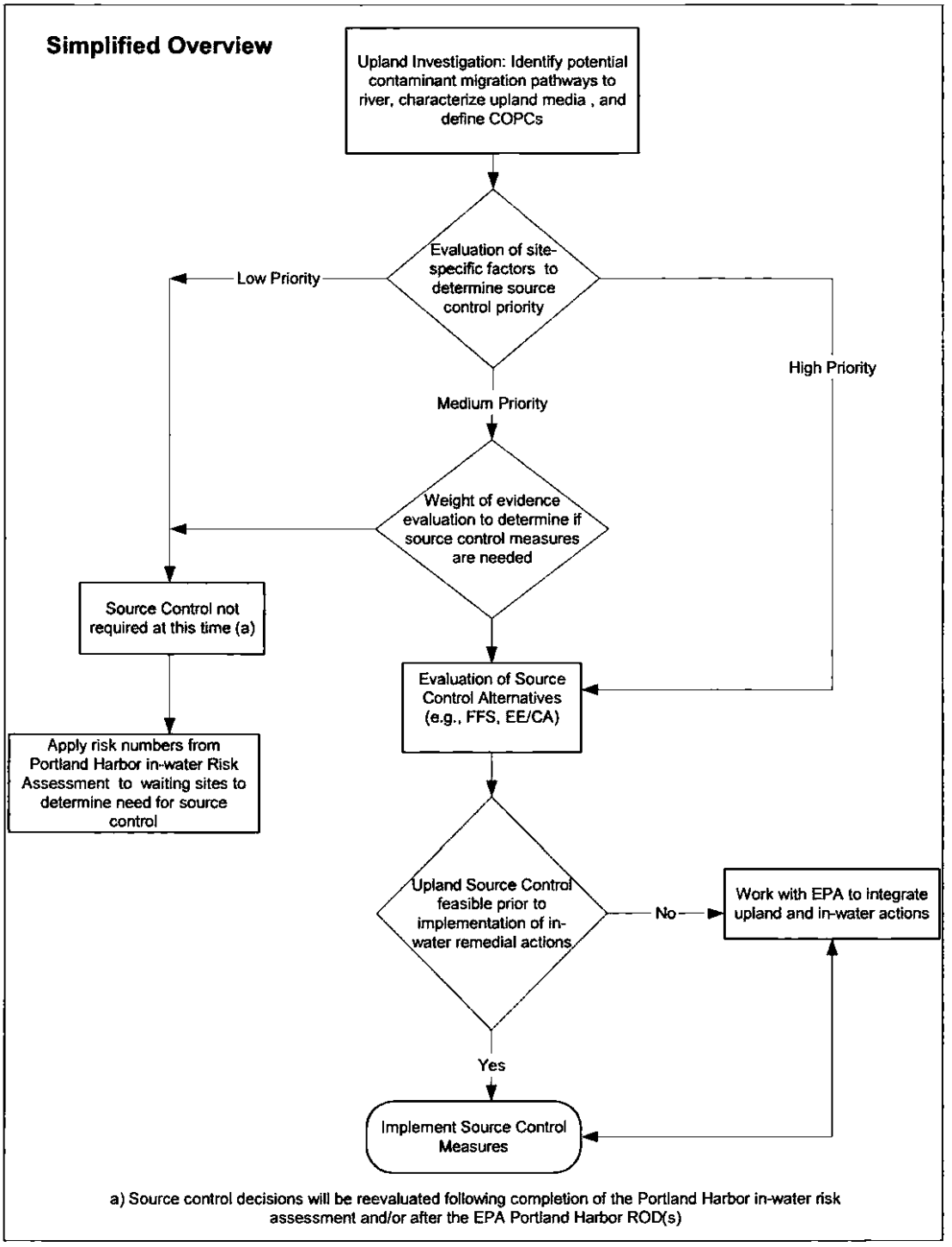


Figure 4-1 Source Control Decision Flow Chart



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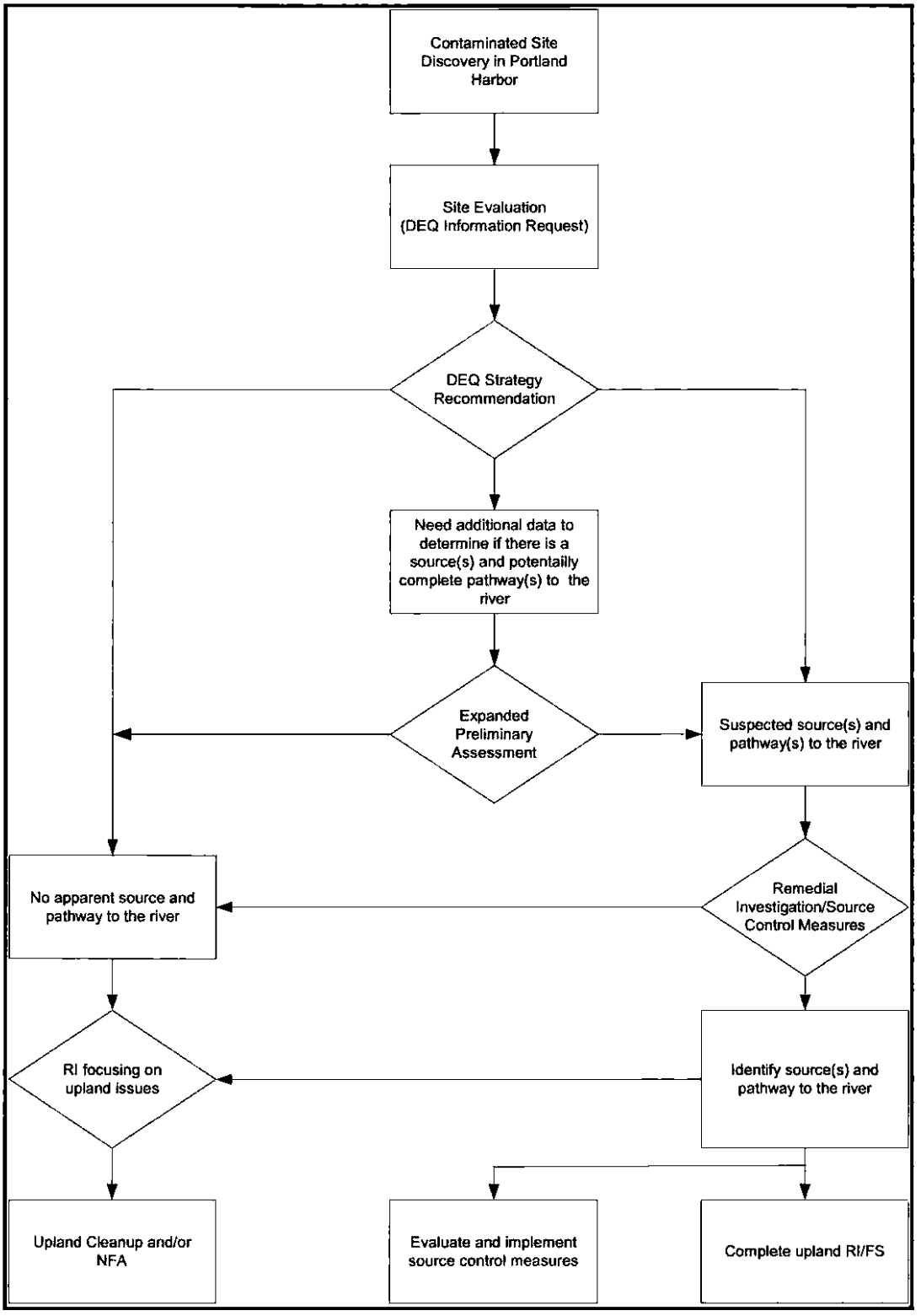


Figure 4-2 DEQ Upland Site Discovery and Evaluation Process Flow Chart



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# Section 5 Source Control Screening Process

This section describes the process for evaluating the need for source control measures for potential upland contaminant migration pathways to the Willamette River. As described in Section 4.0, the primary purposes of screening include:

- Determining if site characterization is sufficient to support informed source control decisions;
- Identifying COPCs for the upland facility and each potential contaminant migration pathway; and
- Prioritizing sites for further remedial action or source control activities.

DEQ may require upland PRP's to submit a site-specific Source Control Evaluation. The site-specific Source Control Evaluation should include screening (*i.e.*, comparison) of all available pertinent data (soil, groundwater, storm water, etc) to the SLVs developed in Section 3.0 and presented in Table 3-1. The screening process is intended to be iterative and applied throughout site characterization activities (*i.e.*, defining the nature and extent of upland contamination) and documented in the Source Control Evaluation.

Sites that significantly impact the river or pose a significant and imminent threat to the river will be designated as high-priority sites, as discussed in Section 4.4.1. A primary consideration for a high-priority site is that one or more media significantly exceed applicable SLVs at the point of discharge to the river (*e.g.*, water at the end of a discharge pipe; soil or material at the riverbank) or the most reliable and cost-effective data (*e.g.*, groundwater measured at the shoreline) and there is a known or likely complete contaminant migration pathway to the river. High-priority sites are expected to move forward with source control without delay. If a site exceeds one or more SLVs, but the exceedances are not significant, the site will likely be considered medium-priority, and the need for further characterization or for implementation of source control measures will be based on a site-specific weight-of-evidence evaluation. The weight-of-evidence evaluation should be included in the Source Control Evaluation prepared by the PRP for agency review and approval. DEQ will consider the weight-of-evidence and designate a source control priority level for a site.

Medium-priority sites should be evaluated using the weight-of-evidence criteria provided in the subsections below, categorized according to the contaminant medium and pathway at the site. The pathways of vessel traffic and air pollution are not discussed below, since they usually fall under one of the other pathways discussed below (*e.g.*, upland air deposition that is carried to the river through storm water runoff will be considered under storm water screening). These pathways can be controlled with physical actions (source removal, BMPs, etc.) and/or administrative actions (orders, permits, etc.). The weight-of-evidence evaluation should focus on evidence that an upland source is impacting, or may impact, the river. Although this section provides acceptable approaches, alternative qualitative or quantitative approaches for evaluating these pathways may also be acceptable to the DEQ, EPA, and its partners.



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## 5.1 Soil Screening

Contaminants in soil can migrate to the river as a result of:

- Wind erosion and entrainment of soil and subsequent deposition in the Willamette River. This erosion pathway is discussed in Section 5.1.1;
- Erosion of contaminated river bank soils or bank failure. This erosion pathway is discussed in Section 5.1.2;
- Soil contaminants leaching to groundwater and subsequently being transported to the river via groundwater flow is discussed in Section 5.1.3 and the groundwater pathway is discussed in Section 5.2; and
- Erosion of contaminated soil carried to the river via storm water runoff (*e.g.*, sheet flow, drainage ditches, storm water collection and discharge systems). The storm water pathway is discussed in Section 5.3.

### 5.1.1 Wind Erosion

While wind erosion is not likely a significant pathway during normal site operations, during remediation, development, or redevelopment activities, airborne contaminated soil, especially at sites adjacent to the river, could be a significant migration pathway. It is anticipated that short term remedial action implementation risks will be managed using site specific health and safety plans and DEQ approved work plans or soil management plans. This pathway is not considered a significant migration pathway and is not further considered in this document.

### 5.1.2 Erodable Surface Soils or Riverbank Material

Contaminants in erodable surface soil or in riverbanks pose a potential threat to aquatic receptors and river sediment. Specific numeric criteria have not yet been developed by DEQ or EPA to evaluate the potential impacts to human health or aquatic life from contaminated soil runoff to surface water or sediment. This section describes the general approach for screening these impacts.

Soil concentrations in erodable surface soil should be compared against the soil SLVs in Table 3-1 to assess the soil-to-sediment and soil-to-surface water pathways. If surface soil concentrations exceed soil SLVs, a qualitative or quantitative weight-of-evidence evaluation should be performed by the upland PRP to evaluate the likelihood of adverse effects from migration of soils to surface water and sediment and to determine if soils source control measures are required. The weight-of-evidence evaluation will be reviewed and approved by DEQ, EPA and its partners in accordance with the MOU. The weight-of-evidence evaluation may include, but is not be limited to consideration of the following site-specific factors:

- Presence of persistent bioaccumulative chemicals;
- Contaminant concentrations (magnitude of exceedance above SLV);



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- Regional background soil concentrations for naturally occurring chemicals (*i.e.*, metals);
- Extent of contaminated soil (*e.g.*, area of exposed and/or erodable soil);
- Proximity of source area soil to the river;
- In-water sediment data in proximity to source area;
- Site surface conditions (*e.g.*, exposed soil, paved, slope);
- Riverbank stability (*e.g.*, potential for erosion under extreme rainfall events, potential for erosion under flood conditions, bank erosion rates);
- Soil properties (*e.g.*, soil type, compaction, erodability, permeability);
- Storm water management;
- Proximity of source area soils to storm water catch basins (See Section 5.3 regarding storm water);
- Evaluation of potential soil erosion and contaminant transport (*e.g.*, modeling, quantitative erosion calculations); and
- Estimate of potential contaminant loading to the river.

**Source Control Measure**
**Example 1- Erosion Control**

Erosion of contaminated riverbank soils directly to the Willamette River is a key transport mechanism for Portland Harbor. If riverbank soils significantly exceed SLVs, the responsible party will be required to evaluate and implement source control measures and may be required to perform in-water sediment sampling directly adjacent to the bank.

Source control measures should focus on removing contaminated soil or stabilizing riverbank soil to prevent erosion. Interim erosion control efforts may be needed to immediately reduce erosion potential, such as placing bales of hay, silt fences, or other types of materials to reduce erosion of contaminated soils.

Excavation/removal of contaminated soil significantly above SLVs is the preferred method for preventing erosion and transport of surface soils to the river. Capping with clean fill or revegetation may be appropriate source control measures or may be performed in conjunction with soil removal. Revegetation includes the planting of trees and shrubs, planting of native grasses with well-defined root structures, and temporary measures such as the placement of straw or binder materials to prevent erosion until root structures take hold. After planting, monitoring must be performed to ensure adequate planting densities are developed and the measure is effective. Berms or construction of engineered wetlands may also be incorporated into a source control measure.

The PRP is responsible for ensuring compliance with all local, state, and federal regulations during source control activities. For example, riverbank source control activities would likely be subject to the City of Portland's Greenway Code 33.440, which regulates shoreline development. The use of riprap is discouraged and may not meet City of Portland Greenway requirements or the need for habitat enhancement within Portland Harbor.

Near-shore shallow sediment sampling may be required to collect adequate data for source control measure design or to assess the priority and timing of potential source control measures. In general, the presence of product-stained or saturated soils immediately adjacent to the river, a storm water catch basin, or within an erosional channel may require source control measure implementation to prevent contaminants from reaching the river.



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### 5.1.3 Subsurface Soils

Contaminants in subsurface soil may pose a potential threat to aquatic receptors and river sediment if contaminants are leached and transported to the river via groundwater flow. Specific numeric criteria have not yet been developed by DEQ or EPA to evaluate the potential impacts to human health or aquatic life from leaching of contaminated soil and migration to surface water or sediments. Therefore, due to the shallow presence of groundwater in the Portland Harbor Superfund Site, it is expected that focused groundwater sampling will be performed during site characterization activities and if groundwater impacts are identified they will be screened in accordance with Section 5.2. Subsurface soil remediation (*i.e.*, source removal) may be an effective way to achieve groundwater source control in conjunction with active source control measures (*e.g.*, hydraulic control, in-situ treatment) or when active source control measures are not effective in achieving source control objectives or do not appear cost effective. In some cases, source removal may be performed as part of the upland remediation necessary to protect upland receptors (*e.g.*, human or terrestrial ecological) and to meet DEQ's hot spot requirements.

**Source Control Measure**
**Example 2- Upland Source Removal**

In some cases, source removal (*e.g.*, excavation of contaminated soil) is a source control measure. Source removal may be performed as a stand-alone measure or in conjunction with other source control measures such as erosion control or hydraulic containment. For example, erosion control efforts to address highly contaminated riverbank soils may not be effective. Similarly, measures to address groundwater contamination may not be effective without source removal. Contaminated soils with high concentrations (*e.g.*, hot spot or principal threat level) may require treatment or excavation and off-site disposal in a secure location.

A qualitative or quantitative weight-of-evidence evaluation should be performed by the upland PRP to determine if leaching of contaminated subsurface soil may impact groundwater quality in the future at concentrations exceeding groundwater or surface water SLVs and if subsurface soil source control activities are needed. The weight-of-evidence evaluation will be reviewed and approved by DEQ, EPA and its partners in accordance with the MOU. The weight-of-evidence evaluation may include, but not be limited to consideration of the following site-specific factors:

- Presence of persistent bioaccumulative chemicals;
- Contaminant concentrations (magnitude of exceedance above SLV);
- Regional background concentrations for naturally occurring chemicals (*i.e.*, metals);
- Extent and distribution of contaminated subsurface soil;
- Depth to groundwater;
- Proximity of source area soil to the river;
- In-water sediment data in proximity to source area;
- Infiltration/leaching potential;
- Contaminant properties (*e.g.*, solubility, partitioning coefficients);
- Soil properties (*e.g.*, soil type, permeability);



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- Available groundwater quality data; and
- Evaluation of potential soil leachability and contaminant transport (*e.g.*, modeling, quantitative calculations).

## 5.2 Groundwater Screening

Groundwater data obtained during each phase of site characterization activities should be used to screen potential impacts associated with groundwater discharge to the river. Screening should initially focus on groundwater in potential source areas, and then on groundwater downgradient from source areas as the plume is delineated. Information from the site should also be used to identify and investigate preferential migration pathways such as utility line backfill, storm water lines that discharge to the river, and permeable water bearing zones. DEQ's expectations for groundwater characterization for source control decisions are presented in Appendix C for informational purposes.

Upland groundwater data should be compared to ecological and human health water SLVs in Table 3-1. Exceedance of SLVs in groundwater at the site will trigger an evaluation using the factors listed at the beginning of Section 4.4 to determine the priority of the site for this pathway. If the pathway is determined to be high priority, then groundwater source control measures would be required at this site. For a medium-priority site, a weight-of-evidence evaluation will be conducted to determine the likelihood of adverse effects from migration of groundwater to sediment or surface water and to determine if groundwater source control measures are required. The detection of petroleum product (*i.e.*, DNAPL or LNAPL) in groundwater seeps along the riverbank or in the river are considered a violation of Oregon's narrative water quality criteria and may require the immediate design and implementation of source control measures to control product releases to the Willamette River.

**Groundwater / Surface Water Characterization Considerations**

The potential hydraulic connection between site groundwater and surface water should consider the following:

- ✓ Nature and extent of groundwater contamination.
- ✓ Characterization of groundwater discharge to surface water.
- ✓ Area of discharge (*e.g.*, width of discharge, length discharge interface extends into the river).
- ✓ Estimated groundwater discharge rate and volume.
- ✓ Location and estimated size of discharge (river bank seeps; near shore; river channel).
- ✓ Estimated contaminant loading to river.
- ✓ Contaminant fate and transport (including the propensity of a chemical to accumulate in or migrate through sediments).
  - ➢ Sediment characteristics (type, bulk density, porosity);
  - ➢ Contaminant characteristics;
  - ➢ Stability of sediments (*e.g.*, site hydrodynamics, dredging);
  - ➢ Sediment-groundwater partition coefficient;
  - ➢ Sediment-water sorption coefficient; and
  - ➢ Fraction of organic carbon in sediment.



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**Source Control Measure**
**Example 3- Groundwater Containment**

Discharges of NAPL or sheen to the Willamette River will require hydraulic containment or control to prevent further releases to the harbor. Hydraulic containment may be required for contaminated groundwater that has an adverse effect on a beneficial water use or poses an unacceptable risk to human or ecological receptors. The design and implementation of hydraulic containment or control will require a thorough understanding of the groundwater flow regime, characterization of the contaminant distribution, and groundwater modeling. Options for hydraulic control include, but are not limited to, the installation of extraction trenches and barrier walls. Hydraulic containment or control through the installation of groundwater extraction wells along the Willamette River may be difficult due to the influence of the river on the groundwater flow regime.

The following steps provide a simplified approach for evaluating potential groundwater-to-sediment and groundwater-to-surface water pathways:

- Step 1: Screen groundwater concentrations against ecological and human health SLVs[1] presented in Table 3-1. Screening should be conducted at each groundwater monitoring well and groundwater data point.[2] Potential dilution should not be included in screening. As the site hydrogeologic conceptual model is developed and revised; appropriate groundwater data from within the plume (*i.e.,* area of groundwater exceeding SLVs[3]) and as close to the river as possible should be used to assess potential impacts to the river. The results of the SLV screening will be used to define the extent of groundwater contamination, to determine the need for additional source control evaluation, and ultimately to determine if source control is needed.

- Step 2: If a groundwater plume has not reached the river, install monitoring wells at the leading edge of the plume (*i.e.*, at an appropriate distance between the source and the river) to form an initial compliance boundary. These wells should be used to monitor plume stability and to allow the detection of contaminants in adequate time to initiate source control measures, if necessary. The initial compliance boundary will define the location at which exceedances of SLVs may trigger further evaluation of the potential for a complete groundwater transport pathway to exist in the future and therefore, require source control.

- Step 3: If groundwater concentrations exceed SLVs or other appropriate criteria a qualitative or quantitative weight-of-evidence evaluation should be performed by the responsible party to determine if source control or further investigation is required. The weight-of-evidence evaluation will be reviewed and approved by DEQ, EPA, and EPA's

[1] Screening should be based on a site-specific hydrogeological CSM and a risk assessment exposure conceptual site model taking into account current and future land and water use. The CSM should be reviewed and updated at key decision points in the investigation. DEQ guidelines for CSM development are presented in Appendix C, for informational purposes.

[2] Screening should not be based on average concentrations or statistical derivation of exposure point concentrations determined over the discharge area of the plume, unless it is agreed by DEQ that there is adequate data available to do so.

[3] Groundwater plumes should be delineated in both plan view and cross-sectional view using SLVs or standard multipiers of SLVs (*e.g.*, 10x, 100x).



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partners in accordance with the MOU. Specifically, the evaluation should address, but not be limited to, the following, as appropriate:

- Nature and extent of groundwater COPCs in each affected water-bearing zone;
- Potential presence of nonaqueous phase liquid (NAPL) or sheen;
- Presence of bioaccumulative chemicals;
- Magnitude of groundwater quality exceedance at each sampling point and the location of wells within the groundwater plume;
- Regional background concentrations for naturally occurring chemicals (i.e., metals);
- Stability of the groundwater plume (*e.g.*, predictive modeling);
- Fate and transport of groundwater COPCs;
- Estimate of potential contaminant loading to the river;
- Potential hydraulic connection between site groundwater and surface water and sediments;
- Consideration of available in-water data (*e.g.*, sediment, bioassay); and
- Potential for groundwater discharge to result in an accumulation in sediments above protective concentrations (*i.e.*, potential for groundwater discharge to result in sediment contamination or recontamination following sediment cleanup).

The portion of groundwater contamination retained on sediment is a function of the partitioning coefficient ($K_{oc}$ for organics, $K_d$ for metals) and the groundwater concentration ($C_{gw}$). The sediment concentration ($C_{sed}$) can predicted for screening purposes by the following relationship:

$$C_{sed} = (C_{gw}) \text{ X } (K_{oc} \text{ x } f_{oc} \text{ \underline{or} } K_d).$$

Where:

$C_{sed}$ = sediment concentration (mg/kg)
$C_{gw}$ =groundwater concentration (mg/L)
$f_{oc}$ = organic carbon fraction of the sediments
$K_{oc}$ <u>or</u> $K_d$ = partitioning coefficient (L/kg)

The equation can be rearranged to calculate the groundwater concentrations for a given sediment concentration and the associated partitioning coefficient:

$$C_{gw} = (C_{sed}) / (K_{oc} \text{ \underline{or} } K_d).$$

If the equations listed above are used to screen the propensity of contaminants to accumulate in sediment, a discussion of the assumptions inherent in the equations and the uncertainty of results should be described in the Source Control Evaluation.

The weight-of-evidence evaluation should assess if the discharge of contaminated groundwater is likely to have an adverse affect on sediment, transition zone water, surface water quality, or exceed potential ARARs. In-water near-shore groundwater or transition zone water sampling may be required by EPA or DEQ in order to determine the nature and extent of contamination, collect adequate data for source control measure design, or to assess the priority and timing of



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potential source control measures. In general, the presence of DNAPL or LNAPL in groundwater wells immediately adjacent to the river will require source control measure implementation to prevent contaminants from reaching the river.

Data from the in-water characterization of groundwater discharges may be required to determine the need for or the adequacy of source control measures. If the groundwater discharge is likely to cause an adverse effect on beneficial water uses, source control measures are required. If the data are inconclusive due to confounding factors such as in-water sediment contamination or river dynamics, DEQ may defer, as described in Section 4.4.2 and 4.3.3, a source control measure decision until the results of the in-water characterization effort, in-water risk assessment, or any early action characterization activities are available to further evaluate the need for source control measures and to allow DEQ and EPA to integrate upland and in-water remedial actions.

## 5.3 Direct Discharge Screening

Pollutants from commercial, industrial, private, or municipal outfalls may be directly discharged to the Portland Harbor Superfund Site. Many of these discharges are permitted under the National Pollutant Discharge Elimination System (NPDES). Permitted discharges include industrial wastes, storm water runoff, and combined sewer overflows (CSOs). Direct discharges may consist of both a liquid (*i.e.*, whole water) and solid (*i.e.*, sediment) fraction.

Of the direct discharges, the most prevalent discharge in Portland Harbor is storm water. Storm water discharges within Portland Harbor are a mix of permitted and unpermitted discharges. In addition, storm water conveyances are a mix of publicly (*e.g.*, City of Portland, Port of Portland, Oregon Department of Transportation) and privately controlled systems. Privately controlled storm water systems should be evaluated by upland PRPs and the public conveyances should be evaluated by the appropriate public agency. Appendix D presents DEQ's guidance for characterizing catch basin sediments and storm water at upland sites within the Portland Harbor Superfund Site.

Storm water discharges are highly variable both in terms of flow and pollutant concentrations and the relationship between discharges and water quality can be complex. Based on the intermittent discharge periods and variability in pollutant and sediment loads associated with storm water, a conservative approach is used for screening. This approach is used to identify potentially significant or obvious contaminant sources to the river. Pollutant loading data are necessary to assess the cumulative effects on the river from various sources on a harbor-wide basis and to determine the relative contributions of individual sources.



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Storm water discharges to surface water are fundamentally different than groundwater discharges to surface water. Groundwater discharges have the potential to exert toxic effects on the benthic community with little or no dilution. Piped storm water or sheet flow discharges have the potential to suspend and transport soil (including catch-basin or conveyance line sediment) into the river, especially during storm events. Particulates settling out of storm water discharges may represent a source of contaminant loading to river sediment, therefore cumulative sampling approaches may be required (*e.g.*, sediment traps). Additionally, contaminants in the whole water phase of storm water may partition in the river and add to the contaminant load to the river sediment.

Effective storm water management is a key part of source control. The process described in the following sections applies to both permitted and unpermitted facilities. A groundwater assessment as described in Section 5.2 may also be necessary at a site if contaminated groundwater flow occurs within (infiltration/inflow) or along backfill of storm water pipes.

While DEQ environmental cleanup regulations provide a conditional exemption for permitted releases; the cleanup rules are applicable to the deposition, accumulation, or migration of contaminants resulting from otherwise permitted or authorized releases (OAR 340-122-030). Releases of hazardous substances as defined in 40 CFR 302 are not authorized for discharge under DEQ's state-wide general permit for storm water discharges (1200 z).

Storm water sediment (*e.g.*, catch basin, conveyance line) and storm water discharge (*i.e.*, whole water) sampling may be required at upland sites to characterize and evaluate the storm water pathway and to determine if source control measures are required to prevent contaminants from impacting the river and its sediments. Catch basin sampling provides a time-integrated sample of contaminants that may be or may have been transported to the river. Catch basin sediments may also be useful for source tracking purposes (*i.e.*, identify anomalous concentrations that may help locate the points of entry of significant loads within a drainage basin).

**Storm Water Characterization Considerations**

- ✓ Proximity of potential contaminant sources to storm water catch basins.
- ✓ Nature and extent of surface soil contamination.
- ✓ Surface soil (0-1 foot below ground surface) concentrations within ~100 feet of a storm water catch basin or located within an area with a high probability or eroding and being transported to a catch basin.
- ✓ Permit status and compliance (*i.e.*, does the permit adequately assess potential site COIs?).
- ✓ Knowledge of site storm water system, including as-built maps showing catch basin and site discharge locations, catch basins drainage areas, and potential contaminant sources within each drainage basin.
- ✓ BMPs currently implemented.
- ✓ Adequacy of written storm water management plan.
- ✓ Effective catch basin design or catch basin improvements (*i.e.*, is the site catch basin specifically designed or modified to increase effectiveness in containing fine particulates or site specific contaminants?).
- ✓ Documentation of storm water system (*e.g.*, catch basin, lines, other structures) inspections and maintenance.
- ✓ Storm event criteria utilized for storm water discharge characterization (*e.g.*, samples should be representative of first flush and/or large storm events).

Depending upon site-specific conditions and the design of conveyance system, DEQ may require upland responsible parties to characterize sediments (*e.g.*, sediment traps, accumulated



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sediments) within private or shared conveyance lines and/or storm water discharge at the point of discharge (*e.g.*, outfall or connection to a shared conveyance system). Catch basin and storm water discharge sample analyses should be based on a comprehensive review of potential site-specific contaminant sources, available in-water sediment data adjacent to the site or discharge point, and other available data (*e.g.*, storm water conveyance line samples).

Storm water discharge,[4] including storm water sediment, data should be screened against the ecological and human health water and sediment SLVs presented in Table 3-1 to assess potential impacts to the river. As a first step, exceedances of aqueous storm water or storm water sediment SLVs may require implementation of BMPs. BMPs should be properly implemented on an ongoing basis to prevent contaminants from entering the storm water system. For example, the installation and maintenance of filters in catch basins to reduce particulate migration to the river. Storm water discharges that contribute to observed exceedances of narrative water quality criteria may require the immediate design and implementation of source control measures to control product releases to the Willamette River.

If subsequent storm water monitoring does not demonstrate an improvement in discharge quality, more aggressive evaluation and source control measures such as source removal, storm water system improvements, or storm water treatment may be required. If readily implementable BMPs are not effective in reducing storm water concentrations to below applicable SLVs, a qualitative or quantitative weight-of-evidence evaluation should be performed by the responsible party to determine if more aggressive storm water investigation and/or source control are needed. The weight-of-evidence evaluation will be reviewed and approved by DEQ, EPA and its partners in accordance with the MOU. The weight-of-evidence evaluation should include the following site-specific factors:

- Identification and characterization (*e.g.*, type of release, area of release, size of release, age of release) of potential sources of contaminants;
- Magnitude of storm water and storm water sediment exceedance at each sampling point and proximity of sampling point to the river;
- Regional background soil concentrations of naturally occurring chemicals (*i.e.*, metals) for evaluating storm water sediment;
- Presence of bioaccumulative chemicals;
- Site hydrology including consideration of but not limited to the following:
    - Site conditions (*e.g.*, land use, surface conditions, topography);
    - Size of drainage (*e.g.*, outfall) basin; and
    - Location and estimated size of discharge (river bank; direct to river);
- Storm water system design (*e.g.*, catch basin design and effectiveness) and management (*e.g.*, BMPs, storm water management plan);
- Maintenance and condition of conveyance system (*e.g.*, frequency of catch basin and conveyance line cleanout);

[4] Samples should be collected in accordance with a DEQ approved work plan for catch basin sediment and storm water sampling, developed following DEQ's "*Framework for Portland Harbor Storm Water Screening Evaluations*" (DEQ, 2005) presented in Appendix E.



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- Contaminant fate and transport (including chemical characteristics (*e.g.*, solubility, portioning coefficients), physical properties (*e.g.*, density, viscosity) of the COIs); and
- Estimate of potential contaminant loading to the river.

If the weight-of-evidence evaluation indicates that storm water is likely to have an adverse affect on water or sediment quality, near-shore sediment sampling[5] may be required in order to collect adequate data for source control measure design, or to assess the priority and timing of potential source control measures. Effects on sediment quality may be measured in sediment collected from below the storm water discharge point.

Data collected for evaluating the storm water pathway may be also be used by DEQ to determine if a storm water permit and storm water management plan are needed at the facility. In addition, storm water conveyance systems may represent potential preferential pathways for groundwater migration, both inside the pipe and in the fill material placed along the outside of conveyance pipes. Therefore, dry weather sampling of storm water conveyances may be required to evaluate this pathway. Section 5.2 describes the groundwater screening process.

**Source Control Measure**
**Example 4- Storm Water Management**

Storm water collection and discharge systems may be a significant pathway for contaminant discharges to Portland Harbor. Source control measures to address this pathway may include, but are not limited to:

- Implementation of BMPs to prevent material from entering the system;
- Removal or capping of contaminated surface soils;
- Storm water conveyance system upgrades and maintenance;
- Control of contaminant discharges to the river through treatment such as installation of oil-water separators; or
- Period catch basin cleaning and conveyance line flushing.

Best management practices should be used to address contaminant releases to the Willamette River from storm water discharges from Portland Harbor sites. Typical BMPs include, but are not limited to the following:

- Frequent sweepings to reduce the release of suspended solids that may have contaminants sorbed to them;
- Installation of drip pans;
- Regular cleaning of catch basins;
- Placement of erosion control devices around catch basins;
- Installation of secondary containment systems around hazardous material storage; and
- Management areas or other waste management activities.

[5] An understanding of river hydrodynamics in the vicinity of the discharge will be needed to locate samples and to evaluate their representativeness of the outfall discharges.



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## 5.4 Overwater Activities

Overwater activities from some facilities (*e.g.*, docks, stationary barges) have the potential to release hazardous substances that could result in contamination or recontamination of the Portland Harbor Superfund site. Therefore, information regarding overwater operations and processes (*e.g.*, petroleum bulk loading, marine salvage, loading/unloading) that may result in release of contaminants to surface water or sediments of the Willamette River will be collected and evaluated during upland site characterization. Potential contaminant migration pathways (*e.g.*, storm water discharges, spills, direct discharge from industrial processes) and contaminants of interest will be identified in the upland site characterization. The following steps provide a simplified approach for evaluating overwater activities that have a potential pathway to surface water or sediments:

- Identify potential overwater contaminant sources and contaminants of interest;
- Identify presence of any persistent bioaccumulative chemicals (*e.g.*, PCBs);
- Identify presence of treated (*e.g.*, creosote, pentachlorophenol) timbers, pilings, docks;
- Identify specific regulatory requirements or BMPs implemented for preventing contaminant releases or cleanup of spills (*e.g.*, permits, BMPs, spill plans); and
- Screen in-water sediment data in the vicinity of the overwater activity to assess whether observed contamination may be the result of overwater activity.

If the weight-of-evidence evaluation indicates that overwater activities are likely to have an adverse affect on water or sediment quality, BMPs or regulatory controls (permits, spill control and prevention plans) may be required to prevent or control future releases.

## 5.5 Source Control Measure Effectiveness and Completeness

Source control measures are expected to prevent or minimize the potential for sediment recontamination to occur, protect water quality, and to meet the other goals and objectives of the JSCS. Specific criteria to measure source control effectiveness will be developed in site-specific source control work plans and design documents. Monitoring (*e.g.*, periodic water quality sampling, confirmation/verification samples) will be required to demonstrate the effectiveness of interim or final source control measures. Once the in-water risk evaluation has been completed and acceptable clean-up levels have been established for water and sediment, DEQ and EPA may re-evaluate upland source control decisions to determine if they have the potential to recontaminate the sediment or otherwise inhibit achieving the long-term remedial action objectives for the Portland Harbor Superfund Site. If necessary, DEQ and/or EPA may require additional post-cleanup sampling of soils, surface water, groundwater, or sediments in order to evaluate source control effectiveness. Source control decisions and final source control determinations will be formalized in either DEQ upland Source Control Decision documents (*e.g.*, upland DEQ ROD), with review and concurrence by EPA, or in the EPA Portland Harbor ROD(s).



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The requirements of any necessary ongoing monitoring activities will be specified in site-specific monitoring plans developed as part of the source control measure or following implementation of the site remedy. Monitoring should be able to demonstrate that remaining contaminant concentrations meet the requirements for risk reduction and will not inhibit the achievement of ARARs applied to the in-water cleanup and established in the in-water Portland Harbor RI/FS. Monitoring to demonstrate the effectiveness of source control measures may include, but is not limited to the following:

- *Sediment Quality Monitoring.* Direct measurement of contaminant levels in sediments can be used to assess the overall effectiveness of upland source control measures. Monitoring can be used to determine if recontamination occurs, and if it does, at what rate and to what levels.
- *Storm Water or Other Direct Discharge Monitoring.* Types of monitoring that can be used include monitoring of near-shore sediment, storm water discharge, catch basin sediments, sediment traps, and storm water conveyance line sediments. The monitoring program can be designed to assess and/or demonstrate the effectiveness and completeness of upland storm water source control measures (*e.g.,* BMPs, capping). In shared storm water conveyance systems, this information can be used to track and identify sources of chemicals of concern to in-water sediments and to evaluate whether source contributions have changed either as a result of source control measures or due to changes in businesses operating in a basin.
- *Groundwater Monitoring.* Groundwater quality monitoring or elevation monitoring can be used to demonstrate the effectiveness of groundwater source control measures. The monitoring program can be designed to assess and/or demonstrate the effectiveness and completeness of upland groundwater source control measures (*e.g.,* hydraulic containment, natural attenuation, barrier wall).
- *Pollutant Loading Calculations.* Estimating mass loading and reductions in mass loading may be required to demonstrate source control effectiveness. In addition, loading estimates may be needed to assess the cumulative effects on the river from various sources on a harbor-wide basis and to determine the relative contributions of individual sources.

Source control for upland Portland Harbor sites may be considered complete when sources of contaminants to the river are identified and controlled, to levels determined to be protective of human health and the environment in the EPA Portland Harbor ROD(s), through either physical actions (source removal, containment, BMP implementation, etc.) or administrative actions (orders, permits, etc.). Source control decisions and effectiveness will be documented and approved by DEQ and provided to EPA and partners for review and comment.

For confirmed upland sources that discharge to the river, source control may be considered complete when DEQ and/or EPA determine that site management and other source control measures have been implemented to prevent or minimize the potential for recontamination of sediments and otherwise achieve the long-term remedial action objectives for the Portland Harbor Superfund Site. The "completeness" determination for upland sources may also be based on the successful use of appropriate tools (*e.g.*, modification or issuance of permits or orders to



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implement long-term monitoring, BMPs, the establishment of effluent limitations, or other appropriate controls and/or monitoring (*e.g.*, sediment, direct discharges, soil, groundwater)) to confirm that contaminant sources have been controlled.

Source control efforts should be documented and evaluated to determine whether these actions prevent or minimize recontamination of sediments above the Portland Harbor cleanup goals to be set in the EPA ROD(s). Given the complexity of storm water sources and discharges, source control efforts will involve coordination between the federal, state, and local agencies with regulatory authority and responsibility to control storm water sources.



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## Section 6 Upland Source Control Schedule

As stated in Section 1.0, the **overarching goal** of the JSCS is to identify, evaluate, and control sources of contamination that may impact the Willamette River in a manner that is consistent with the objectives and schedule for the Portland Harbor RI/FS; the EPA Portland Harbor ROD(s) is currently planned for completion in 2008. DEQ's Environmental Cleanup Program will oversee PRP investigations and source control evaluations on upland sources of hazardous substances to the Willamette River. There are currently over 60 upland investigations and cleanups underway within the harbor. Upland site investigations are in various phases from agreement negotiation to source control measure implementation. Portland Harbor upland sites can be divided into the categories listed below, based on DEQ's site cleanup process[1].

DEQ will provide EPA with a detailed schedule for completing upland site discovery, characterization and screening, evaluation and implementation of upland source control measure decisions. This schedule will be updated in quarterly milestone reports (see Section 7.0), based on the progress of the in-water RI/FS and DEQ source control efforts.

- **Portland Harbor Site Discovery:** DEQ initiated an extensive Portland Harbor site discovery program in 1998 and continues to identify potential sources of contaminants to the river through its Site Assessment (SA) Program. Initial screening activities focused on sites along the banks of the Willamette River. Upland site discovery activities in the Portland Harbor Superfund Site are ongoing (see Appendix B for additional information on DEQ's site discovery processes) and will continue to identify additional upland sources of contamination. Currently, site discovery activities are primarily focused on facilities discharging storm water to Portland Harbor via private or shared storm water conveyance systems. If it is determined, based on site discovery activities, which a site is a potential source of contamination to the river, the schedule for characterization and evaluation of source control measures will be determined based on the results of the initial site evaluation.

- **Preliminary Assessments (PA)**: These are sites that are identified during DEQ's site discovery process. The results of the PA are used to determine if a site is a potential source of contamination to the river. For sites determined not to be a likely source of contamination, these decisions may have to be re-evaluated, based on the results of the in-water Portland Harbor RI and risk assessment. For sites determined to be a likely source of contamination to the river, further investigation will be conducted under DEQ oversight, the schedule for characterization will be determined on a site-by-site basis.

- **Expanded Preliminary Assessments (XPA)**: These are sites where the DEQ site discovery process determined that additional information was needed to decide if they are a current or likely future source of Portland Harbor contamination. Based on the

[1] Appendix B presents DEQ's cleanup process for informational purposes.



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results of the XPA, these sites may be recommended for an upland RI or source control measures, or it may be determined that source control is not needed.

- **Remedial Investigations**: These sites range from those where the upland RI was initiated by DEQ prior to the NPL listing of Portland Harbor to those RIs initiated in 2000/2001 following DEQ's 1999/2000 site discovery activities. These sites are generally the most contaminated and complex. Characterization of upland sources and pathways is near completion for many of these sites.

- **Source Control Screening/Evaluation**: Informal source control screening and evaluation will be conducted iteratively throughout each phase of the upland investigations. Once sufficient data exist to assess a specific contamination migration pathway, the key factors described in Section 4.4 will be considered to prioritize the site and either source control measures will be implemented or the need for further evaluation identified. The schedule for screening and evaluation will be site specific.

- **Source Control Measures**: The success of the Portland Harbor cleanup relies on the timely and successful implementation of upland source control measures. Ideally, upland source control should be completed to the extent practicable prior to sediment cleanup in the Portland Harbor Superfund Site. Since the schedule for the Portland Harbor project currently calls for an EPA Portland Harbor ROD(s) in 2008, adherence to the schedule and processes in this JSCS are critical to successful upland source control. Depending on the timing of source control decisions, final source control determinations may be formalized in either upland DEQ ROD(s) or in the EPA Portland Harbor ROD(s).

  The focus for completing source control decisions will be on high-priority sites and early actions. High-priority sites will be identified in the initial Milestone Report based on existing site information, and subsequent Milestone Reports will identify any new high-priority sites as new information becomes available (milestone reporting is described in Section 7.4). Source control is expected to move forward at high-priority sites without delay. The target for addressing medium-priority sites is prior to the EPA Portland Harbor ROD(s) in 2008. Once the in-water risk evaluation has been completed and acceptable cleanup levels have been established and ARARs are identified for water and sediment, DEQ and EPA will re-evaluate completed source control decisions and revisit medium- and low-priority sites where a source control measure was not taken to determine if further source control is necessary. High, medium-, and low-priority sites are defined in Section 4.4.



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# Section 7 Source Control Documentation and Tracking

DEQ has responsibility for ensuring that upland site investigations and source control decisions are properly documented. DEQ also has responsibility for tracking the overall status of upland source control activities. DEQ will transmit source control documentation and tracking information to representatives of EPA and other governmental parties on the TCT for information sharing or concurrence to ensure coordination with work in the river where EPA has responsibility, as described in Section 2.5 and in this section.

This section describes the documentation needed to support source control decisions and the spreadsheets used to track source control status; the basic environmental data included in documents and databases; and the type and frequency of the presentation of these materials and the expected level of response. The purpose of describing coordination of source control information is to provide DEQ with the autonomy to conduct source control as agreed under the MOU, and avoid duplication of effort in review of source control data and limit re-work of source control documents. Concurrence from the representatives of EPA and other governmental parties on the TCT on pertinent source control documents will provide DEQ with assurance to move forward with source control decisions. Setting up a clear process of source control documentation, tracking, and review will aid EPA in making appropriate and timely sampling and cleanup decisions in the river.

If EPA comments on plans and reports identified for review are not addressed satisfactorily in a revised document, EPA and DEQ management involvement may be required to reach closure on the issue. All attempts should be made to resolve comments at the staff level through clarification during TCT conference calls, which are typically held every other week, or source control-specific meetings prior to finalization of documents.

## 7.1 Upland Source Control Decision Documentation

In general, upland site characterization activities will follow the CERCLA process outlined in DEQ (see Appendices B and C) and EPA guidance documents. DEQ may require the PRP submit a site-specific Source Control Evaluation that will be used to prioritize the site (*i.e.*, high, medium, and low) and complete a Source Control Decision document. The Source Control Decision document may be developed by DEQ or the upland PRP following completion of the upland RI, or earlier if DEQ determines that sufficient information exists to initiate source control immediately or make a source control decision. DEQ will determine the adequacy of Source Control Evaluation and Decision documents prepared by the upland PRP.

DEQ will submit the Source Control Decision document to EPA's source control contact and interested representatives of other governmental parties on the TCT for review and comment. Written comments on a report should be transmitted to DEQ within 30 days of document receipt unless the parties agree to an alternative review period. Subsequent



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document revisions should be provided in a format (e.g., redline/strikeout) for ease of review. DEQ should consider augmenting the written report with a site tour or visual presentation for sites that are unusually complicated or of high importance.

### 7.1.1 General Information

A list of basic environmental information presented in the subsections below will be included in a Source Control Decision document, if applicable. The list of requested information should limit re-work of reports because the requested data reflect shared expectations of document content. The requested information is organized under general information as well as categories for specific affected media, including groundwater and storm water. If the upland RI determines that some or all environmental media are not a source concern, the report should describe historical documentation or more recent sampling results that demonstrate the conclusion for the items in each media category. Reports should be concise yet provide enough site description, figures, and analytical data to support a source determination through review of the report alone without the need to visit extensive referenced documentation.

Source Control Decision documents should be completed following a thorough investigation and evaluation of an upland site, and subsequent source control activities should begin in a timely manner. New sources or a new understanding of existing sources may be discovered through information such as recently acquired historical documentation, ongoing environmental monitoring results, or the results of the in-water risk assessment. New information may lead to initiation of source control activities or modification of an existing source control decision.

Source control decisions may encompass a broad range of remedial actions ranging from no further action (NFA) to interim remedial measures (IRMs) to final upland remedial actions (*i.e.*, upland DEQ RODs). DEQ or the upland PRP will prepare a Source Control Decision document, as described below, that presents the recommended source control decision and provides the technical basis for the decision. Source control decisions may include, but are not limited to, the following:

- Determination that a facility is not a current source of contaminants to the river;
- Determination that source control for a specific contaminant migration pathway is not needed (*i.e.*, weight of evidence evaluation, COPC loading estimate);
- Approval of the scope of work for in-water source control investigations;
- Concurrence on source control prioritization and/or implementation schedule;
- Request for comments on proposed source control measures (EE/CA) or design; Approval of source control measure selection;
- Approval of proposed source control design and implementation schedule; and
- Determination that a source control measure is effective and complete and that the facility is no longer a current source of contaminants to the river.



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In order to streamline the Source Control Decision document review process and to facilitate information sharing, a general framework is outlined below. The following outline should be modified as appropriate to support the site-specific source control decision. The Source Control Decision document may be developed in memorandum, letter, or report format as appropriate for the amount of information supporting the determination. The Source Control Decision document should include a summary of the following information.

1. **Introduction**: including a statement of source control decision to be approved by DEQ.
2. **Site Description and History:**
    a. List historical and current site operations (*e.g.,* land use, operations, etc. to late 1800's);
    b. Identification of potential current and historic upland contaminant sources (*e.g.*, buildings, rails, tanks, spills, dry wells, drainage ways, catch basins, outfalls, sewer lines, storm water lines, other pipelines, septic tanks, trenches, lagoons, industrial processes);
    c. Identification of contaminants of interest associated with current and historic activities;
    d. Identification of potentially contaminated media (*e.g.,* soil, groundwater, storm water, surface water, air);
    e. Identification of site structures or BMPs that could prevent or minimize contaminant mobilization such as the location of paved areas or covered storage areas; and
    f. Identification of complete or potentially complete contaminant migration pathways from upland sources to the river.
3. **Regulatory History:**
    a. Description of regulatory history;
        i. Regulated tanks (above and below ground);
        ii. Hazardous waste management:
            - RCRA Generator Status,
            - Inspections, and
            - Reporting;
        iii. Permits (storm water, solid waste, air, other);
    b. Violations;
    c. Pollution Complaints/Spills; and
    d. Cleanup Status (voluntary, enforcement, etc.).
4. **Hazardous Substance Releases**:
    a. Description of all known releases; and
    b. Summary of previous environmental investigations and cleanups including a description of material left in place; current and historic monitoring data; and frequency of sampling events.
5. **Source Control Evaluation**:
    a. Description of nature and extent of contamination focusing on source areas, contaminants, and exposure pathways.



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b. Summary of soil, groundwater, storm water, surface water, and sediment data.
c. Comparison of environmental data to SLVs for each applicable pathway.
d. Identification of media and pathways exceeding SLVs.
e. Identification of site COPCs (109).
f. Priority for source control.

6. **Summary of Source Control Decision**:
   a. A description of the recommended source control decision.
   b. Summary of comparative analysis of source control measure alternatives.
   c. A discussion of the source control measure objectives and tools that will be used to control sources.
   d. An estimate of expected risk reduction or contaminant loading to the river.

Appropriate site maps or figures should be included as needed to support the decision. Appropriate maps may include, but are not limited to:

- Site location map showing proximity to the Willamette River and adjacent sites;
- Map of current and historic upland contaminant sources;
- Storm water drainage map;
- Sample location maps;
- Contaminant distribution maps for selected COPCs;
- Geologic cross sections; and
- Groundwater elevation maps.

Tables (with clear units of measure) needed to support the source control decision should be included in the report. Tables summarizing environmental data and comparing the data to appropriate source control SLVs should be included.

Other applicable information, such as boring logs, well screen depths, analytical data, design drawings, aerial photographs, etc., should be included as needed to fully support the source control decision. (See Appendix B and Appendix C, for further consideration of types of data or analyses that may be included). The following sections list pathway specific information that may be needed to support a source control decision.

Upland Source Control Decision documents should provide a list of key plans and reports, and can summarize or reference reports, letters, or memorandum that are available in the site Administrative Record or the "*Site Summary Report*" prepared by the LWG (LWG, 2004a and 2004b) for the in-water Portland Harbor RI, if available. Full citations for reports supporting the source control decision must be provided.



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### 7.1.2 Pathway Specific Information

Section 5.0 identifies pathway specific information that should be considered when making source control decisions. This information should be included in the Source Control Decision document as needed to support the decision being made by DEQ. The following sections provide lists of medium-specific information that should be included in Source Control Decision documents if the medium is contaminated at a site.

#### *7.1.2.1 Groundwater*

- Describe the nature and extent of groundwater contamination, including a description of contamination levels at the leading edge of a plume and a determination about whether the contamination reaches the river or could potentially reach the river.
- Provide a figure depicting the hydrogeologic cross-section to summarize the relationship of sources, formations, groundwater, and surface water.
- Describe the area of discharge, including the discharge width and the length that the interface extends into the river.
- Describe the location and estimated character of discharge such as through river bank seeps or a river channel.
- Estimate the potential groundwater discharge rate (*i.e.*, flux) and contaminant loading to the river.
- Explain potential contaminant fate and transport, including the propensity of a chemical to accumulate in or migrate through sediments.

#### *7.1.2.2 Storm Water*

- Describe the nature and extent of contamination at the ground surface or subsurface draining to the catch basins or other conveyances to the storm water system.
- Present a figure or as-built map of on-site capture of storm water, including catch basin and outfall locations, catch basins drainage areas, and potential contaminant sources within each drainage basin.
- Report storm water sampling results, including sampling for baseline discharge, representative storm events, BMP effectiveness, and sediment sampling in conveyances and below outfalls.
- Describe the adequacy of the written storm water management plan.
- Explain if BMPs at the site are currently implemented.
- Document catch basin inspections and maintenance.
- Describe effective catch basin design or catch basin improvements, including catch basin specifically designed or modified to increase effectiveness in containing fine particulates or site-specific contaminants.



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- Estimate the potential storm water discharge volume and contaminant loading to the river.

*7.1.2.3 Soil*

- Describe the nature and extent of soil contamination including contamination levels and a determination about whether the contamination reaches the river or could potentially reach the river.
- Provide a figure(s) depicting the horizontal and vertical extent of soil contamination in map and cross-sectional view to summarize the relationship of sources, soil type, groundwater, and surface water.
- Explain potential contaminant fate and transport, including the likelihood of soil contaminants transported by storm water or wind erosion or by leaching.
- Estimate the potential contaminant loading to the river from direct erosion or bank wasting.
- If soil erosion by storm water is the primary soil transport mechanism, refer to Section 7.1.2.

## 7.2 Source Control Tracking

### 7.2.1 DEQ Source Control Tables

DEQ will prepare, maintain, and periodically update a table containing a summary of the status of upland investigations and source control decisions. DEQ will notify the TCT when updates have been made and include the date of update in the table. DEQ will periodically prepare and update tables containing the following information.

- List of potential upland sources including:
  - Name/address of source;
  - River Mile;
  - DEQ Environmental Cleanup Site Information (ECSI) Database File Number;
  - Identification of potential contaminant migration pathway;
  - Status of Source Control Evaluation;
  - Source control priority designation;
  - Status or Source Control Decision document;
  - Status of source control design and implementation;
  - Status of Source Control Implementation Report; and
  - Other: remarks or outstanding issues (monitoring, institutional controls, etc.).
- List of key site characterization or source control documents received for upland sites.



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These tables are posted on DEQ's Portland Harbor Website:

http://www.deq.state.or.us/nwr/PortlandHarbor/ph_background.htm

### 7.2.2 DEQ Environmental Cleanup Site Information Database

DEQ will provide site information and status in the ECSI database. ECSI is available online at: http://www.deq.state.or.us/wmc/ecsi/ecsiquery.htm.

## 7.3 Source Control Implementation Reports

Completed upland source control measures are expected to be documented in a Source Control Implementation Report and submitted to DEQ for review and approval. DEQ may require the upland PRP to prepare a report that presents: a summary of the source control implementation (*i.e.,* construction report); demonstrates the effectiveness of the source control measures; and evaluates the completeness of the source control measures. DEQ will provide the report or a summary of the report to the EPA source control contact and interested representatives of other governmental parties on the TCT for review and concurrence. These reports may be developed in memorandum, letter, or report format as appropriate for the amount of information supporting the effectiveness and completeness determinations.

DEQ and/or EPA may make one of the following determinations:

- A final source control determination may be made when the source control measure has been fully implemented and its effectiveness documented to achieve the clean-up levels established for water and sediment in the EPA Portland Harbor ROD(s).
- For medium- and low-priority sites where the weight-of-evidence evaluation determines that no further source control measure is needed, a final source control determination may be needed to confirm whether upland source control is needed or whether sources have been controlled to levels that are consistent with cleanup requirements specified in the EPA Portland Harbor ROD(s).

The Source Control Implementation Report should contain and address the following, as appropriate:

- Description and discussion of the nature of contamination and pathway(s) to the river.
- Description of source control implementation or construction;
- Regulatory or other tools used for source control, including monitoring.
- Map(s) of the site or storm water basin(s).



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- Criteria relevant to determining source control effectiveness and completeness for the source/area, including but not limited to:
    - Upland site cleanup information,
    - Surface water or sediment quality information,
    - Other potentially applicable criteria.
- Chronology of site to include:
    - Occupancy and operations conducted on the site.
    - Environmental actions taken to date.
    - Steps taken for further source characterization and control.
    - Sampling events for data used to support this determination.
- Data used to support the effectiveness/completeness determination and noted on the site chronology, either as appendices to the report or summarized in tables.
- Full citations for data and other reports/information supporting determination of effectiveness.
- Estimates of the volume, weight, cost, etc. of contaminants removed, contained, treated or otherwise controlled to assist in communicating progress of source control work to stakeholders.
- Estimate of contaminant loading to the river following the source control measure and an estimate of the reduction in contaminant loading.

## 7.4 Milestone Reports

The MOU requires the preparation of Milestone Reports on a quarterly basis. The milestone reports will be submitted to EPA by DEQ and will summarize the status of DEQ efforts to identify and control sources of contamination to the Portland Harbor Superfund Site. The Milestone Reports will support quarterly meetings with representatives of EPA and other governmental parties on the TCT that cover site prioritization and source control progress. The meetings will focus on resolving issues at high-priority sites as defined in Section 4.0. These reports will serve as documentation of progress on river-wide source control. The first Milestone Report will be submitted to EPA 90 days following signature of this JSCS by EPA and DEQ.

Milestone Reports will include the information contained in the following sections, as appropriate.

### 7.4.1 Potential Identified Sources

DEQ is evaluating and identifying potential upland sources of contamination to Portland Harbor to determine if further investigation or source control measures are required. DEQ will present a table of potential upland sources identified through upland site discovery activities (see Appendix B for more information) and the status of their review.



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### 7.4.2 Source Control Evaluation

Preliminary investigation activities at upland sites are designed to determine if a site is an ongoing source of contamination to the river. Sites that are identified as current or potential sources will be characterized and prioritized, and then may require either initiation of source control measures or further evaluation to determine if source control measures are required. DEQ will present a table of confirmed sources of contamination to the river, the basis for that determination, and the priority of the site for source control. High-priority sites will be identified in the initial Milestone Report based on existing site information, and subsequent Milestone Reports will identify any new high-priority sites as new information becomes available. Source control is expected to move forward at high-priority sites without delay.

### 7.4.3 Source Control Decision

Source control decisions conducted at upland sites will briefly summarized. The Milestone Reports will include a summary of the source control evaluation, the basis for determination that upland source control measures are necessary, a summary of the selected source control measure, and a schedule for implementation of the source control measure. DEQ will present a table of the source control decisions for each contaminant migration pathway for confirmed or potential sources of contamination to the river.

### 7.4.4 Status of Ongoing Source Control Measures

For ongoing source control measures, a summary of their status will be provided in the Milestone Reports. The status report will summarize activities completed to date, proposed activities, and a target schedule for completion. To the extent practical, DEQ will collect information and/or make estimates of the mass or volume of contaminants removed, contained, treated or otherwise controlled, in order to help communicate to stakeholders on the progress of source control activities.

### 7.4.5 Completed Source Control Measures

A summary of completed source control measures will be provided in the Milestone Reports. The status report will provide a description of the source control measure, the date the source control measures was completed, the date of EPA review and comment, and any operation and maintenance requirements.

### 7.4.6 Source Control Measure Issues

DEQ will identify issues affecting the ability to make source control decisions or completeness determinations, for any step of the source control process (i.e., identification, characterization, and implementation). In addition, DEQ will propose ways to resolve issues and a desired timeframe for resolution.



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### 7.4.7 Source Control Measure Schedule

DEQ will provide the source control schedule and quarterly updates to the schedule (See Section 6.0) in order of site priority. The schedule will list the site name, priority, known contaminant migration pathways, status of source control documents (i.e., Source Control Evaluation, Source Control Decision, Source Control Design; and Implementation Report). Target dates that have changed will be listed and an explanation for the change will be provided.



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# Section 8 References

## 8.1 State and Federal Guidance


DEQ, 1998a. *Guidance for Conduct of Deterministic Human Health Risk Assessments*. Waste Management and Cleanup Division, Portland, OR.

DEQ, 1998b. *Guidance for Use of Probabilistic Analysis in Human Health Risk Assessments*. Waste Management and Cleanup Division, Portland, OR.

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| Section | Last Updated |
|---|---|
| LEVEL I Scoping | 11 / 98 |
| LEVEL II Screening | 12 / 01 |
| LEVEL II Screening Benchmark Values | 12 / 01 |
| LEVEL III Baseline | 03 / 00 |
| LEVEL IV Field Baseline | 11 / 98 |

DEQ, 2003. *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*. September 2003. Oregon Department of Environmental Quality, Portland, OR.

EPA, 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. Interim Final. October 1988. EPA/540/G-89/004. OSWER Directive 9355.3-01.

EPA, 1989. *Ecological Assessment of Hazardous Waste Sites: A field and laboratory reference*. Envir. Res. Lab. Corvallis, OR. EPA/600/3-89/013.

EPA, 1989. *Risk Assessment Guidance for Superfund - Volume I - Human Health Evaluation Manual - (Part A)*. Interim Final. December 1989. OSWER Publication EPA/540/1-89/002.

EPA, 1990a. *CERCLA Compliance with Other Laws Manual: CERCLA Compliance with the CWA and SDWA*. OSWER Publication EPA/9234.2-06/FS. February 1990.

EPA, 1990b. *ARARs Q's & A's: Compliance with Federal Water Quality Criteria*. OSWER Publication EPA/9234.2-09/FS. June 1990.

EPA, 1990c. *ARARs Q's and A's: State Ground-Water Antidegredation Issues*. OSWER Publication EPA/9234.2-11/FS. July 1990.

EPA, 1991a. *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors*. OSWER Directive 9285.6-03.





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EPA, 1991b. *ARARs Q's & A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers.* OSWER Publication EPA/9234.2-01/FS-A. July 1991.

EPA, 1991c. *ARARs Q's & A's: Compliance with New SDWA National Primary Drinking Water Regulations for Organic and Inorganic Chemicals.* OSWER Publication 9234.2-15/FS. August 1991.

EPA, 1991d. *A Guide to Principal Threat and Low Level Threat Wastes.* OSWER Publication 9380.3-06FS. November 1991.

EPA, 1993. Conducting *Non-Time-Critical Removal Actions Under CERCLA.* EPA, December 1993. OSWER 9360.0-32FS. EPA/540/F-94/009.

EPA, 1994a. *Standard Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Fresh Water Invertebrates.* Office of Science and Technology, Washington, D.C.

EPA, 1994b *Catalogue of Standard Toxicity Tests for Ecological Risk Assessment.* Office of Solid Waste and Emergency Response. ECO Update, Volume 2, Number 2. EPA 540-F-94-013.

EPA, 1997a. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments.* Interim Final. June 1997. OSWER Publication EPA 540-R-97-006.

EPA, 1997b. *Supplemental Ecological Risk Assessment Guidance for Superfund.* EPA Region 10, Seattle, WA. EPA 910-R-97-005.

EPA, 1998a. *Portland Harbor Sediment Investigation Report, Multnomah County, Oregon.* Region X, Seattle, Washington. Document Control No. 04000-019-036-AACE. DRAFT

EPA, 1998b. *EPA's Contaminated Sediment Management Strategy.* OSWER Publication EPA-823-R-98-001. April 1998.

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EPA, 2000a. *Bioaccumulation of Sediment-Associated Contaminants with Freshwater Invertebrates.* Second Edition. March 2000.

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EPA, 2004. *Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.* OSWER Publication SW-846 (sixth revision), November 2004 and subsequent updates.

## 8.2 Screening Level Values:

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DEQ, 2004. *Water Quality Criteria Summary.* Table 20. Oregon Administrative Rules, Chapter 340, Division 041 - Department of Environmental Quality

DEQ, 2005. *Water Quality Criteria Summary Tables 33A, 33B, and 33C.* AWQC based on the acute and chronic freshwater aquatic life criteria in Table 33A and C, which is an update of OAR 34-41 Table 20. The Environmental Quality Commission adopted Table 33A on May 20, 2004 to become effective February 15, 2005. However, EPA has not yet (as of June 2005) approved the criteria for federal Clean Water Act purposes., Table 20 should be used for federal Clean Water Act purposes (except for Section 303(d) listing which should only use Table 20 until these criteria receive EPA approval).

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MacDonald DD, Ingersoll C.G., Berger T.A., 2000. *Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems.* Environmental Contamination and Toxicity 39: 20-31.
- Probable Effects Concentrations (PECs)

NOAA, 1999. *Freshwater Sediment, Screening Quick Reference Tables (SQuiRTs).* NOAA, Coastal Resource Coordination Branch, Hazmat Report 99-1.
- Threshold Effects Level (TEL) or lowest ARCs *H. azteca* TEL.
- Upper Effects Threshold (UELs).
- Upper Effects Threshold (UET).
- Probable Effects Levels (PELs).
- Apparent Effects Threshold (AET).

Smith, SL., MacDonald, DD, Keenleyside, KA, Ingersoll, CG, and Field, J. 1996. *A preliminary evaluation of sediment quality assessment values for freshwater ecosystems.* Journal of Great Lakes Research 22:624-638.
- Threshold Effects Concentration (TEC).

Suter, G. W., and C. L. Tsao, 1996. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota.* Rev. ES/ER/TM-96/R2. Oak Ridge National Laboratory, TN.

WDOE, 1997. *Creation and Analysis of Freshwater Sediment Quality Values in Washington State.* Lowest Apparent Effects Threshold (LAET), Table 11, Washington Department of Ecology, Pub. No. 97-323a. July 1997.

USCOE, 1998. *Dredged Material Evaluation Framework, Lower Columbia River Management Area.* U.S. Army Corps of Engineers. April 1998. Draft.
- Screening Level (SL), Table 8-1.



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## 8.3 Portland Harbor Investigations


Weston, 1998. *Portland Harbor Sediment Investigation Report, Multnomah County, Oregon.* Report No. 04000-019-036-AACE. Prepared for the U.S. Environmental Protection Agency and Oregon Department of Environmental Quality, Portland, OR. Roy F. Weston, Inc. Seattle, WA.

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LWG, 2004b. *Portland Harbor RI/FS – Draft Conceptual Site Model Update (Volumes 1 through 3).* Prepared by Integral Consulting, Inc. and Groundwater Solutions, Inc. Prepared for The Lower Willamette Group (LWG). Dated September 17, 2004.

LWG, 2004c. *Portland Harbor RI/FS – Round 2 – Field Sampling Plan – Sediment Sampling and Benthic Toxicity Testing.* Prepared by Integral Consulting, Inc., Windward Environmental, L.L.C., and Anchor Environmental L.L.C. Prepared for The Lower Willamette Group (LWG). Dated March 22, 2004.

City of Portland, 2000. *Preliminary Evaluation of City Outfalls, Portland Harbor Study Area, (Eastshore).* July 2000.

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# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

## HAZARDOUS MATERIALS
## CERTIFICATE OF REGISTRATION
## FOR REGISTRATION YEAR 2002-2003

Registrant: FOSS MARITIME COMPANY
Attn: Larry G Johnson
PO Box 83018
Portland, OR 97283-0018

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of 49 U.S.C. 5108. It is unlawful to alter or falsify this document.

Reg. No: 061902 016 005K Issued: 06/20/02 Expires: 06/30/03

**Record keeping Requirements for the Registration Program**

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U. S. Department of Transportation upon request.

Each motor carrier (private or for-hire) and each vessel operator subject to the registration requirement must keep a copy of the current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor or vessel (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202) 366-4109.

U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

## HAZARDOUS MATERIALS
## CERTIFICATE OF REGISTRATION
## FOR REGISTRATION YEAR 2002-2003

Registrant: FOSS MARITIME COMPANY
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Reg. No: 061902 016 005K Issued: 06/20/02 Expires: 06/30/03

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**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 7 - 19____**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ ☐☐ (MO YR)

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.

**7. PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1996 for the 1997-98 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name _____ Date _____
(Print the signer's name)

Title _____ Phone ( ___ ) ___-____

Certifier's Signature _____

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

**7. PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1996 for the 1997-98 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
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| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
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| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name _____ Date _____
(Print the signer's name)

Title _____ Phone ( ___ ) ___-____

Certifier's Signature _____

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 7 - 19____**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID #_____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.



Confidential Business Information

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 7 - 19____**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

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(Company Name)

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Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID #_____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300 00

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Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

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A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name _____ Date _____
(Print the signer's name)

Title _____ Phone ( ___ ) ___-____

Certifier's Signature _____

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

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**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 7 - 19____**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

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**Method of Payment**

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Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ ☐☐ (MO YR)

Name as it appears on the card _____

Authorized Signature _____

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| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
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| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
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1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name _____ Date _____
(Print the signer's name)

Title _____ Phone ( ___ ) ___-____

Certifier's Signature _____

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

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P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

**7. PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1996 for the 1997-98 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name _____ Date _____
(Print the signer's name)

Title _____ Phone ( ___ ) ___-____

Certifier's Signature _____

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 7 - 19____**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID #_____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.



Confidential Business Information

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 7 - 19____**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID #_____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300 00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.

**7. PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1996 for the 1997-98 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name _____ Date _____
(Print the signer's name)

Title _____ Phone ( ___ ) ___-____

Certifier's Signature _____

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

# U. S. DEPARTMENT OF TRANSPORTATION
## HAZARDOUS MATERIALS REGISTRATION STATEMENT
## REGISTRATION YEAR 1995 - 1996

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. Registrant FOSS MARITIME CO - CSR DIVISION
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. Mailing Address of Principal Place of Business

Street or P.O. Box PO BOX 83018 City PORTLAND

County MULTNOMAH State OR Zip Code 97283 - ____ Country USA

3. Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. Mode(s) Used to Transport Hazardous Materials: Highway ____ Rail ____ Water ✓ Air ____

5. Industrial Classification: Check the primary industry in which the registrant operates. Mark Only One.

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. Annual Registration Fee. The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

Card Number: [ ] Expiration Date: [ ] MO [ ] YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, do not resubmit credit card information here.



THIS FORM MAY BE REPRODUCED

**PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States In Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1994 for the 1995-96 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (Division 2.3, Hazard Zone A; or Division 6.1, Packing Group I, Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

6. **Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name DAVID POLLARD (Print) Date JUNE 7, 1995

Title MANAGER, SAFETY AND HEALTH Phone ( 503 ) 286-0631

Certifier's Signature David Pollard

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM TO:**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

*Please retain a copy of this form for your records.*

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

# U. S. DEPARTMENT OF TRANSPORTATION
## HAZARDOUS MATERIALS REGISTRATION STATEMENT
## REGISTRATION YEAR 1995 - 1996

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. Registrant FOSS MARITIME CO - CSR DIVISION
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. Mailing Address of Principal Place of Business

Street or P.O. Box PO BOX 83018 City PORTLAND

County MULTNOMAH State OR Zip Code 97283 - ____ Country USA

3. Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. Mode(s) Used to Transport Hazardous Materials: Highway ____ Rail ____ Water ✓ Air ____

5. Industrial Classification: Check the primary industry in which the registrant operates. Mark Only One.

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. Annual Registration Fee. The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

Card Number: [ ] Expiration Date: [ ] MO [ ] YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, do not resubmit credit card information here.



THIS FORM MAY BE REPRODUCED

**PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States In Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1994 for the 1995-96 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (Division 2.3, Hazard Zone A; or Division 6.1, Packing Group I, Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

6. **Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name DAVID POLLARD (Print) Date JUNE 7, 1995

Title MANAGER, SAFETY AND HEALTH Phone ( 503 ) 286-0631

Certifier's Signature David Pollard

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM TO:**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

*Please retain a copy of this form for your records.*

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 97 - 19 98**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.

**7. PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1996 for the 1997-98 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. *Certification of Information.*** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name BRUCE REED (Print the signer's name) Date MAY 21, 1997

Title OPERATIONS MANAGER Phone (225) 116-2621

Certifier's Signature

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

**INTER-OFFICE MEMO**

FOSS MARITIME
Always Ready

To Distribution Date May 15, 1997

From Dag Lunde

Subject Annual DOT Hazmat Registration

It is once again time for our annual Department of Transportation Hazardous Materials Registration. As in the past, please remit payment with copies to me. Additionally, please provide a copy of the actual 1997 - 1998 registration upon receipt.

Be aware that copies of the Certificates of Registration must be carried on board all applicable vessels.

Please let me know if I can be of assistance.

Distribution:

Charlie Bates
Mark Cohen
Bruce Reed

cc: D. Hunter

FM-047-L

HAZARDOUS MATERIALS REGISTRATION STATEMENT

REGISTRATION YEAR 19 96 - 1997

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. Registrant FOSS MARITIME CO. - CSR DIVISION
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. Mailing Address of Principal Place of Business

Street or P.O. Box P.O. BOX 83018 City PORTLAND

County MULTNOMAH State OR Zip Code 97283-0018 Country USA

3. Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. Mode(s) Used to Transport Hazardous Materials: Highway ____ Rail ____ Water ✓ Air ____

5. Industrial Classification: Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. Annual Registration Fee. The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.

**R-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** ate those activities conducted by the registrant during the previous calendar year (e.g., 1995 for the 1996-97 Registration ar). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet the criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name BRUCE REED (Print) Date MAY 2, 1996

Title OPERATIONS MANAGER Phone (503) 286-0631

Certifier's Signature

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO:**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

# HAZARDOUS MATERIALS CERTIFICATE OF REGISTRATION

Registrant: FOSS MARITIME CO-CSR DIVISION
Attn: David Polland
Po Bx. 83018
Portland, OR 97283

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 062895 009 004D Issued: 06/29/95 Expires: 06/30/96

## Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) subject to the registration requirement must keep a copy of that carrier's current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

# InterOffice Memo

**To:** Deck Officers on the following vessels:

Clarkston, Lewiston, Noydena, Knappton, Howard Olsen, Astoria, Joseph T

**From:** Nancy Thompson

**Date:** June 6, 1997

**Subject:** Hazardous Materials Certificate of Registration

---

Attached is the vessel's current "Hazardous Material Certificate of Registration" that is required to be onboard. Previous registrations have expired and can be removed.

For safe keeping insert the certificate in the back of the vessel's RCP Manual.

Your cooperation is appreciated!!

Nancy

FRM&STD\MEMOFORM.DOC

# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

# HAZARDOUS MATERIALS CERTIFICATE OF REGISTRATION

Registrant: FOSS MARITIME CO-C.S.R DIVISION
Attn: Bruce Reed
PO Box 83018
Portland, OR 97283-0018

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 052897 014 015F Issued: 05/30/97 Expires: 06/30/98

## Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) and each vessel operator subject to the registration requirement must keep a copy of the current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor or vessel (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made avialable, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

Exempted from Paperwork Reduction Act by 49 App. U.S.C. 1805(c)(13)

**U. S. DEPARTMENT OF TRANSPORTATION**
**HAZARDOUS MATERIALS REGISTRATION STATEMENT**
**REGISTRATION YEAR 19 97 - 19 98**

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. **Registrant** Foss Maritime Co - C.S.R. Division
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. **Mailing Address of Principal Place of Business**

Street or P.O. Box P.O. Box 83018 City Portland

County Multnomah State OR Zip Code 97283-0018 Country U.S.A

3. **Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)**

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. **Mode(s) Used to Transport Hazardous Materials:** Highway ____ Rail ____ Water ✓ Air ____

5. **Industrial Classification:** Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. **Annual Registration Fee.** The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.

**7. PRIOR-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** Indicate those activities conducted by the registrant during the previous calendar year (e.g., 1996 for the 1997-98 Registration Year). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet one of the defining criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | | AK | AS | DC | GU | HI | MP | PR | VI |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. *Certification of Information.*** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name BRUCE REED (Print the signer's name) Date MAY 21, 1997

Title OPERATIONS MANAGER Phone (225) 116-2621

Certifier's Signature

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO :**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

**INTER-OFFICE MEMO**

FOSS MARITIME
Always Ready

To Distribution Date May 15, 1997

From Dag Lunde

Subject Annual DOT Hazmat Registration

It is once again time for our annual Department of Transportation Hazardous Materials Registration. As in the past, please remit payment with copies to me. Additionally, please provide a copy of the actual 1997 - 1998 registration upon receipt.

Be aware that copies of the Certificates of Registration must be carried on board all applicable vessels.

Please let me know if I can be of assistance.

Distribution:

Charlie Bates
Mark Cohen
Bruce Reed

cc: D. Hunter

FM-047-L

HAZARDOUS MATERIALS REGISTRATION STATEMENT

REGISTRATION YEAR 19 96 - 1997

(Please Type or Print all Responses)

Initial Registration ____ Renewal of Registration ✓ Amendment to Registration ____ Expedited Follow-up ____

Current Registration # _____

1. Registrant FOSS MARITIME CO. - CSR DIVISION
(Company Name)

(Place pre-printed label here if provided and if name and address are correct. Otherwise, provide correct information.)

2. Mailing Address of Principal Place of Business

Street or P.O. Box P.O. BOX 83018 City PORTLAND

County MULTNOMAH State OR Zip Code 97283-0018 Country USA

3. Carrier's US DOT ID Number, ICC Number, or Reporting Railroad Alphabetic Code (if applicable)

US DOT ID # _____ ICC # W000420 Railroad Alphabetic Code _____

4. Mode(s) Used to Transport Hazardous Materials: Highway ____ Rail ____ Water ✓ Air ____

5. Industrial Classification: Check the primary industry in which the registrant operates. **Mark Only One.**

**Transportation**
- ☑ Carrier
- ☐ Warehousing
- ☐ Freight Forwarding, Agent Services
- ☐ Transportation Repair & Service Facilities

**Manufacturing**
- ☐ Petroleum Refining & Related Industries
- ☐ Apparel & Other Textile Products
- ☐ Paper, Wood, & Allied Products
- ☐ Printing & Publishing
- ☐ Chemicals & Allied Products
- ☐ Food & Kindred Products
- ☐ Rubber & Miscellaneous Plastic Products
- ☐ Electric & Electronic Equipment
- ☐ Explosives
- ☐ Other Manufacturing Industries

**Other**
- ☐ Agriculture & Support Services
- ☐ Mining - Metal & Non-Metal
- ☐ Oil & Gas Extraction
- ☐ Gasoline, Fuel Oil, Propane Sales & Delivery
- ☐ Construction - All Types
- ☐ Wholesale or Retail Trade
- ☐ Non-Transportation Repair Facilities
- ☐ Hazardous Waste Services - Transportation, Disposal, Treatment
- ☐ Other _____

6. Annual Registration Fee. The combined registration and processing fee is $300.00. (Complete only when submitting initial or renewal registration.)

Total Amount Enclosed: $300.00

Make check or money order in U.S. funds, drawn on a U.S. bank, and payable to "U.S. Department of Transportation," and identified as payment for the "Hazmat Registration Fee."

**Method of Payment**

Check ✓ Money Order ____ Credit Card: *VISA* ____ *MasterCard* ____

**Credit Card Users Please Provide the Following Information:**

Card Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiration Date: ☐☐ MO ☐☐ YR

Name as it appears on the card _____

Authorized Signature _____

Cardholder acknowledges ordering goods or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer. Credit card statement will list this payment as "US DOT Hazmat Regis."

NOTE: If completing an Expedited Registration, **do not** resubmit credit card information here.

**R-YEAR SURVEY INFORMATION: Hazardous Materials Activities, and States in Which Activity was Conducted.** ate those activities conducted by the registrant during the previous calendar year (e.g., 1995 for the 1996-97 Registration ar). Mark "A" through "E," as appropriate, to indicate the category or categories and the activity or activities (shipper, carrier, or other) in which the registrant acted. Check all categories and activities that apply. "Other" may be checked to indicate offeror activities not covered under the heading of shipper or carrier, such as freight forwarder or agent. Carriers should circle all states in which they operated as a hazardous materials carrier. Shippers and others engaged in offering hazardous materials should circle only those states from which they offered hazardous materials. They do not need to indicate to or through which states shipments were sent. A list of the states and their abbreviations appears in the accompanying materials. Circle "48 Contiguous States," if appropriate, to indicate that the activity was conducted in all of the 48 contiguous states. If the registrant did not engage in activities covered by "A" through "E" during the previous year, but plans to do so in the current registration year, mark only "F."

A. ____ Offered or transported in commerce any highway route-controlled quantity of a Class 7 (radioactive) material.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

B. ____ Offered or transported in commerce more than 25 kilograms (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

C. ✓ Offered or transported in commerce more than 1 liter (1.06 quarts) per package of a material extremely toxic by inhalation (materials poisonous by inhalation that meet the criteria for Hazard Zone A).

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

D. ✓ Offered or transported in commerce a hazardous material or hazardous waste in a bulk packaging (see 49 CFR 171.8) having a capacity equal to or greater than 13,248 liters (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids.

1. Shipper ____ 2. Carrier ✓ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

E. ____ Offered or transported in commerce a shipment, in other than a bulk packaging, of 2,268 kilograms (5,000 pounds) gross weight or more of one class of hazardous materials or hazardous waste for which placarding of a vehicle, rail car, or freight container is required.

1. Shipper ____ 2. Carrier ____ 3. Other (Freight Forwarder, Agent, etc.) ____

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AR | AZ | CA | CO | CT | DE | FL | GA | ID | IL | IN | IA | KS | KY | LA | MA | MD | ME | MI | MN |
| MO | MS | MT | NC | ND | NE | NH | NJ | NM | NV | NY | OH | OK | OR | PA | RI | SC | SD | TN | TX | UT |
| | VT | VA | WA | WV | WI | WY | 48 Contiguous States | | | | | AK | AS | DC | GU | HI | MP | PR | VI | |

F. ____ Did not engage in any of the activities listed in A through E during the previous calendar year.

**8. Certification of Information.** I certify that, to the best of my knowledge, the above information is true, accurate, and complete.

Certifier's Name BRUCE REED (Print) Date MAY 2, 1996

Title OPERATIONS MANAGER Phone (503) 286-0631

Certifier's Signature

FALSE STATEMENTS MAY VIOLATE 18 U.S.C. 1001.

**MAIL COMPLETED FORM WITH PAYMENT TO:**

U.S. Department of Transportation
Hazardous Materials Registration
P.O. Box 740188
Atlanta, GA 30374-0188

Please retain a copy of this form for your records.

# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

# HAZARDOUS MATERIALS CERTIFICATE OF REGISTRATION

Registrant: FOSS MARITIME CO-CSR DIVISION
Attn: David Polland
Po Bx. 83018
Portland, OR 97283

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 062895 009 004D Issued: 06/29/95 Expires: 06/30/96

## Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) subject to the registration requirement must keep a copy of that carrier's current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

# InterOffice Memo

**To:** Deck Officers on the following vessels:

Clarkston, Lewiston, Noydena, Knappton, Howard Olsen, Astoria, Joseph T

**From:** Nancy Thompson

**Date:** June 6, 1997

**Subject:** Hazardous Materials Certificate of Registration

---

Attached is the vessel's current "Hazardous Material Certificate of Registration" that is required to be onboard. Previous registrations have expired and can be removed.

For safe keeping insert the certificate in the back of the vessel's RCP Manual.

Your cooperation is appreciated!!

Nancy

FRM&STD\MEMOFORM.DOC

# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

# HAZARDOUS MATERIALS CERTIFICATE OF REGISTRATION

Registrant: FOSS MARITIME CO-C.S.R DIVISION
Attn: Bruce Reed
PO Box 83018
Portland, OR 97283-0018

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 052897 014 015F Issued: 05/30/97 Expires: 06/30/98

## Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

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Each motor carrier (private or for-hire) and each vessel operator subject to the registration requirement must keep a copy of the current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor or vessel (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made avialable, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

# UNITED STATES OF AMERICA
# DEPARTMENT OF TRANSPORTATION
# RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

# HAZARDOUS MATERIALS CERTIFICATE OF REGISTRATION

Registrant: BRIX MARITIME CO.
Attn: Robert A Hindman
PO Box 83018
Portland, OR 97283

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 072594 006 017C Issued: 07/26/94 Expires: 06/30/95

## Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) subject to the registration requirement must keep a copy of that carrier's current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

SOLARCHEM RESOURCES

# MATERIAL SAFETY DATA SHEET

Received 12/2/94 SR

## I. GENERAL INFORMATION

| | | |
|---|---|---|
| **TRADE NAME (COMMON NAME OR SYNONYM)** Magnesium Chloride | | **C.A.S. NO(S).** 7786-30-3, 7487-88-9 |
| **CHEMICAL NAME(S)** Aqueous magnesium chloride and magnesium sulfate and a proprietary ingredient (identity witheld) | **FORMULA** $MgCl_2$, $MgSO_4$ | **MOLECULAR WEIGHT** 95.22, 120.37 g/mol |
| **MANUFACTURER(S) NAME AND ADDRESS** Cargill Incorporated - Solarchem Resources<br>P.O. Box 364<br>Newark, CA 94560 - 0364 | | |

| CONTACT | PHONE NO. | DATE ISSUED | DATE REVISED |
|---|---|---|---|
| Director-Quality Admin. | (612) 742-6581 | 7/23/90 | 3/14/94 |

## II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

| Hazardous Components (Specific Chemical Identity and/or Common Names(s)) | OSHA PEL | ACGIH TLV | Other Limits Recommended | Percent (Optional) |
|---|---|---|---|---|
| None | | | | |

## III. PHYSICAL/CHEMICAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| **BOILING POINT** (760mm Hg) (°C) | 108-123 | **SPECIFIC GRAVITY** ($H_2O$=1) | 1.306 |
| **VAPOR PRESSURE** (mm Hg/30°C) | 7.5 | **MELTING POINT** (°C) | N/A |
| **VAPOR DENSITY** (Air=1) | N/A | **EVAPORATION RATE** (Butyl Acetate=1) | <1 |
| **SOLUBILITY IN WATER** (g/cc,%) | 100% | | |

**APPEARANCE AND ODOR** Slightly viscous, brown/amber liquid with a slight saline odor

## IV. FIRE AND EXPLOSION HAZARD DATA

| | | | |
|---|---|---|---|
| **FLASH POINT** (Method used) Not Applicable. | **FLAMMABLE LIMITS** | LEL NA | UEL NA |

**EXTINGUISHING MEDIA** Not Applicable. This product is nonflammable.

**SPECIAL FIRE-FIGHTING PROCEDURES/EQUIPMENT** May use a self-contained breathing apparatus if temperatures exceed 300°F (149°C).

**UNUSUAL FIRE AND EXPLOSION HAZARDS** None.

SALT 537 (Rev 3/94)

| Post-it™ Fax Note 7671 | Date 12/2 | # of pages ▶ |
|---|---|---|
| To Sam Puplin | From Doug Podzilni | |
| Co./Dept. | Co. Cargill | |
| Phone # | Phone # 510 790 8103 | |
| Fax (503) 232-7658 | Fax # 510 790 8649 | |



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## V. REACTIVITY DATA

| STABILITY | | |
|---|---|---|
| Stable | X | Conditions To Avoid: Contact with strong acids. |
| Unstable | | |

**INCOMPATIBILITY (Materials to Avoid):** Metals will experience slight corrosion over time. Incompatible with sulfuric and nitric acids, caustics, ammonia, and cyanides. A hazardous reaction involving magnesium chloride and 2-furan percarboxylic acid has been reported.

**HAZARDOUS DECOMPOSITION OR BYPRODUCTS:**
May evolve chlorine gas when in contact with strong acids or upon heating above 300°F (149°C). Under normal applications, decomposition should not occur.

| HAZARDOUS POLYMERIZATION | | |
|---|---|---|
| May Occur | | Conditions To Avoid: Not Applicable. |
| Will Not Occur | X | |

## VI. HEALTH HAZARD DATA

**ROUTE(S) OF ENTRY**

**Inhalation?** Mist may cause mild irritation of nose and throat; unlikely entry route.

**Skin?** May cause minor irritation to sensitive person.

**Ingestion?** Ingestion of large amounts may cause gastrointestinal upset.

**HEALTH HAZARDS (Acute And Chronic)**
Ingestion of large amounts can cause gastrointestinal upset and irritation of the stomach. No applicable information found for chronic systemic effects.

**CARCINOGENICITY**

**NTP?** Not listed as a carcinogen or mutagen.

**IARC Monographs?** Not listed as a carcinogen or mutagen.

**OSHA Regulated?** Not listed as a carcinogen or mutagen.

**SIGNS AND SYMPTOMS OF EXPOSURE**

**Inhalation:** Mist may cause slight irritation of nose; unlikely entry route.

**Skin Contact:** May cause minor irritation to sensitive persons.

**Ingestion:** May cause nausea or vomiting.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**

Possible skin irritation to sensitive persons.

SAL/T-537

## VI. HEALTH HAZARD DATA (Continued)

| |
|---|
| **EMERGENCY AND FIRST AID PROCEDURES** |
| **Inhalation:** Remove to fresh air. Inhalation is an unlikely entry route. |
| **Skin Contact:** Flush with water. For eye contact, flush eyes with large amounts of water, lifting eyelids occasionally. |
| **Ingestion:** Less than a few grams would not be harmful. For larger quantities, drink large amounts of water or milk. |
| **EMERGENCY TELEPHONE NUMBERS** Day: (612)742-6581 Evening (612)476-1127 (MN) |

## VII. PRECAUTIONS FOR SAFE HANDLING AND USE

| |
|---|
| **STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**<br>Contain spills to prevent contamination of water supply or sanitary sewer system. Dispose of according to local requirements. |
| **WASTE DISPOSAL METHOD**<br>For disposal of this material as a waste, act in accordance with all applicable Federal, state, and local waste management regulations. |
| **PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**<br>Can be corrosive to some metals, especially steel and aluminum.<br>Prolonged storage or subjecting the material to temperatures below 30°F (-1°C) can result in the formation of magnesium sulfate crystals.<br>Incompatible with sulfuric and nitric acids, caustics, ammonia and cyanides. |
| **OTHER PRECAUTIONS**<br>Do not apply directly to plant foliage or root zones, as concentrated magnesium chloride solutions may cause partial or complete defoliation.<br>Application of magnesium chloride onto paved surfaces may result in slippery conditions which present a safety hazard for foot and vehicular traffic. |

## VIII. CONTROL MEASURES

| | | |
|---|---|---|
| **RESPIRATORY PROTECTION (Specify Type)** N/A | | |
| **VENTILATION** | **Local Exhaust** | Not necessary |
| | **Mechanical (General)** | Not necessary |
| | **Special/Other** | Not necessary |
| **PERSONAL PROTECTIVE EQUIPMENT** | | |
| **Protective Gloves** Normal work gloves are adequate. | | |
| **Eye Protection** Eyeglasses or goggles may be worn. | | |
| **Other Protective Clothing Or Equipment** Protective clothing may be worn, but is generally not required. | | |
| **Work/Hygiene Practices** Warm water showering and handwashing is suggested if in direct contact with product, but is generally not required. | | |

SALT-537

All statements, technical information and recommendations contained herein are, to the best of our knowledge, reliable and accurate; however, no warranty, either express or implied, is made with respect thereto, nor will any liability be assumed for damages resultant from the use of the material described.

It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations. It is also the responsibility of the user to maintain a safe workplace. The user should consider the health hazards and safety information provided herein as a guide and should take the necessary steps to instruct employees and to develop work practice procedures to ensure a safe work environment.

This information is not intended as a license to operate under, or a recommendation to practice or infringe upon any patent of this Company or others covering any process, composition of matter or use.





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# MATERIAL SAFETY DATA SHEET

NPCA 1-82

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

## Section I

MANUFACTURER'S NAME Pettit Paint Company, Inc. DATE OF PREP 5/16/89

STREET ADDRESS 36 Pine Street CITY STATE AND ZIP CODE Borough of Rockaway, NJ 07866

EMERGENCY TELEPHONE NO 800-548-0489 PRODUCT CLASS Silicone Polyurethane Alkyd

INFORMATION TELEPHONE NO 201-625-3100

MANUFACTURERS CODE IDENTIFICATION 3106,3175,3213,3248, 3229,3237,3518,3711,3801,3228,3702,2130 3540,3338,3108,3531,3335

TRADE NAME Easypoxy S.G.White,White,Blue Ice,Bikini Blue,Turquoise,Sandtone,Platinum,Electric Blue, Blue Gray,Centennial White Sandalwood Black, Foss Gr Off White,Ocean Blue,Chocolate

## Section II—HAZARDOUS INGREDIENTS

| INGREDIENT | CAS # | PERCENT | OCCUPATIONAL EXPOSURE LIMITS TLV | OCCUPATIONAL EXPOSURE LIMITS PEL | VAPOR PRESSURE | ACUTE TOXICITY DATA |
|---|---|---|---|---|---|---|
| Aliphatic Solvent Naphtha (Petroleum) (Mineral Spirits) | 64742-88-7 | 25-35 | 100PPM | 100PPM | 10 | Oral LD50 >25ML/KG (Rat) Dermal LD50 >4ML/KG (Rabbit) Inhalation LC50 >700 PPM/4hr.(Rat |
| Titanium Dioxide | 1317-80-2 | 0-35 | 10MG/M$^3$ Dust | 10MG/M$^3$ Dust | None | Oral LD50 >9500MG/KG (Rat) |
| Carbon Black | 1333-86-4 | 0-4 | 3.5MG/M$^3$ Dust | Not est. | None | None |
| Calcium Carbonate | 1317-65-3 | 0-20 | 10MG/M$^3$ Dust | 15MG/M$^3$ Dust | None | None |

## Section III—PHYSICAL DATA

BOILING RANGE 373-390° F. VAPOR DENSITY ☒ HEAVIER ☐ LIGHTER THAN AIR

EVAPORATION RATE ☐ FASTER ☒ SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 40-50 WEIGHT PER GALLON 9 - 12.5

## Section IV—FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION OSHA Combustible Liquid Class II DOT Combustible Liquid FLASH POINT 105°F. T.C.C. LEL 1

EXTINGUISHING MEDIA

☒ FOAM ☐ "ALCOHOL" FOAM ☒ $CO_2$ ☒ DRY CHEMICAL ☒ WATER FOG ☐ OTHER

Do not use a direct stream of water. Product will float and can be reignited.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup which could result in container rupture.

## Section V—HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE Inhalation of high vapor concentrations may have results ranging from dizziness, headac giddiness, nausea to unconsciousness. Prolonged or repeated liquid contac with the skin will dry and defat the skin, leading to irritation and dermatitis.

EMERGENCY AND FIRST AID PROCEDURES If overcome by vapor, remove from exposure immediately; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. If ingested, DO NOT induce vomiting; call a physician. If vomiting occurs, keep head below hips to keep liquid out of lungs. In case of skin contact, remove any contaminated clothing, and wash skin with soap and warm water. If splashed into eyes, flush eyes with clear water for 15 minutes or until irritation subsides.

## Section VI—REACTIVITY DATA

STABILITY ☐ UNSTABLE ☒ STABLE CONDITIONS TO AVOID None.

INCOMPATABILITY (Materials to avoid) Strong oxidants like: liquid chlorine, concentrated oxygen, sodium or calcium hypochlorite.

HAZARDOUS DECOMPOSITION PRODUCTS
Fumes, smoke and carbon monoxide, in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

## Section VII—SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent (sand earth, sawdust, etc.) to spill area. Avoid breathing vapors. Ventilate confined spaces. Open all windows and doors. Keep petroleum products out of sewers and watercourses by diking or impounding. Advise authorities if product s entered or may enter sewers, watercourses, or extensive land areas.

WASTE DISPOSAL METHOD
Assure conformity with applicable disposal regulations. Dispose of absorbed material at an RCRA approved disposal site or facility.

## Section VIII—SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION Use a NIOSH approved hydrocarbon vapor cannister or supplied-air respirator protection in confined or enclosed places if occupational exposure limits are exceeded.

VENTILATION Exhaust at over 60 fpm.

PROTECTIVE GLOVES Use chemical resistant type.

EYE PROTECTION Splash goggles or face shield.

OTHER PROTECTIVE EQUIPMENT Use a NIOSH approved dust respirator when sanding these products if occupational exposure limits are exceeded

## Section IX—SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Keep containers closed when not in use. Do not handle or store near heat, spark, flame or strong oxidants.

OTHER PRECAUTIONS

None.

①

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NPCA 1-82

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

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OTHER PRECAUTIONS

None.

PETTIT marine paint

CUSTOM BLENDED,
POLYURETHANE/SILICONE/ALKYD
Technical Bulletin 220

## EASYPOXY

## TOPSIDE & DECK ENAMEL

Easypoxy is a superior quality finish, combining the best enamel features into a single-package product. The refined blend of urethane, silicone, and alkyd produces its super gloss and excellent abrasion resistance. The product of choice for easy application, Easypoxy flows out to a smooth, sleek finish with good hiding power to restore glistening shine and color with long lasting results. Can be brushed or rolled to resemble a "sprayed on" appearance. Developed to adhere directly to fiberglass, Easypoxy performs equally well on metal, wood, and previously painted surfaces. Durability and small, convenient sizes also make it great for boottops, cove stripes and hull graphics.

COVERAGE: 600 square feet per gallon, by brush or roller. Two thin coats are recommended for best service.

TEMPERATURE: 50 degrees or higher

THINNER/CLEANUP: Use Pettit 12120 Brushing Thinner to remove sanding residue, to clean equipment, and to ease brushing properties, if necessary. Use Pettit 12121 Spraying Thinner to reduce viscosity when spraying.

DRY TIMES: Before sanding and recoating--overnight; before immersion (boat bottoms)--one week.

## SYSTEMS

All surfaces must be clean, dry, and properly prepared prior to painting. Stir enamel thoroughly before use. Sand between coats of new enamel with 220 grit paper. Always wipe with a tack cloth immediately before the fresh application of paint to remove any airborne dust which may have settled.

Bare Fiberglass: The entire surface to be painted, regardless of age, must be thoroughly washed with 15095 Fiberglass Dewaxer to remove all traces of mold release agents and wax. Sand the gelcoat with 80-120 grit paper to a dull, frosty appearance, solvent clean to remove residue. If the surface is in excellent condition, proceed with the first finish coat of Easypoxy.

PETTIT PAINT COMPANY
36 PINE STREET, ROCKAWAY, NJ 07866 (201) 625-3100 FAX: (201) 625-8303

If the surface is rough or imperfections exist, it will have to be repaired. Fill all nicks and gouges with 7020/7025 Epoxy Fairing Compound, 7190 Polyester Mender, or 7164 Plastic Surfacer; sand flush when hard, then solvent clean. Follow with a coat of 4171/2084 All-Temp Epoxy Undercoater or 6164 Fiberglass Undercoater to smooth the surface and provide a uniform base; sand well and solvent clean. Proceed with the first finish coat of Easypoxy.

Bare Wood: Sand the surface smooth with 80-120 grit paper; solvent clean to remove residue. Fill all screwheads or small holes with 7190 Polyester Mender or 7164 Plastic Surfacer; sand flush and solvent clean. Apply a coat of 2018 Clear Sealer to penetrate and seal the porous grain. Follow with one to two coats of 6165 Yacht White Undercoater until an evenly smooth base condition is reached; sand each coat with 80-120 grit paper and solvent clean. Proceed with the first finish coat of Easypoxy.

Bare Steel: Surface must be cleaned to a bright finish by sandblasting or wire brushing; remove blast residue. Immediately apply one thin "wet" coat of 6455 Metal Primer; allow to dry at least two hours. If surface is rough, apply a coat of 6644 Vinyl Red Undercoater; sand well and solvent clean. Repeat application, as needed, until a perfectly smooth, uniform base is reached. Proceed with the first coat of Easypoxy. (NOTE: If only spot priming is required on previously painted steel, remove loose scale and apply two coats of 6980 Rustlok Primer to the bare, corroded areas. After only 1 to 2 hours dry, apply first coat of Easypoxy.)

Bare Aluminum Boats, Masts & Spars: Wipe the surface free of oil and grease with solvent. Remove oxidation and etch the surface with medium grit emery cloth; solvent clean again. Apply one thin "wet" coat of 6455 Metal Primer; allow to dry at least two hours. Proceed with the first coat of Easypoxy.

Painted Surfaces: If the old paint is in good, sound condition, sand it thoroughly smooth with 150 grit paper; solvent clean to remove residue, then proceed with the first coat of Easypoxy. If the old paint is in poor condition, remove it by sanding or using Pettit Paint & Varnish Remover (9030 for fiberglass; 9022 for metal and wood). Proceed with instructions for the appropriate bare surface system.

Non-Skid Decks: To provide a safe, slip-proof texture on decks, add Pettit 9900 Skidless Compound to the mixed Easypoxy. Stir mixture continuously to insure compound is thoroughly dispersed and remains in suspension. A minimum of two coats are recommended, following the appropriate application system. For decks which have a pre-molded, non-skid embossment, wash the surface with 15095 Fiberglass Dewaxer. Abrade area thoroughly with bronze wool; solvent clean to remove residue. Apply two coats of Easypoxy, adding 9900 Skidless Compound to the mixture if an improved non-skid texture is desired.



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PETTIT marine paint

CUSTOM BLENDED,
POLYURETHANE/SILICONE/ALKYD
Technical Bulletin 220

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Confidential Business Information

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

November 19, 1999

Mr. Larry Johnson
Manager, Marine Operations
Foss Maritime Co.
9030 N.W. St. Helens Road
Portland, Oregon 97231

Re: Request for Performance of Preliminary Assessment with Sampling – Foss Maritime Co. Site

Dear Mr. Johnson:

This letter informs you of the results of our review of information regarding hazardous substance contamination at the Foss Maritime Co. facility located at 9030 N.W. St. Helens Road in Portland, Oregon. The Oregon Department of Environmental Quality (DEQ) has determined that the Foss Maritime Co. site is a high priority for a preliminary assessment with sampling and requests that Foss Maritime Co. perform a preliminary assessment with sampling in accordance with the Environmental Cleanup Law, Oregon Revised Statutes (ORS) 465.200 *et seq.*

The Foss Maritime Co. facility is located within or near a portion of the Willamette River known as the Portland Harbor. A 1997 investigation revealed significant contamination of sediments within the harbor. DEQ has undertaken review of available information regarding properties throughout the harbor to identify potential sources of the sediment contamination. The results of DEQ's review for the Foss Maritime Co. facility are summarized in the enclosed Strategy Recommendation

Based on this review, DEQ has determined additional information is necessary to determine whether hazardous substances have been released or threaten to be released at the Foss Maritime Co. facility and come to be located in Willamette River sediments. The preliminary assessment with sampling will fully evaluate all upland, in-water and over-water activities that might have resulted in the release of hazardous substances and include sufficient sampling to assess whether hazardous substances have come to be located in Willamette River sediments at or near the Foss Maritime Co. facility. At a minimum, sampling will include the collection of surface and subsurface sediment samples at appropriate points adjacent to the Foss Maritime Co. facility.

**DEQ proposes that your performance of the preliminary assessment with sampling be governed by the enclosed Voluntary Cleanup Letter Agreement. The facility's preliminary assessment with sampling will be coordinated with harbor-wide sediments investigations currently being pursued by DEQ. This will require commencement of the preliminary assessment with sampling at the Foss Maritime Co. facility in the near future. DEQ therefore requests that you review the enclosed Strategy Recommendation and Voluntary Cleanup Letter Agreement, and inform DEQ whether will perform a preliminary assessment with sampling by signing and returning one original of the enclosed Voluntary Cleanup Letter Agreement within 30 calendar days of mailing of this letter. Please retain one signed original for your records. It is DEQ's expectation that a preliminary assessment and sampling work plan will be completed and submitted to DEQ within six weeks of signing the Voluntary Cleanup Letter Agreement.**

Should you not agree to perform the preliminary assessment with sampling by execution of the Voluntary Cleanup Letter Agreement, DEQ will assume you are not willing to perform the requested work. In this case, as with other facilities within the Portland Harbor, DEQ will complete the preliminary assessment with sampling itself, with subsequent cost recovery from liable parties.

Finally, please be advised that DEQ is required by ORS 465.330 to recover remedial action costs incurred by DEQ, including for site assessment activities. You will be receiving an invoice in the near future for DEQ's costs of preparing the Strategy Recommendation for the Foss Maritime Co. facility. Reimbursement of future DEQ costs will be provided through the Voluntary Cleanup Letter Agreement for the facility, if one is entered.

Please Contact me at 503 229-5648 if you have any questions regarding the enclosed Strategy Recommendation .

Sincerely,

Eric Blischke,
Coordinator
Portland Harbor Study Area
Waste Management and Cleanup Division

Enclosures

c: Kurt Burkholder, DOJ
Dave St. Louis, Manager, NWR Site Assessment Program
Mike Rosen, NWR Voluntary Cleanup Program
Gil Wistar, Coordinator, Site Assessment Program
ESCI File No.: 2364

ANCHOR
ENVIRONMENTAL, L.L.C.

1411 4th Avenue, Suite 1210
Seattle, WA 98101
Phone 206.287.9130
Fax 206.287.9131

Steve Fortuna, Remedial Action Specialist
Site Assessment Program
Oregon Department of Environmental Quality, Northwest Region
2020 NW Fourth Avenue, Suite 400
Portland, OR 97201-4987

March 19, 1999

Re: Site Assessment Review Notice
Foss Maritime Co. / Brix Maritime Co.
Site Assessment Information Submittal Extension Request

Dear Mr Fortuna:

This purpose of this letter is to request an extension for submitting the above referenced site assessment information outlined in your March 3, 1999 letter. We expect to provided this information to DEQ on March 31, 1999. If you have any questions, please do not hesitate to call me at (206) 287-9130 or at dtempleton@anchorenv.com.

Sincerely,

David Templeton

David Templeton
Anchor Environmental, L.L.C.

ANCHOR ENVIRONMENTAL, L.L.C.

Anchor Environmental, L.L.C.
6650 SW Redwood Lane, Suite 110
Portland, OR 97224
Phone 503.670.1108
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MAY 27 2005
DEPT OF ENVIRONMENTAL QUALITY
NORTHWEST REGION

May 25, 2005
990056-01

Dana Bayuk, R.G.
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, OR 97201

**Re:** Response to April 20, 2005 DEQ Comments,
Remedial Investigation Workplan (February 2005), Brix Maritime Company
Portland, Oregon, ECSI No. 2364

Dear Dana:

This letter provides Anchor Environmental, LLC's ("Anchor") written response to DEQ's April 20, 2005 comments on the February 2005 Final Remedial Investigation Workplan (Final Workplan) prepared by Anchor on behalf of Brix Maritime (Brix).

The Final Workplan was approved by DEQ in its January 13, 2005 email to Anchor. In that email letter DEQ approved the Workplan and asked Anchor to agree to do some additional work, include that work in the Final Workplan and then issue a Final Workplan. Anchor complied with DEQ's request, and issued the Final Workplan in February 2005. The April 20, 2005 DEQ letter "comments" submitted to Anchor and Brix set forth requests for work scope changes. DEQ's comments are not based upon contingencies previously recognized in the Final Workplan and are, therefore, modifications to the Final Workplan approved by DEQ in January. For clarity's sake, Anchor proposes that any changes that DEQ and Anchor agree to make to the Final Workplan based upon the April 20, 2005 "comments" should be documented as a First Amendment to the Final Workplan dated February 2005.

Anchor and Brix worked diligently with DEQ to finalize the Workplan and must be able to rely upon the finality of DEQ decisions regarding formally submitted documents while understanding that some contingencies will exist. Anchor submitted a Remedial Investigation ("RI")Workplan to DEQ on November 26, 2003 for agency review. The November 2003 submittal was followed by several meetings with DEQ and a site visit by DEQ, at which time the scope of the RI Workplan was discussed. Anchor has communicated with DEQ throughout the process of obtaining Workplan approval. The following sets forth the history of the development of the RI Workplan.

- November 26, 2003: Anchor submits Remedial Investigation Workplan to DEQ

- February 25, 2004: DEQ issues Comment Letter on RI Workplan
- April 22, 2004: site reconnaissance with DEQ
- April 30, 2004: Anchor submits response letter to DEQ's February 2004 comment letter
- May 25, 2004: Anchor meets with DEQ to discuss proposed changes to RI Workplan
- June 24, 2005: Anchor submits electronic redline version of revised RI Workplan to DEQ
- July 26, 2004: DEQ approves RI Workplan with comments
- October 25, 2004: Anchor emails DEQ updated RI Workplan text regarding additional soil borings requested by DEQ
- November 4, 2004: DEQ issues comment letter on updated RI Workplan text and requests additional soil borings and expanded metals testing in soils and groundwater
- December 16, 2004: Anchor responds to DEQ's November 2004 email
- January 11, 2005: Anchor meets telephonically with DEQ to discuss December 2004 scope of work
- January 13, 2005: DEQ approves Anchor's December 2004 scope of work
- February 2005: Anchor agrees to requested changes and submits the Final Workplan to DEQ
- April 20, 2005: DEQ submits "comment" letter regarding Final Workplan

Anchor and Brix are disturbed that following this level of effort, within two months of submitting an approved Final Workplan, DEQ submitted "comments" essentially requiring an amendment to the Final Workplan. Anchor and Brix will undertake in the manner described in this letter most of the additional tasks requested by DEQ in the letter of April 20, 2005 and will submit to DEQ, upon agreement regarding the additional work Anchor will do, a First Amendment to the Final Workplan which will then become the governing document for work at the Site.

In the following sections we have reproduced DEQ's comments from the April 20, 2005 letter. The Anchor response to each DEQ comment is presented in italics.

**Section 3.2.** Consistent with our February 25, 2004 comments letter, and agreements made during a May 25, 2004 meeting, DEQ expects that a survey will be conducted along the facility's waterfront to establish the locations and elevations of 1) groundwater seeps and 2) the contact between the sand unit and the underlying silt unit. This information should be shown on appropriate figure(s) and used when preparing the structural contour map of the top of the silt unit. The survey will also provide a site-specific estimate of the lowest effective shallow groundwater elevation for the site (i.e., when river levels are below the top of silt).

1) *Anchor will attempt to survey the locations of seeps. DEQ should recognize that the observed seeps have not shown free flowing groundwater, but rather are zones of wet soil*

*along the steep riverbank, that become visible during low river level conditions. Some of the wet soil zones exhibit orange discolorations, probably due to iron precipitation. The seeps appear only at low river tide levels, therefore, we expect that the seep water results from drainage of river water that has temporarily infiltrated the riverbank sediments during high tide. We expect, therefore, that the seep discharge likely contains a mixture of perched groundwater and river water.*

2) *The sand fill unit and underlying silt unit are both visible during low river level conditions. Rip rap was placed on the riverbank during site development for erosion protection, so the sand fill is overlain by rip rap. Therefore, the contact of the sand fill and underlying silt is obscured in some areas due to sloughing of the overlaying sand unit and rip rap along the steep slope. Anchor recommends that DEQ visit the Site for a reconnaissance of the riverbank, to assist in understanding the riverbank geologic conditions.*
3) *The survey is further complicated by the steep riverbank slope, slippery silt surface, and loose riprap. Surveying along the steep slope will be completed after Anchor has analyzed the safety issues involved and completed a safety protocol for field staff to follow during the sampling of the seeps .*

**Section 3.3.** Storm water is recognized as a source of contamination to the Willamette River and its sediments. DEQ acknowledges BRIX's ongoing efforts to reduce the potential for site storm water to be a source of impacts to the river. DEQ expects that BRIX will maintain the "best management practices" (BMPs) currently in-place (e.g., use and routine scheduled maintenance and/or replacement of catch basin inserts). DEQ also recommends that BRIX implement the BMPs recommended by the City of Portland, including sweeping paved surfaces to reduce the amount of material entering the catch basins and minimizing outdoor uncovered storage of spare equipment and/or materials. Periodic sweeping of the paved areas could reduce the frequency of maintaining and/or replacing the catch basin filters.

*There is minimal material that comes to rest on the paved surfaces at the Brix facility. Brix will continue to engage in its normal housekeeping practices, which sometimes includes sweeping the paved surfaces at the facility. Brix customarily minimizes outdoor uncovered storage of spare equipment as a component of the normal good housekeeping practices at the facility.*

**Section 3.5.** According to this section and Appendix F of the RI Workplan, PGE owns the two transformers at the BRIX facility having purchased them on January 1, 1979. Additionally, PGE reports that the content of polychlorinated biphenyls (PCBs) in the transformers is unknown. DEQ acknowledges that de-energizing the transformers and

interrupting power would negatively impact the BRIX operation. However, DEQ understood from Anchor's April 30, 2004 letter that if information regarding the PCB content of the transformers was unavailable or could not be determined, then shallow soil sampling would be conducted.

DEQ expects that an approach for collecting and analyzing shallow soil samples around the transformers will be developed and incorporated into the RI Workplan. Lacking information regarding the PCB content of the transformers, this information will be used to confirm whether releases from the transformers have occurred and whether additional work is warranted.

*As described in Anchor's May 12, 2005 PCB Sampling Workplan, soil samples were collected around both pad-mounted transformers. PCBs were not detected in soil around either transformer. Anchor will submit the results of the soil sampling around the transformers with the 2nd Quarter 2005 progress report on or before July 15, 2005.*

**Section 4.1.** Our February 25 letter stipulated that if groundwater seeps (as opposed to petroleum hydrocarbon seeps or sheens) are"...interpreted to be downgradient of the known groundwater plume or contaminant source areas..." representative samples should be collected. Section 3.2 of the RI Workplan indicates that groundwater seeps have been observed downgradient of monitoring well MW-2. Furthermore, polycyclic aromatic hydrocarbons have been detected in groundwater at MW-2. Based on this information, DEQ concludes that the criterion for sampling groundwater seeps has been met and that an approach for collecting and analyzing samples should be developed and included in the RI Workplan.

That said, the RI Workplan suggests it may be infeasible, due to access and safety considerations, to collect samples where groundwater seeps have been observed (i.e., along the northern portion of the facility's waterfront). Although not specifically mentioned, this comment appears to include the groundwater seeps observed near MW-2.

DEQ considers sampling groundwater seeps an important element of the RI. Given the configuration of the BRIX site and its access limitations, groundwater seeps may represent the only sampling locations between waterfront monitoring wells (e.g., MW-2) and the river. The data is needed to further assess the lateral extent of groundwater contamination and would support both the RI and the source control evaluation. As such, DEQ expects that BRIX will make every effort to develop an approach for conducting this work.