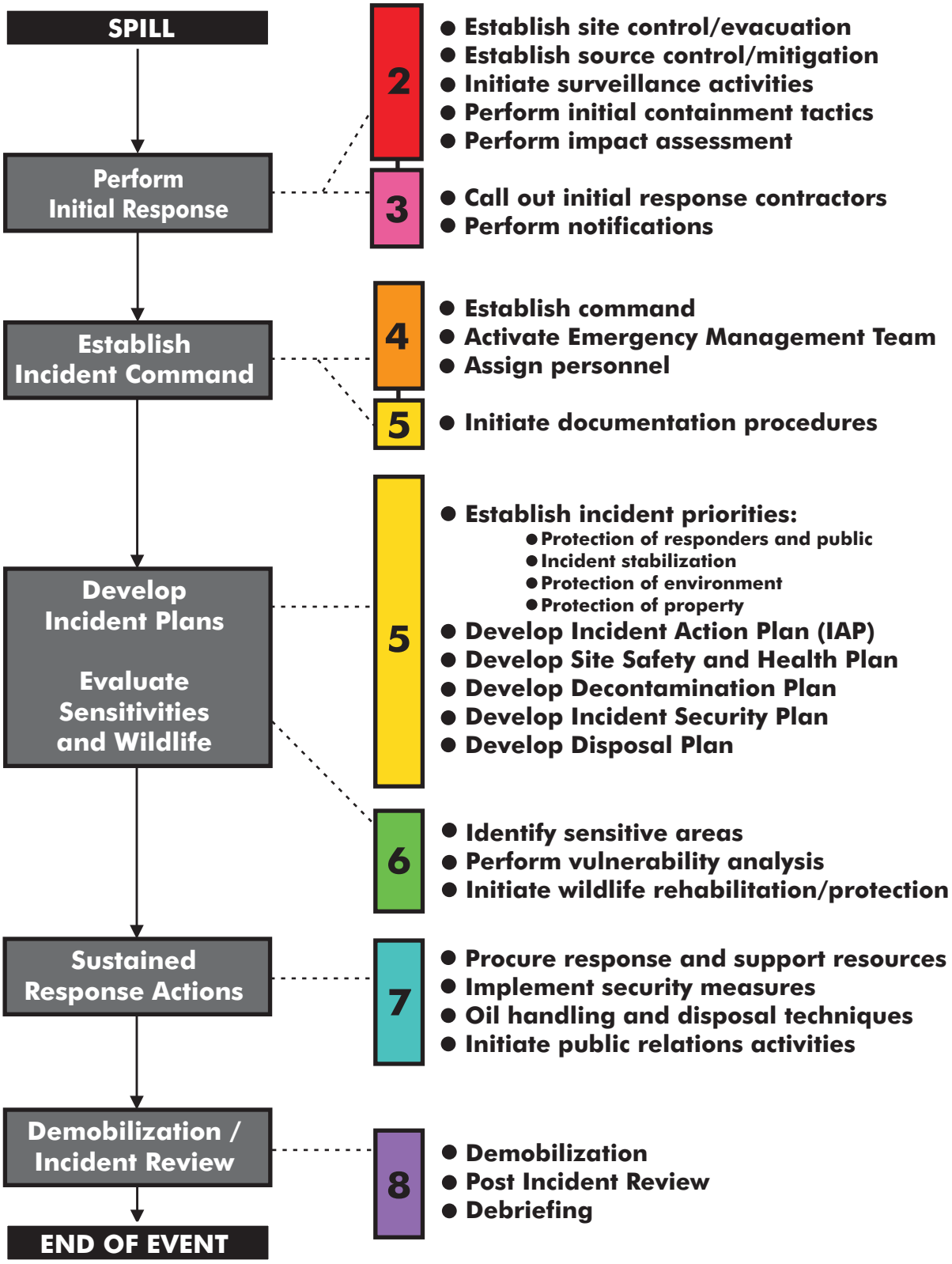
U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

The following Oil Spill Response Plan has been submitted to the Department of Transportation (DOT) Pipeline Hazardous Materials Safety Administration (PHMSA) in HyperText Markup Language (HTML) format, and has since been converted to Portable Document Format (PDF) form. Any hyperlink included in the PDF file is NOT functional, and materials referenced in the links have been attached as an addendum at the end of the document.

Response Procedures Flow Chart



1. Introduction
2. Initial Response Actions
3. Notifications Phone Numbers
4. Response Team Organization
5. Incident Planning
6. Sensitive Areas Response Tactics
7. Sustained Response Actions
8. Demobilization Post Incident Review

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RECORD OF CHANGES

Changes to this Plan will be documented on this page. Plan review and modifications will be initiated and coordinated with Terminal Management.

DATE OF CHANGE	DESCRIPTION OF CHANGE	PAGE NUMBER
4/8/2008	EPA FRP/SPCC | 1 - Introduction | Figure 1-1 - Distribution List	
6/10/2008	Modified Section D.5.2 WCD Scenario Discussion to include 29 CFR 1910.120 reference	
6/25/2008	7 - EPA USCG PHMSA FRP/SPCC | 3 - Notifications / Telephone Numbers | 3.1 Emergency Information and Notification Procedures | Figure 3.1-6 - External Notifications and Telephone Numbers | External Notifications	
8/1/2008	7 - EPA USCG PHMSA FRP/SPCC | 3 - Notifications / Telephone Numbers | 3.1 Emergency Information and Notification Procedures | Figure 3.1-5 - Internal Notifications and Telephone Numbers | Emergency Response Personnel and Business Unit Notifications	
8/12/2008	15 - ERAP | Emergency Response Action Plan (ERAP) | 3.0 Notifications | Figure 3-4 - Internal Notifications and Telephone Numbers	
11/20/2008	RCRA Cross Reference Updated	
11/25/2008	Figure 3.1-3 NRC notification statement updated	
12/8/2008	Appendix A - Figures A.1-4, A.1-5, and A.1-6 updated with "Other versions of this form may be used"	
12/8/2008	ERAP - Figure 3-2 NRC notification statement updated	
12/29/2008	Updated FIGURE E-1 parts 1.5.2 and 1.7.2	
12/29/2008	Updated ERAP with new FIGURE 5-4 Site Diagram	
1/22/2009	Updated Figure 4.5-1	
1/22/2009	Updated Section D.5.3 - Description of Factors Affecting Response Efforts - Weather or aquatic conditions	
3/4/2009	15 - ERAP | Emergency Response Action Plan (ERAP) | 3.0	

	Notifications | Figure 3-4 - Internal Notifications and Telephone Numbers	
3/4/2009	15 - ERAP | Emergency Response Action Plan (ERAP) | 3.0 Notifications | Figure 3-4 - Internal Notifications and Telephone Numbers	
3/24/2009	Updated FIGURE 3.1-4 Release Notification Data Sheet	
3/25/2009	Updated SECTION 1.2 Plan Review and Update Procedure	
3/25/2009	Updated Appendix D.3 Inspection and Spill Detection	
4/7/2009	Updated Appendix E Response Plan Cover Sheet to calculate only aboveground containers in the Number of above ground oil storage tanks field	
4/14/2009	15 - ERAP | Emergency Response Action Plan (ERAP) | 3.0 Notifications | Figure 3-4 - Internal Notifications and Telephone Numbers	
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8/6/2009	Appendix E - USCG Cross Reference parts B-4 and C-2 Updated	
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1/25/2010	DOCK OPS | Figure 5 - Notifications and Telephone Numbers	
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5/2/2014	EPA USCG PHMSA OR FRP/SPCC | D - Hazard Evaluation and Risk Analysis | D.7 Spill Volume Calculations | D.7.3 DOT / PHMSA Portion of Pipeline / Facility	
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5/7/2014	EPA USCG PHMSA OR FRP/SPCC | D - Hazard Evaluation and Risk Analysis | D.7 Spill Volume Calculations | D.7.3 DOT / PHMSA Portion of Pipeline / Facility	
5/7/2014	EPA USCG PHMSA OR FRP/SPCC | D - Hazard Evaluation and Risk Analysis | D.7 Spill Volume Calculations | D.7.3 DOT / PHMSA Portion of Pipeline / Facility	
5/7/2014	EPA USCG PHMSA OR FRP/SPCC | D - Hazard Evaluation and Risk Analysis | D.7 Spill Volume Calculations | D.7.3 DOT / PHMSA Portion of Pipeline / Facility	
5/13/2014	EPA USCG PHMSA OR FRP/SPCC | D - Hazard Evaluation and Risk Analysis | D.7 Spill Volume Calculations | D.7.3 DOT / PHMSA Portion of Pipeline / Facility	
5/13/2014	EPA USCG PHMSA OR FRP/SPCC | D - Hazard Evaluation and Risk Analysis | D.7 Spill Volume Calculations | D.7.3 DOT / PHMSA Portion of Pipeline / Facility	
5/27/2014	EPA USCG PHMSA OR FRP/SPCC | 1 - Introduction | 1.3 Agency Submittal / Approval Letters	

Portland Terminal

RECORD OF AMENDMENTS

SECTION AMENDED	DATE	DEPT. NOTIFIED (Y / N)	CHANGED BY (INITIALS)	DESCRIPTION OF AMENDMENT	PURPOSE OF AMENDMENT

SECTION 1 Last Revised: May 2014

INTRODUCTION

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Figure 1-1 - Distribution List

Figure 1-2 - **Portland Terminal** Information Summary

Figure 1-3 - **Facility** Area Map

Figure 1-4 - Facility Photograph

Figure 1-5 - Facility Site Plan

1.1 Purpose / Scope of Plan

1.2 Plan Review and Update Procedure

1.3 Agency Submittal / Approval Letters

1.4 Certification of Adequate Resources

1.5 Interface with Other Plans

Figure 1-6 - Interface with Other Plans

FIGURE 1-1 - DISTRIBUTION LIST

PLAN HOLDER	ADDRESS	NUMBER OF COPIES			
		PAPER	DISTRIBUTION DATE	ELECTRONIC	DISTRIBUTION DATE
Portland Terminal, Shore Terminals, LLC, Attn: Terminal Manager	9420 N.W. St. Helens Road Portland, OR 97231	2		0	
Regional Office - West Coast, Attn: HSE Regional Director	2368 Maritime Dr., Suite #275 Elk Grove, CA 95758	1		0	
U.S. Coast Guard - Sector Portland Oregon	6767 N. Basin Avenue Portland, OR 97217	1		1	
U.S. Environmental Protection Agency Region 10	Environmental Clean-up Office [ECL-116] Attn: Michael Sibley 1200 Sixth Avenue Seattle, WA 98101	1		0	
Oregon State Department of Environmental Quality	811 S.W. Sixth Avenue Portland, OR 97204-1396	1		0	
Clean Rivers Cooperative, Inc	200 SW Market St Portland, OR 97201	1		0	
NuStar Energy L.P. Corporate HSE Department	19003 IH-10 West San Antonio, TX 78257	0		1	
West Coast Regional Office, NuStar Energy LP	2368 Maritime Dr., Suite #275 Elk Grove, CA 95758	0		1	
Response	1200 New Jersey	0		2	5/27/2014

Plans Officer, Pipeline and Hazardous Material Safety, U.S. Department of Transportation	Avenue SE - Room E22-210 Washington, D.C. 20590				
Oregon Department of Energy	625 Marion St. NE Salem, OR 97301	1		0	

FIGURE 1-2 - PORTLAND TERMINAL INFORMATION SUMMARY

Owner:	Shore Terminals LLC 19003 IH-10 West San Antonio, TX 78257 (210) 918-2000
Operator:	Shore Terminals LLC 19003 IH-10 West San Antonio, TX 78257 (210) 918-2000
Facility Name:	Portland Terminal
Facility Address:	9420 N.W. St. Helens Road Portland, OR 97231
Facility Latitude/Longitude:	(b) (7)(F)
Facility Telephone/Fax:	(503) 286-6732 - Steve Kober / (503) 285-1909
EPA FRP #:	FRP-81
PHMSA FRP #:	1383 and 1562 (Portland Terminal)
USCG FRP #:	P-030
Description of Facility:	This site is a petroleum bulk tank farm and marine terminal consisting of aboveground storage tanks ranging in size from 120 to 110,000 barrels. The facility is used for bulk storage and distribution of petroleum hydrocarbons. The facility receives and ships product by pipeline, tank truck, and waterborne vessels. Products transferred through this facility are non-persistent oils consisting of gasoline, gasoline additives, ethanol, and distillates.
Size, Type, and Number of Vessels the Facility Can Transfer Oil to or from Simultaneously:	The Facility is capable of transferring oil simultaneously from (1) vessel at the North Dock and (1) vessel from the South Dock. Vessel Type: barge and ship. Vessel Capacity: North Vessels - 60,000 DWT. and South Vessels - 50,000 DWT. Vessel Length: North Vessels - 660 feet (maximum) and South Vessels - 500 feet (maximum). Transfer Rate: North Dock - Unloading rate - 10,000 Bbls/Hr. Loading rate - 3,500 Bbls/Hr. South Dock - Unloading rate - 10,000 Bbl/Hr Loading rate - 3,000 Bbl/Hr (JP-8). Construction: North Dock - wood

	and steel piling with a concrete deck. South Dock - wood piling with concrete deck. Containment System: North Dock - 10,000-gallon oil/water separator. South Dock - 5,000-gallon containment tank. Unmanned Vessels: Under no circumstances is a vessel undergoing transfer allowed to be left unattended. Continuous surveillance of the vessel is demanded of the carrier.
River Mile:	
Volume of Oil Stored (gal):	(b) (7)(F)
Maximum Volume of Oil Capable of being Stored (gal):	(b) (7)(F)

FIGURE 1-2 - PORTLAND TERMINAL INFORMATION SUMMARY, CONTINUED

Qualified Individuals: (Refer to APPENDIX A, FIGURE A.2-3 for QI Training Records)	**Facility**		
	Name and Contact Information	**Work Address**	**Home Address**
	Steve Kober Manager Terminal Incident Commander (503) 286-6732 x7114 (Office) (503) 597-9805 (Mobile)	9420 NW St. Helens Rd. Portland, OR 92731	,
	Don Marti (Operations Supervisor (Portland) Deputy IC, Safety Officer, Deputy Planning Section Chief, Operations Section Chief (503) 286-6732 (Office) (b) (6) *(360) 772- 1918 (Mobile)	9420 N.W. St. Helens Road Portland, OR 97231	(b) (6)
	Todd Clark Terminal Operator Deputy Operations Section Chief, Logistics Section Support (503) 285-6732 (Office) (b) (6) (503) 969-5173 (Mobile)	9420 N.W. St. Helens Road Portland, OR 97231	(b) (6)
	Todd Habets Director of Health, Safety and Environmental Incident Commander: Deputy Incident Commander: Planing Section Chief;	2368 Maritime Dr. Elk Grove, CA 95758	(b) (6)

	Environmental Unit Leader (916) 509-3256 (Elk Grove) (Office) (916) 479-6118 (Mobile)		(b) (6) [redacted]
	Chad Edinger VP & General Manager West Region Incident Commander, Administration/Finance Chief & Liaison/Information Officer (916) 509-3254 (Elk Grove) (Office) (916) 753-6751 (Mobile)	2368 Maritime Drive, Suite 275 Elk Grove, CA 95757	
	Jerome Jackson Area Manager Incident Commander (916) 509-3274 (Office) (916) 317-0799 (Mobile)	2368 Maritime Dr., Suite 275 Elk Grove, CA 95758	
	Joe Hufman Area Manager Terminal, Pipeline and Distributionn Incident Commander (916) 509-3272 (Elk Grove) (Office) (310) 427-9785 (Mobile)	2368 Maritime Dr., STE 275 Elk Grove, CA 95758	

Business Unit		
Name and Contact Information	**Work Address**	**Home Address**
Steve Kober Manager Terminal Incident Commander (503) 286-6732 x7114 (Office) (503) 597-9805 (Mobile)	9420 NW St. Helens Rd. Portland, OR 92731	,

FIGURE 1-2 - PORTLAND TERMINAL INFORMATION SUMMARY, CONTINUED

Qualified Individuals: (Refer to APPENDIX A, FIGURE A.2-3 for QI Training Records)	Business Unit		
	Name and Contact Information	**Work Address**	**Home Address**
	Jerome Jackson Area Manager Incident Commander (916) 509-3274 (Office) (916) 317-0799 (Mobile)	2368 Maritime Dr., Suite 275 Elk Grove, CA 95758	,
	Todd Habets Director of Health, Safety		

	and Environmental Incident Commander: Deputy Incident Commander: Planing Section Chief; Environmental Unit Leader (916) 509-3256 (Elk Grove) (Office) (916) 479-6118 (Mobile)	2368 Maritime Dr. Elk Grove, CA 95758	(b) (6)
	Joe Hufman Area Manager Terminal, Pipeline and Distributionn Incident Commander (916) 509-3272 (Elk Grove) (Office) (310) 427-9785 (Mobile)	2368 Maritime Dr., STE 275 Elk Grove, CA 95758	
	Don Marti (Operations Supervisor (Portland) Deputy IC, Safety Officer, Deputy Planning Section Chief, Operations Section Chief (503) 286-6732 (Office) (b) (7)(F)) *(360) 772- 1918 (Mobile)	9420 N.W. St. Helens Road Portland, OR 97231	

FIGURE 1-2 - PORTLAND TERMINAL INFORMATION SUMMARY, CONTINUED

Line Sections / Products Handled: (Refer to Product Characteristic and Hazards, FIGURE D.8-1)	SECTION			PRODUCTS
	St-3 to (b) (7)(F) - 33 foot with 8-inch diameter			Gasoline and mid-barrel products
	(b) (7)(F) to ST-2 (Line 1) - 1,129 feet with 14-inch diameter			
	(b) (7)(F) to ST-2 (Line 2) - 1,129 feet with 14-inch diameter			
	(b) (7)(F) to ST-3 (Line 1) - 780 feet with 14-inch diameter			
	(b) (7)(F) to ST-3 (Line 2) - 780 feet with 14-inch diameter			
Facility Data: (For date and type of substantial expansion, see Description of Facility and Tank Table in APPENDIX C)	**Location (Address and County)**	**Hours of Operations/ Manning**	**Date of Startup**	**Wellhead Protection Area**
	9420 N.W. St. Helens Road Portland, Multnomah County, OR 97231	Offload or fill two at a time, 24/7	1979	No

	Throughput:
	Daily throughput is typically 15,000 barrels
	Current Operations:
	The Facility handles and stores a variety of petroleum products. Product is received into the Terminal primarily via barge and tanker across the Terminal Docks and via the Olympic Products Pipeline. Some products are received via tank truck and rail car. Product is delivered from the Terminal primarily via tank truck and via the Kinder Morgan Pipe Line and barge.
Response Zone Consist of the Following Counties:	
Alignment Maps (Piping, Plan Profiles):	
DOT/PHMSA Worst Case Discharge:	(b) (7)(F) [redacted]
Statement of Significant and Substantial Harm:	The response zones in this system all contain pipelines greater than 6 5/8 inches and are longer than ten miles. At least one section of pipeline in each response zone crosses a major waterway or comes within five miles of a public drinking water intake. Therefore, in accordance with 49 CFR 194.103(c), each entire response zone described in this Plan will be treated as if expected to cause significant and substantial harm.
Spill Detection and Mitigation Procedures:	Refer to **SECTION 2.1.1**, **APPENDIX D.2.1** and **APPENDIX D.3**.
Date Prepared:	

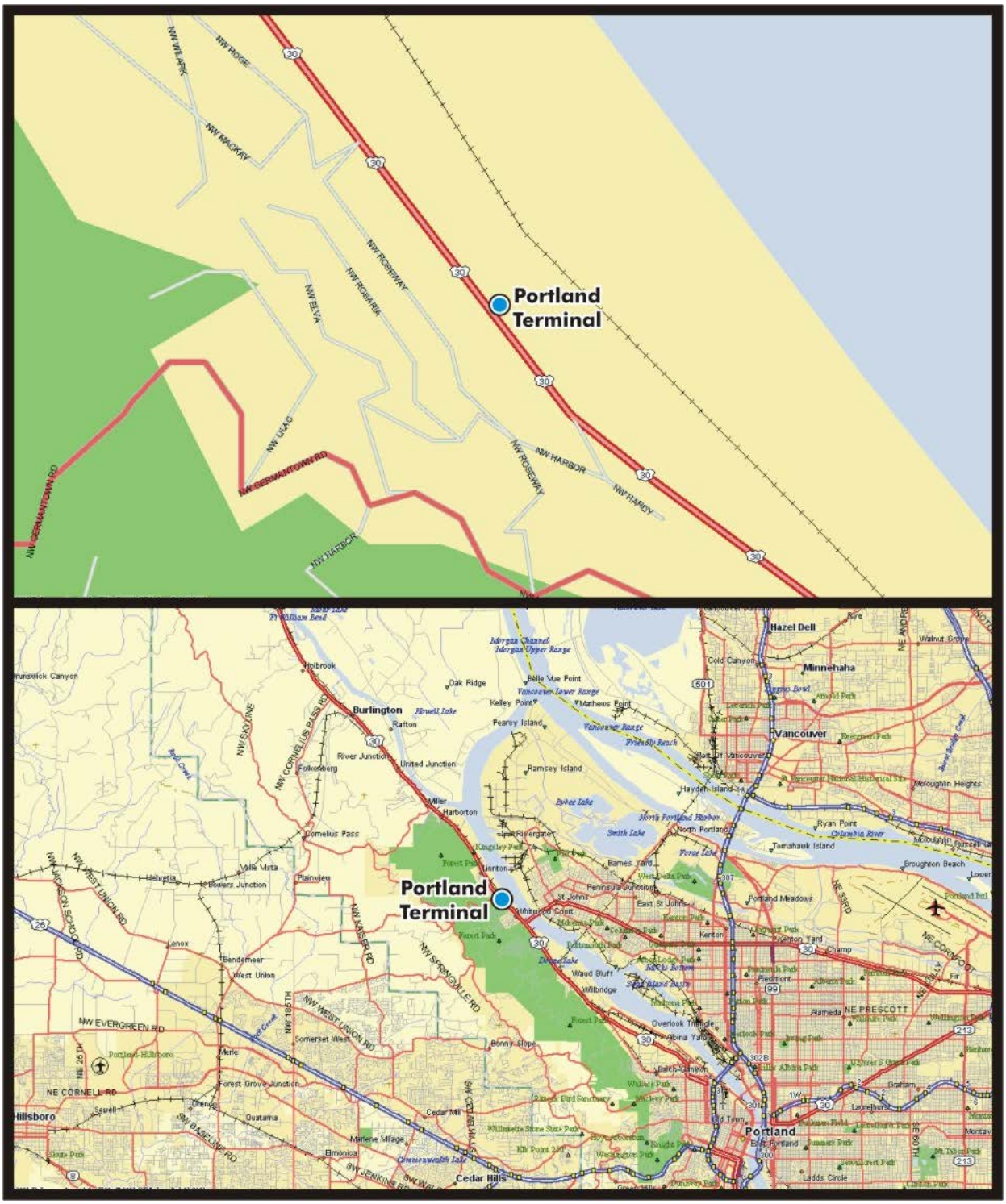
The information contained in this Plan is intended to be used as guidelines for the spill responder. Actual circumstances will vary and will dictate the procedures to be followed, some of which may not be included in this manual.

Approval must be received from the Oregon Department of Environmental Quality before conducting any major aspect of the Plan, unless:

- Such actions are necessary to protect human health and safety;
- Such actions must be performed immediately in response to unforeseen conditions to avoid additional environmental damage; or
- The Plan holder has been directed by the Oregon Department of Environmental Quality or the United States Coast Guard.

Note: For further information on the Qualified Individuals' training and qualifications, refer to **SECTION 4.5** and **APPENDIX A.2** in this Plan.

FIGURE 1-3 - FACILITY AREA MAP



Portland Terminal Page 1 - 8

FIGURE 1-4 - FACILITY PHOTOGRAPH



FIGURE 1-5 - FACILITY SITE PLAN

Click here to view site plan.

FIGURE 1-5 - FACILITY SITE PLAN

Click here to view site plan.

1.1 PURPOSE / SCOPE OF PLAN

The purpose of this Emergency Response Plan (Plan) is to provide guidelines to quickly, safely, and effectively respond to a spill. The Facility is owned and operated by Shore Terminals LLC , herein referred to as "Company."

This Plan is intended to satisfy the requirements of the Oil Pollution Act of 1990 (OPA 90), and has been prepared in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and applicable Area Contingency Plans (ACP), EPA Region X Regional Contingency Plan. Specifically, this Plan is intended to satisfy:

- U.S. Environmental Protection Agency (EPA) requirements for an OPA 90 Plan (40 CFR 112.20)
- U.S. Environmental Protection Agency (EPA) requirements for a Spill Prevention Control and Countermeasures (SPCC) Plan (40 CFR 112.7)

- U.S. Environmental Protection Agency (EPA) requirements for a Resource Conservation and Recovery Act (RCRA) Plan (40 CFR 265.50 through 265.56))
- U.S. Coast Guard (USCG) requirements for an OPA 90 Plan (33 CFR 154.1035)
- Occupational Safety and Health Administration (OSHA) requirements for emergency response plans (EAP and ERP) (29 CFR 1910)
- Oregon Administrative Rule (OAR) 340-141
- State of Oregon Department of Environmental Quality Division 141 Oil Spill Contingency Planning (340-141-0140 and 340-141-0160)

1.2 PLAN REVIEW AND UPDATE PROCEDURE

In accordance with 40 CFR 112.20 and 49 CFR Part 194.121, this Plan will be reviewed annually and modified to address new or different operating conditions or information included in the Plan. Upon review of the response plan for each five-year period, the plan will be submitted to PHMSA prior to 5 years from the last approval date. Company internal policy states that the Plan including contact information will be reviewed at least annually and modified as appropriate. In the event the Company experiences a Worst Case Discharge, the effectiveness of the plan will be evaluated and updated as necessary. If a new or different operating condition or information would substantially affect the implementation of the Plan, the Company will modify the Plan to address such a change and, within 30 days of making such a change, submit the change to PHMSA. EPA must receive the change within 60 days.

The U.S. Coast Guard (USCG) requires that plan changes be submitted in a timely manner. The plan review must occur within one (1) month of the anniversary date of the USCG approval letter. If no changes are required, the facility shall submit a letter to the USCG stating "No Changes Required."

Examples of changes in operating conditions that would cause a significant change to the Plan include:

CONDITIONS REQUIRING REVISIONS AND SUBMISSIONS	EPA	PHMSA	USCG	RCRA
Relocation or replacement of the transportation system in a way that substantially affects the information included in the Plan, such as a change to the Worst Case Discharge volume.	x	x		
A change in the Facility's configuration that materially alters the information included in the Plan.	x	x	x	
A change in the type of oil handled, stored, or transferred that materially alters the required response resources.	x	x	x	
A change in key personnel (Qualified Individuals).	x	x		x
Material change in capabilities of the Oil Spill Removal Organization(s) (OSROs) that provide equipment and personnel.	x	x		x
Material change in the Facility's spill prevention and				

response equipment or emergency response procedures.	x	x	x	x
Any other changes that materially affect the implementation of the Plan.	x	x	x	x
A change in the NCP or ACP that has significant impact on the equipment appropriate for response activities.		x		
A change in the name of the Oil Spill Removal Organization (OSRO).		x	x	
A change in the Facility's operating area that includes ports or geographic area.		x	x	
Applicable regulations are required.		x		x
The plan fails in an emergency.		x		x

All requests for changes must be made through the Terminal Manager.

The most current version of the plan is always the electronic copy. Revisions to the site-specific information are made through the password protected maintenance interface. The date at the beginning of each Section indicates the last date that Section was revised. Any revisions made after that date should be reprinted and inserted into the paper copy of the plan.

1.3 AGENCY SUBMITTAL / APPROVAL LETTERS

Click here to view Agency Submittal Letters April 2008

Click here to view EPA Submittal Letter 6/4/2013

Click here to view PHMSA Submittal Letter 6/24/2013

Click here to view US EPA FRP Approval September 26 2013

Click here to view USCG Letter of Intent

Sept 25 2007

Click here to view USCG FRP Approval July 8 2009

Click here to view USCG Op Manual Approval Dec 7 2007

Click here to view USCG FRP Approval Feb 20 2014

Click here to view PHMSA Comments Letter 03/18/2014

Click here to view PHMSA Submittal Letter 5/27/2014

1.4 CERTIFICATION OF ADEQUATE RESOURCES

OIL SPILL CONTINGENCY PLAN

CERTIFICATION
Pursuant to the Clean Water Act Section 311(j)(5)(F)

(Owner)

The undersigned, the owner or operator of the above referenced Facility who is authorized to sign this certification on behalf of the Company, hereby certifies that the above referenced

pipeline has prepared a response plan which will be implemented in the event of a Worst Case Discharge of oil. I also certify that the plan is in effect for this pipeline and that Company personnel are trained in the implementation of this Plan.

I further certify that the availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to a Worst Case Discharge or a substantial threat of a discharge is ensured by contract or other approved means.

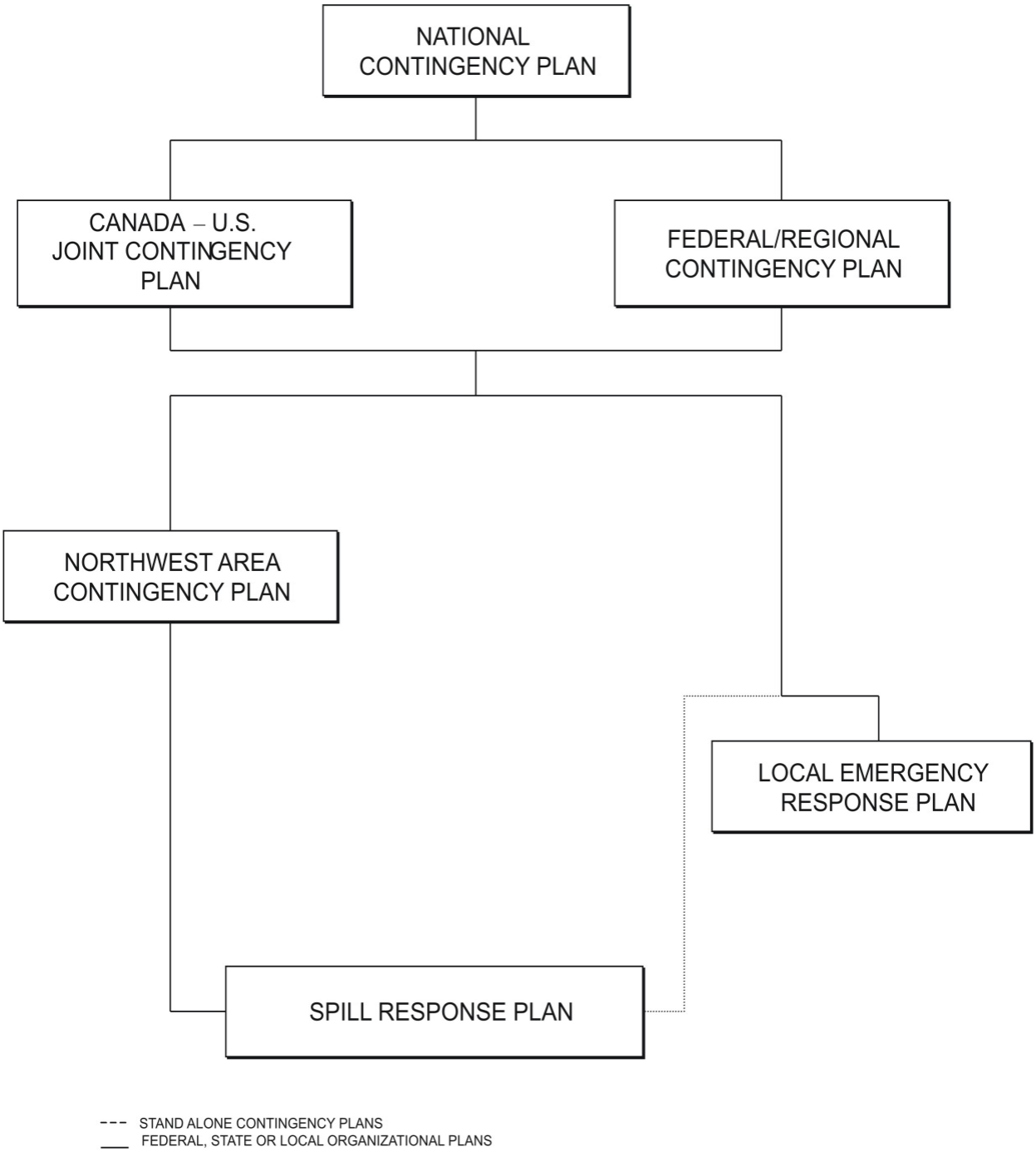
Acceptance Verification: This verifies acceptance of this Spill Response Plan for the (Owner). This Plan will be used by facility personnel when responding to an oil spill. This Plan will be used in conjunction with the Emergency Action Plan and Response Guide when necessary. The District Manager or designee has the authority to make appropriate expenditures in order to execute the provisions of this Plan. The District Manager or designee will be considered the "Qualified Individual." An Incident Commander will be in the state within six hours after notification of a spill.

Signature:	
Name:	Steven Kober
Title:	Terminal Manager

1.5 INTERFACE WITH OTHER PLANS

This Plan interfaces with other federal, state, and local plans as outlined in **FIGURE 1-6**.

FIGURE 1-6 - INTERFACE WITH OTHER PLANS


NATIONAL CONTINGENCY PLAN
CANADA – U.S. JOINT CONTINGENCY PLAN
FEDERAL/REGIONAL CONTINGENCY PLAN
NORTHWEST AREA CONTINGENCY PLAN
LOCAL EMERGENCY RESPONSE PLAN
SPILL RESPONSE PLAN
--- STAND ALONE CONTINGENCY PLANS
___ FEDERAL, STATE OR LOCAL ORGANIZATIONAL PLANS

SECTION 2 Last Revised: May 2008

INITIAL RESPONSE ACTIONS

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2.1 Spill Response

Figure 2.1-1 - Spill Response Flow Chart

Figure 2.1-2 - Spill Response Action Checklist

2.1.1 Spill Detection and Mitigation Procedures

Figure 2.1-3 - Spill Mitigation Procedures

2.1.2 Spill Surveillance Guidelines

Figure 2.1-4 - Spill Surveillance Checklist

2.1.3 Spill Volume Estimating

Figure 2.1-5 - Spill Estimation Factors

2.1.4 Estimating Spill Trajectories

2.1.5 Initial Containment Actions

2.1.6 Safety Considerations

2.2 Evacuation

2.3 Tornado

2.4 Flood

2.5 Medical

2.6 Bomb Threat

2.7 **Fire and/or Explosion**

2.8 Vapor Cloud

2.1 SPILL RESPONSE

FIGURE 2.1-1 - SPILL RESPONSE ACTION CHECKLIST

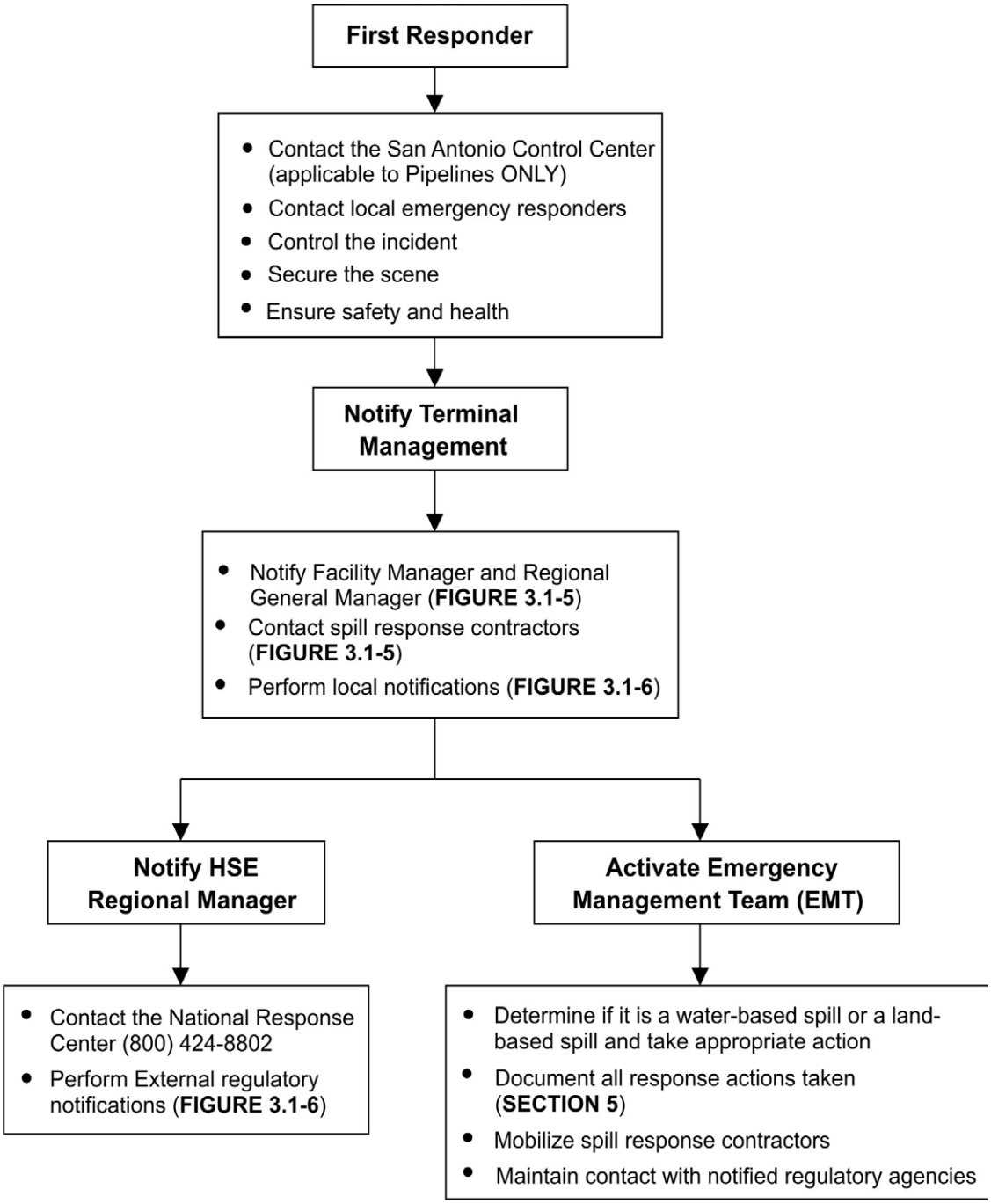


FIGURE 2.1-2 - SPILL RESPONSE ACTION CHECKLIST

RESPONSE ACTION	
First Person to Discover Spill	
Immediately notify Terminal Management. Take appropriate action to protect life and ensure safety of personnel. Contact the appropriate local emergency responders or request the office to do so.	☐

Immediately shut down terminal operations (if applicable). Remotely controlled motor operated valves should be closed as soon as a leak is detected. Manual operated valves should be closed if safe to do so.	☐
Secure the scene. Isolate the area and assure the safety of people and the environment. Keep people away from the scene and outside the safety perimeter.	☐
Terminal Management	
Assume role of Incident Commander until relieved by upper Management (if applicable).	☐
Conduct preliminary assessment of health and safety hazards.	☐
Evacuate nonessential personnel, notify emergency response agencies to provide security, and evacuate surrounding area (if necessary).	☐
Call out Emergency Management Team and primary spill response contractors, as needed (**FIGURE 3.1-6**).	☐
Notify the Terminal Management and provide an incident briefing. Evaluate the need for activating the Regional Response Team (RRT).	☐
Notify the Regional General Manager and Regional HSE Manager.	☐
If safe to do so, direct facility responders to shut down potential ignition sources in the vicinity of the spill, including motors, electrical pumps, electrical power, flairs, etc. Keep drivers away from truck rack if spill occurs there.	☐
If safe to do so, direct facility responders to shut down and control the source of the spill. Be aware of potential hazards associated with product and ensure that lower explosive limits (LELs) are within safe levels before sending personnel into the spill area.	☐
If safe to do so, direct facility responders to stabilize and contain the situation. This may include construction of minor earthen berms and/or sorbent boom and pads.	☐
For low flash oil (<100ºF), consider applying foam over the oil, using water spray to reduce vapors, grounding all equipment handling the oil, and using non-sparking tools.	☐
If there is a potential to impact shorelines, consider lining shoreline with sorbent or diversion boom to reduce impact.	☐
Notify Local Emergency Responders. Obtain the information necessary to complete the Leak Accident Report Form (**FIGURE 3.1-2**).	☐
Make local notifications: • LEPC • Police • Fire • Sheriff	☐
HSE Regional Manager	
Make appropriate notifications: • National Response Center (800) 424-8802 • External regulatory notifications (**FIGURE 3.1-6**)	☐

FIGURE 2.1-2 - SPILL / RELEASE RESPONSE ACTION CHECKLIST, CONTINUED

RESPONSE ACTION, CONTINUED	
Emergency Management Team	
Activate all or a portion of Emergency Management Team (EMT) (as necessary). HSE Department will maintain contact with notified regulatory agencies.	☐
Mobilize spill response contractors (if necessary). It is much better to demobilize equipment and personnel if not needed than to delay contacting them if they are needed.	☐
Document all response actions taken, including notifications, agency/media meetings, equipment and personnel mobilization and deployment, and area impacted. (Refer to **SECTION 5** for documentation.)	☐
Water-based Spills: Initiate spill tracking and surveillance operations. Determine extent of pollution via surveillance aircraft or vehicle. Estimate volume of spill utilizing information in **SECTION 2.1.3**. Send photographer / videographer, if safe. Use of dispersants requires Federal or State approval.	☐
Land-based Spills: Initiate spill tracking and surveillance, if applicable.	☐
SECONDARY RESPONSE ACTIONS (Refer to EMT job descriptions in **SECTION 4.6**)	
FACILITY-SPECIFIC RESPONSE CONSIDERATIONS (Refer to **SECTION 6** for maps, tactical plans, and sensitivity information.)	

FIGURE 2.1-2 - SPILL / RELEASE RESPONSE ACTION CHECKLIST, CONTINUED

SITE SPECIFIC ACTIONS	
DOCUMENT ALL ACTIONS TAKEN	
First Priority	
Account for all personnel and visitors.	☐
Identify and assess fire/safety hazards.	☐
Second Priority	
Secure spill source, if possible.	☐
Assure all required notifications are conducted.	☐
Secure all drainage leading from Facility.	☐
Third Priority	
This size discharge would most likely occur due to a natural disaster or catastrophic event. Diking and containment areas are located throughout the Facility. For a discharge of this size to reach a navigable waterway, or leave the Facility property, diking would have to be damaged or destroyed (breached). This spill type is one that would result in a chain reaction of failures of other equipment. In the unlikely event of a spill leaving the property, it would probably enter navigable water at the Williamette River.	☐
These calculations take into account adverse weather. Severe rain events and	

associated flooding would also increase the chances of an oil spill from leaving the property. Nevertheless, boom could be deployed as an initial measure to reduce the potential for any off-site drainage from a spill that may unfortunately occur concurrently with a severe rain event, associated flooding, or a hurricane.	☐
Once deployment of response equipment has been completed, initiate recovery of product.	☐
Upon arrival of EMT, assure all information is accurate and complete prior to being released.	☐
Assure proper documentation has been completed from initial discovery of spill to finish; reference **SECTION 5**.	☐

2.1.1 Spill Detection and Mitigation Procedures

See **APPENDIX D.5** for spill detection protocols.

Each spill mitigation situation is unique and must be treated according to the circumstance present. In every situation, however, personnel safety must be assessed as the first priority. The potential for ignition and/or toxic exposure must be promptly evaluated. Spill mitigation procedures are listed in FIGURE 2.1-3. Discharge volume calculations are provided in **APPENDIX D.**

FIGURE 2.1-3 - SPILL MITIGATION PROCEDURES

TYPE	MITIGATION PROCEDURE
Failure of Transfer Equipment	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Terminate transfer operations and close block valves. 3. Drain product into containment areas (if possible). 4. Eliminate sources of vapor cloud ignition by shutting down all engines and motors.
Tank Overfill/Failure	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Shut down or divert source of incoming flow to tank. 3. Shut down source of vapor cloud ignition by shutting down all engines and motors. 4. Ensure that dike discharge valves are closed. 5. Transfer fluid to another tank with adequate storage capacity (if possible). 6. Monitor diked containment area for leaks and potential capacity limitations. 7. Begin transferring spilled product to another tank as soon as possible.
Piping Rupture/Leak (under pressure and no pressure)	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Shut down pumps. Close the closest block valves on each side of the rupture. 3. Drain the line back into contained areas (if possible). Alert

	nearby personnel of potential safety hazards. 4. Shut down source of vapor cloud ignition by shutting down all engines and motors. 5. If piping is leaking and under pressure, relieve pressure by draining into a containment area or back to a tank (if possible). Then repair line according to established procedures.
Fire/Explosion	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at risk of injury. 2. Notify local fire and police departments. 3. Attempt to extinguish fire if it is in incipient (early) stage and **if it can be done safely**. 4. Shut down transfer or pumping operation. Attempt to divert or stop flow of product to the hazardous area (if it can be done safely). 5. Eliminate sources of vapor cloud ignition by shutting down all engines and motors. 6. Control fire before taking steps to contain spill. Also refer to fire/explosion response procedures in **SECTION 2.7**.
Manifold Failure	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Terminate transfer operations immediately. 3. Isolate the damaged area by closing block valves on both sides of the leak/rupture. 4. Shut down source of vapor cloud ignition by shutting down all engines and motors. 5. Drain fluids back into containment areas (if possible).

2.1.2 Spill Surveillance Guidelines

- Surveillance of an oil spill should begin as soon as possible following discovery to enable response personnel to assess spill size, movement, and potential impact locations.
- All surveillance should be done upwind of the spill.
- Dispatch observers to crossings downstream or downgradient to determine the spill's maximum reach.
- Clouds, shadows, sediment, floating organic matter, submerged sand banks, or wind-induced patterns on the water may resemble an oil slick if viewed from a distance.
- Sorbent pads may be used to detect oil on water.
- Use surface vessels to confirm the presence of any suspected oil slicks (if safe to do so); consider directing the vessels and photographing the vessels from the air, the latter to show their position and size relative to the slick.
- It is difficult to adequately observe oil on the water surface from a boat, dock, or shoreline.

- Spill surveillance is best accomplished through the use of helicopters or small planes; helicopters are preferred due to their superior visibility and maneuverability.
- If fixed-wing planes are to be used, high-wing types provide better visibility than low-wing types.
- All observations should be documented in writing and with photographs and/or videotapes.
- Describe the approximate dimensions of the oil slick based on available reference points (i.e., vessel, shoreline features, facilities); use the aircraft or vessel to traverse the length and width of the slick while timing each pass; calculate the approximate size and area of the slick by multiplying speed and time.
- Record aerial observations on detailed maps, such as topographic maps.
- In the event of reduced visibility, such as dense fog or cloud cover, boats may have to be used to patrol the area and to document the location and movements of the spill; however, this method may not be safe if the spill involves a highly flammable product.
- Surveillance also is required during spill response operations to gauge the effectiveness of response operations; to assist in locating skimmers; and to assess the spill's size, movement, and impact.
- A Spill Surveillance Checklist is provided in **FIGURE 2.1-4**.

FIGURE 2.1-4 - SPILL SURVEILLANCE CHECKLIST

Record your observations of spilled oil either in a notebook or directly on a chart of the area under observation. This checklist is an aid for organizing your observations.

General Information	
Date:	Tidal or river stage (flood, ebb, slack, low water):
Time:	On-scene weather (wind, sea state, visibility):
Incident name:	Platform (helicopter, fixed-wing aircraft, boat, shore):
Observerâ€™s name:	Flight path/trackline:
Observer's affiliation:	Altitude where observation taken:
Location of source (if known):	Areas not observed (i.e., foggy locations, restricted air or land spaces, shallow water areas):
Oil Observations	
Slick location(s):	Color and appearance (i.e., rainbow, dull or silver sheen, black or brown in color or mousse):
Slick dimensions:	Percent coverage:

Orientation of slick(s):	Is oil recoverable (Y/N)?:
Distribution of oil (i.e., windrows, streamers, pancakes or patches):	

Considerations
• During surveillance, travel beyond known impacted areas to check for additional oil spill sites. • Include the name and phone number of the person making the observations. • Clearly describe the locations where oil is observed and the areas where no oil has been seen.

Other Observations

Response Operations
Equipment deployment (general locations where equipment is working and whether the work is done in the heaviest concentration of oil):
Boom deployment (general locations of boom, whether the boom contains oil, and whether the oil entrains under the boom):

FIGURE 2.1-4 - SPILL SURVEILLANCE CHECKLIST, CONTINUED

Record your observations of spilled oil either in a notebook or directly on a chart of the area under observation. This checklist is an aid for organizing your observations.

Environmental Observations
Locations of convergence lines, terrain, and sediment plumes:
Locations of debris and other features that could be mistaken for oil:
Wildlife present in area (locations and approximate numbers):

Spill Sketch

2.1.3 Spill Volume Estimating

Early in a spill response, estimation of spill volume is required in order to:

- Report to agencies.
- Determine liquid recovery requirements.
- Determine personnel and equipment requirements.
- Estimate disposal and interim storage requirements.

Some rapid methods to estimate spill size are:

- Transfer operations: Multiply the pumping rate by the elapsed time that the leak was in progress, plus the drainage volume of the line between the two closest valves or isolation points (volume loss = pump rate [bbls/min] x elapsed time [min] + line contents [bbl]).
- Tank overfills: Elapsed time multiplied by the pumping rate.

- Visual assessment of the surface area and thickness (**FIGURE 2.1-5**); the method may yield unreliable results because:
    - Interpretation of sheen color varies with different observers.
    - Appearance of a slick varies depending upon amount of available sunlight, sea-state, and viewing angle.
    - Different products may behave differently, depending upon their properties.

FIGURE 2.1-5 - SPILL ESTIMATION FACTORS

OIL THICKNESS ESTIMATIONS				
Standard Form	**Approx. Film Thickness**		**Approx. Quantity of Oil in Film**	
	inches	**mm**	**gallons/mile^2**	**liters/km^2**
Barely Visible	0.0000015	0.00004	25	44
Silvery	0.000003	0.00008	50	88
Slightly colored	0.000006	0.00015	100	179
Brightly colored	0.000012	0.0003	200	351
Dull	0.00004	0.001	666	1,167
Dark	0.00008	0.002	1,332	2,237
Thickness of light oils: 0.0010 inches to 0.00010 inches				
Thickness of heavy oils: 0.10 inches to 0.010 inches				

NOAA, 09/2000

2.1.4 Estimating Spill Trajectories

In some cases, oil spill trajectories should be estimated in order to predict direction and speed of the slick movement. Trajectory calculations provide an estimate of where oil slicks may impact shorelines and other sensitive areas, and also provide an estimate of the most effective location in which to mobilize spill response resources for protection, containment, and recovery.

Oil spill trajectories can be estimated using vector addition or with computer programs. Hand calculations typically utilize the following assumptions:

- Oil moves at approximately the same direction and speed as the water currents, unless the winds are strong.
- Wind speed can be multiplied by 0.034 to determine the effect of winds on speed and direction of spill movement.
- The combined effects of winds and currents can be added to estimate spill movement speed and direction.

More sophisticated predictions can be obtained from computer programs. Oil spill trajectory services can be obtained from:

- National Oceanic and Atmospheric Administration (NOAA) through the Federal On-Scene Commander (FOSC)
- Private consulting firms

2.1.5 Initial Containment Actions

Initial containment actions will focus on utilizing containment on-site in the most effective manner to:

- Prevent the oil from impacting water, thereby reducing the surface area and the shoreline to be cleaned.
- Concentrate the oil (when safe to do so), making physical recovery more efficient.
- Limit the environmental impact to the immediate spill area.

Selection of the appropriate location and method will depend upon:

- Length of time spill occurs before being noticed,
- Amount of spill,
- Area of coverage,
- Environmental factors such as wind speed and direction, and
- Oil's characteristics.

2.1.6 Safety Considerations

- Containment actions should not be conducted during inclement weather or unsafe conditions, such as high winds, fast currents, or unstable terrain.
- Eliminate all ignition sources.
- Avoid contact with the spilled product.
- Use respiratory protection (if trained to do so).
- Ensure that the area remains secure to air/boat/vehicular traffic.

2.2 EVACUATION

EVACUATION CHECKLIST	
TASK	
Request assistance from off-site response organizations; convey Command Post's	

location. Notify appropriate agencies (if appropriate).	☐
Assemble personnel at predetermined safe location: upwind/up gradient of release (assembly area).	☐
Account for Company and contractor personnel.	☐
Assess casualties (number/type/location).	☐
Determine probable location of missing personnel.	☐
Secure site, establish re-entry point and check-in/check-out procedures.	☐
Develop list of known hazards (confined spaces, electrical hazards, physical hazards, vapors, oxygen deficiency, fire/explosion, etc.).	☐
Monitor situation (weather, vapors, product migration) for significant changes.	☐
Assist in developing a Rescue Plan, if necessary.	☐

2.2 EVACUATION, CONTINUED

EVACUATION FACTORS	
FACTOR	**DESCRIPTION**
Stored material location	• Located in oil storage area • Identified in facility Plot Plan (**APPENDIX C**)
Spilled material hazards	• Hazard is fire/explosion
Water currents, tides, or wave conditions	• Water current: 1 knot, Tides: 1.5 ft. tide, Wave Conditions: Not Applicable
Evacuation routes	• Routes are summarized on Evacuation Plan Diagram (**APPENDIX C**) • Criteria for determining safest evacuation routes from facility may include: wind direction, potential exposure to toxins and carcinogens, intense heat, potential for explosion/fire, and blockage of planned route by fire, debris, or released liquid
Alternate evacuation routes	• Alternate routes may exist; refer to Evacuation Plan Diagram (**APPENDIX C**)
Injured personnel transportation	• Emergency vehicles can be mobilized to the facility (**FIGURE 3.1-6**)
Alarm/Notification system location	• by two-way radio
Community evacuation plans	• Company may request local police, county sheriff, and/or state police assistance (**FIGURE 3.1-6**). Community evacuations are

	the responsibility of these agencies.
Spill flow direction	• Surface drainage is towards the river (north). • Identified in Facility Drainage Diagram (**APPENDIX C**)
Prevailing wind direction and speed	• West to East 5 mph • Because wind direction varies with weather conditions, consideration for evacuation routing will depend in part on wind direction
Emergency personnel/response equipment arrival route	• The primary arrival route of emergency response personnel and response equipment is (b) (7)(F) . • Directions to nearest medical facility provided below

2.2 EVACUATION, CONTINUED

EVACUATION FACTORS	
FACTOR	**DESCRIPTION**
Centralized check-in area	• The primary muster point is the main gate. In the event the primary muster point is not accessible, the secondary muster point is at the end of the frontage road, next to the railroad crossing. • Supervisor or designee is responsible for head count
Mitigation Command Center location	• Initial Command Center located at The main office will be the mitigation command center and the location of shelter at the Facility if conditions permit. • Mobile Command Posts may be established as necessary
Facility Shelter Location	• The main office will be the mitigation command center and the location of shelter at the Facility if conditions permit. • Not a safe harbor from fires, explosions, vapor clouds, or other significant emergencies; however, may be used for temporary shelter from inclement weather
Directions to nearest medical facility	Directions to Good Samaritan : • 1040 NW 22nd Ave.; Portland, OR 97210. Start on US-30 [Lower Columbia River Hwy.] (South-East) 5.2 miles. Turn right (West) onto NW Nicolai Street 0.1 miles. Turn left (South) onto NW 24th Avenue 0.8 miles. Turn left (East) onto NW Lovejoy Street 0.2 miles. Arrive at Good Samaritan Hospital.

2.3 TORNADO

TORNADO CHECKLIST	
TASK	
Monitor news media reports (**FIGURE 3.1-6**). • Tornado watch means conditions are favorable for tornadoes. • Tornado warning means a tornado has been sighted.	☐
When a tornado warning is issued, immediately notify all personnel on-site. Notify off-site personnel of the situation (Control Center or Regional Management).	☐
Take shelter: • Go to an interior room on the lowest floor. • Get under a sturdy piece of furniture or solid structure. • Use your arms to protect head and neck.	☐
Have location personnel report to the designated area.	☐
Account for all personnel on duty.	☐
Look for funnel formations on the ground or in the clouds; listen for a roar that sounds like a jet aircraft or rail traffic.	☐
If the facility is damaged by the tornado, notify Management.	☐
Go to the scene of the incident to evaluate the situation. • Be aware of broken glass and downed power lines. • Assess the area for damaged equipment or product releases. • Check for injuries. • Use caution entering a damaged building.	☐
Update Supervisory Personnel/Management.	☐
Conduct post-emergency evaluation and report.	☐

2.4 FLOOD

FLOOD CHECKLIST	
TASK	

Perform continuous monitoring of the situation by listening to radio and/or television reports (**FIGURE 3.1-6**). • Flash flood watch means flooding is possible. • Flash flood warning means flooding is occurring or is imminent.	☐
Update Supervisory Personnel when flooding is imminent.	☐
Establish an evacuation plan (**SECTION 2.2**).	☐
Take preliminary actions to secure the facility before flooding and mandatory evacuation.	☐
Consider having sandbags brought to sites that could be affected by the flooding.	☐
Consider obtaining portable pumps and hoses from local suppliers or from other petroleum service locations in the area.	☐
Remove product from underground storage tanks (i.e., sumps and separators, if applicable) and replace with water to prevent them from floating out of the ground.	☐
If additional new product is available fill each tank to the minimum level necessary to prevent buoyancy in the event of flooding (Rule of thumb is 30% of the safe fill height). If additional product is not available, transfer appropriate product among tanks to prevent buoyance. If minimum levels cannot be reached through product transfer, add water bottoms.	☐
Plug all rack drains and facility drains connected to the sump.	☐
Empty all dikes of water.	☐
Ensure that tank roof drains are working properly.	☐
Anchor all bulk additive tanks, fuel barrels, empty drums, and propane tanks (if applicable).	☐
Notify Supervisory Personnel/Management that the facility will be closed. Customer should be notified.	☐
Back up computer files.	☐
Remove assets such as files, computers, spare parts, and vehicles.	☐
Shut off high voltage power and natural gas lines.	☐
Close all valves on product and additive storage tanks.	☐
Before evacuation, know where all the employees will be residing and obtain phone numbers so they can be contacted if additional emergencies occur.	☐

2.4 FLOOD, CONTINUED

FLOOD CHECKLIST	
TASK	
Conduct a post-emergency evacuation and report.	☐
Maintain hazards awareness:	

Structural damage; • Equipment damage and product releases; • Downed power lines; • Leaking natural gas, water, and sewer lines; • Poisonous snakes and other wildlife sheltering in structures, vehicles, and furniture; and • Avoid direct contact with flood water, mud, and animal carcasses.	☐

2.5 MEDICAL

MEDICAL CHECKLIST	
TASK	
Summon Emergency Medical Services (EMS) to the scene (**FIGURE 3.1-6**).	☐
Do not move the patient unless a situation (such as a fire) threatens the patient's life.	☐
If trained, provide appropriate first aid for both injury and shock until the EMS arrives at the scene.	☐
As the situation warrants, try to stop the bleeding and keep the patient breathing until the EMS arrives at the scene.	☐
The rescuer's role includes: • Removing the patient from any situation threatening patient's life or the lives of rescuers. • Correcting life-threatening problems and immobilizing injured parts before transporting the patient. • Transporting the patient in a way that minimizes further damage to injured parts. • Administering essential life support while the patient is being transported. • Observing and protecting the patient until medical staff can take over. • Administering care as indicated or instructed.	☐
Notify Supervisory Personnel and/or Regional Management.	☐
Notify victim's immediate family.	☐
Complete follow-up and written reporting, as the situation demands.	☐

2.6 BOMB THREAT

(b) (7)(F)



(b) (7)(F)



(b) (7)(F)



2.7 FIRE AND/OR EXPLOSION

Your first consideration is always the safety of people in the immediate area, including your own.

The first responder's initial objective is site management.

FIRE AND/OR EXPLOSION CHECKLIST	
TASK	
At a manned facility	
Evaluate the situation; approach cautiously from upwind; do not rush in.	☐
Notify the local police and fire departments (Dial 911).	☐
Sound the facility alarm and push the red emergency shutdown switch (if equipped).	
Notify Qualified Individual and Operations Control (if applicable).	☐
Appropriately trained personnel may attempt to extinguish the fire if it is in the incipient (early) stage and **if it can be done safely**.	☐
In the event the fire is too large for an individual to fight alone, the individual sounding the alarm or making the phone call should stand by at a safe distance to direct the fire department to the scene of the fire and keep personnel and vehicles from entering the danger area.	☐
Alert all Facility areas of the exact location and extent of the fire.	☐
Instruct all drivers to discontinue loading, disconnect loading arms, and tell all drivers present to stand by the trucks (if safe to do so) and wait for instructions to remove same to safe area.	☐
Shut off all pumps.	
If the fire/explosion is a result of a pipe rupture, isolate product release by closing valves.	☐
If product is being received from pipelines, notify the appropriate pipeline personnel of the fire and request that the pipeline be shut down. The tank which is receiving product from the pipeline must not be closed until assurance is received that the pipeline is shut down, unless that tank is on fire.	
After confirmation has been received that pipelines have been shut down, close the pipeline header valves.	☐
Undertake basic site control: • Make an assessment of hazards. • Isolate the area. • Keep people away from the scene and outside the safety perimeter. • Establish safety zones and escape routes.	☐
Respond to the fire: • Establish a Command Post and lines of communication. • Maintain site control. • Establish Incident Command/Unified Command as necessary (**SECTION 4.4**).	☐
Call in additional resources if on-scene personnel and equipment are inadequate to handle the emergency.	☐

Conduct a post-emergency evaluation and report.	☐

2.7 FIRE AND/OR EXPLOSION, CONTINUED

Your first consideration is always the safety of people in the immediate area, including your own.

The first responder's initial objective is site management.

FIRE AND/OR EXPLOSION CHECKLIST, CONTINUED	
TASK	
At an unmanned facility	
Handle the call.	☐
Notify the local police and fire departments.	☐
Notify Qualified Individual and Operations Control.	☐
Go to the incident scene to evaluate the situation; approach cautiously from upwind; do not rush in.	☐
Undertake basic site control: • Make an assessment of hazards. • Isolate the area. • Keep people away from the scene and outside the safety perimeter. • Establish safety zones and escape routes.	☐
If roads or railroads are in the affected area, assist the sheriff or local emergency officials with halting traffic.	☐
Update the next level manager.	☐
If the fire/explosion is a result of a pipe rupture, isolate the product release by closing valves.	☐
Respond to the fire: • Establish a Command Post and lines of communication. • Maintain site control. • Establish Incident Command/Unified Command as necessary (**SECTION 4.4**).	☐
Call in additional resources if on-scene personnel and equipment are inadequate to handle the emergency.	☐
Conduct a post-emergency evaluation and report.	☐

2.8 VAPOR CLOUD

VAPOR CLOUD CHECKLIST	
TASK	
The person who discovers the vapor cloud will notify the facility management on duty and vacate the area.	☐
Remember: the only proper action in the presence of a vapor cloud is to get away from it. Do not shut off electrical equipment.	☐
All personnel will report to the evacuation muster point for roll call and further instructions.	☐
After all personnel have been accounted for, the Facility Management, the Facility Supervisor, or a Facility Operator will initiate the following actions as deemed necessary: • Shut down pipeline. • Evacuate adjacent property. • Only the fire department will be permitted to enter the Facility.	☐
Contact the appropriate agencies and potentially affected neighbors (refer to **FIGURE 3.1-6**).	☐

SECTION 3 Last Revised: April 2014

NOTIFICATIONS / TELEPHONE NUMBERS

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3.1 Emergency Information and Notification Procedures

Figure 3.1-1 - Emergency Notification Flow Chart

Figure 3.1-2 - First Report of Incident

Figure 3.1-3 - Leak Accident Report Form

Figure 3.1-4 - Form 4004 - Release Notification Data Sheet

Figure 3.1-5 - Internal Notifications and Telephone Numbers

Figure 3.1-6 - External Notifications and Telephone Numbers

3.1 EMERGENCY INFORMATION AND NOTIFICATION PROCEDURES

The notification sequence for a spill is as follows:

- Facility Manager will identify and control the source of a spill, if safe to do so, then will notify the Qualified Individual.
- The Qualified Individual will conduct notifications as illustrated in the Notification Flow Chart (**FIGURE 3.1-1**).

The priority of actions and response procedures will depend upon actual circumstances and will be determined by the Incident Commander.

This section also contains the following:

- FIGURE 3.1-2 provides a First Report of Incident. This form is utilized for initial notification.
- FIGURE 3.1-3 provides a Leak Accident Report Form. This form is utilized for pipeline summary of documentation.
- FIGURE 3.1-4 provides a Release Notification Data Sheet. This form is utilized for notification summary and documentation.

The Company has attempted to make the following arrangements, as appropriate for the type of hazardous waste handled at the terminal and the potential need for the services of these organizations:

- Familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes;
- Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;
- Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and
- Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

FIGURE 3.1-1 - EMERGENCY NOTIFICATION FLOW CHART

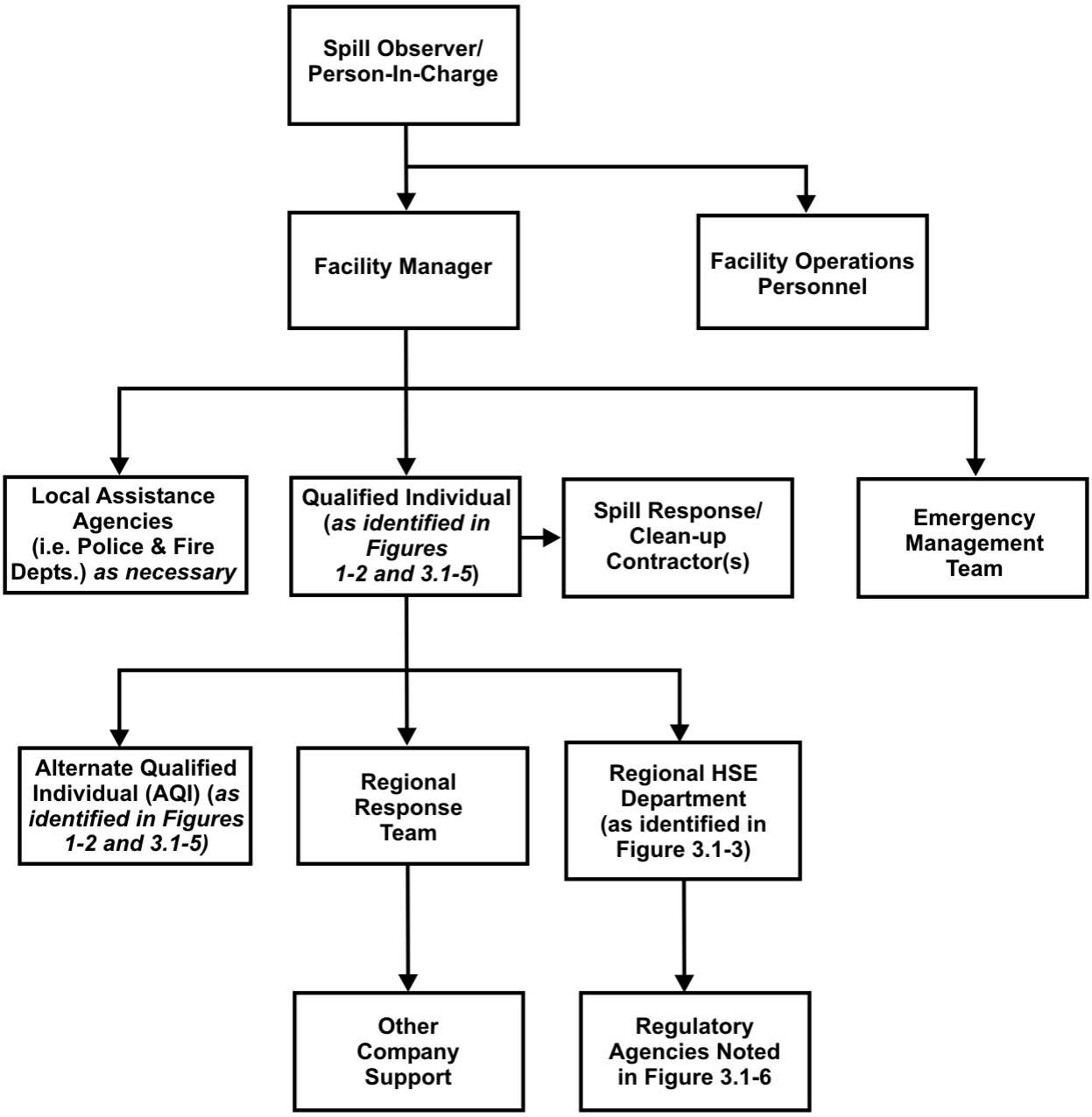


FIGURE 3.1-2 - FIRST REPORT OF INCIDENT

Original to File; Copies To: Terminal Mgr or Ops Mgr & LP HSE Group

I. Location: _____ Time: _____ Date: _____			
II. INCIDENT TYPE:			
A. Safety			**B. Environmental**
☐ Non-injury	☐ Property/Equipment Damage		☐ Spill
☐ Fire	☐ Other ____		☐ Air Upset
☐ Injury	☐ First Aid	☐ Off-site Treatment	☐ Discharge Event
☐ Near Miss	☐ Employee	☐ Contractor	☐ Other

For Safety and Environmental Departments Use Only

☐ Recordable Injury ☐ Chemical Exposure ☐ Recordable Illness ☐ Reportable to Agency
☐ PSM/RMP ☐ Other
Signature _____ **Date** _____

III. INJURED EMPLOYEE / CONTRACTOR

Name: _____ Social Security: _____
Occupation: _____ Department / Company: _____
Nature of work related injury:
_____
_____
Supervisor's Name:
_____

IV. DESCRIPTION OF INCIDENT: (Use additional sheet(s) if necessary)

Date: _____ Time: _____ Location: _____
Tank Capacity: _____
_____
_____
_____
_____

V. IMMEDIATE ACTION(s) TAKEN : (Use additional sheet(s) if necessary)

_____
_____
_____

VI. Incident Investigation Required ☐ Yes ☐ No

VII. Name of person preparing this report: _____
(Please print)

Signature: _____ Date: _____ Time: _____

Supervisor: _____ Date: _____

FIGURE 3.1-3 - LEAK ACCIDENT REPORT FORM

PL SYSTEM: _____
PL SEGMENT: _____
PRODUCTS ☐ CRUDE ☐

DISTRIBUTION:

REPORT INFORMATION: _____

Original - PIPELINE SAFETY ☐	
NOTE - Copy to the following as needed:	
MGR - ☐	SUP - ☐
ENG - ☐	ROW - ☐
ENV - ☐	☐

RECORDS RETENTION - Permanent
REPORT FREQUENCY - As Required
DUE DATES - Within 5 Days 1 day

PART A - TIME & LOCATION OF LEAK OR ACCIDENT

1. DATE (Month, Day, Year)	2. HOUR ☐ AM ☐ PM	3. LOCATION (State, County, City)

4. PHYSICAL LOCATION (Direction to site, reference highways & towns)
_____
SECTION _____ BLOCK or TOWNSHIP _____ SURVEY or RANGE _____

PART B - ORIGIN OF LIQUID OR VAPOR RELEASE

1. PART OF CARRIER'S SYSTEM INVOLVED:
LINE PIPE ☐ PUMPING STATION ☐ TANK FARM ☐ OTHER (Specify) ☐

2. ITEM INVOLVED:
LINE PIPE ☐ GIRTH WELD ☐ LONGITUDINAL WELD ☐ PUMP ☐ OTHER (Specify) ☐
TANK ☐ WELDED FITTING ☐ BOLTED FITTING ☐ VALVE ☐ OTHER (Specify) ☐

PART C - CAUSE OF LEAK ACCIDENT

CORROSION ☐ FAILED WELD ☐ FAILED PIPE ☐ INCORRECT OPERATION BY OPERATING PERSONNEL ☐
OUTSIDE FORCE DAMAGE ☐ MALFUNCTION OF CONTROL OR RELIEF EQUIP. ☐ OTHER (Specify) ☐

PART D - INJURY OR DEATH

NUMBER OF PERSONS INJURED		NUMBER OF PERSONS KILLED	
CARRIER EMPLOYEES	NON-EMPLOYEES	CARRIER EMPLOYEES	NON-EMPLOYEES

PART E - ESTIMATED DAMAGES & COSTS

1. DAMAGE TO OPERATOR	2. LAND DAMAGE	3. CLEAN-UP COST	4. PRODUCT COST

5. ITEMS DAMAGED (Specify):

PART F - COMMODITY SPILLED OR RELEASED

1. NAME OF COMMODITY SPILLED OR RELEASED:	2. CLASSIFICATION: ☐ Crude Oil ☐ Gas Oil	3. TOTAL LOSS BBLS (_) RECOVERED BBLS NET LOSS BBLS	4. WAS THERE A FIRE? YES NO	5. WAS THERE AN EXPLOSION?

	☐ MVL ☐ Non-MVL		☐ ☐	YES ☐ NO ☐

PART G - OCCURRED IN LINE PIPE (Answer sections G, H, or I ONLY if it specifically applies to the leak or accident)

1. NOMINAL DIAMETER in.	2. WALL THICKNESS in.	3. SPECIFICATION & GRADE:	4. YEAR OF INSTALLATION Before 1970 (Specify Yr.): ☐ After 1970 (Specify Yr.) ☐	5. TYPE OF JOINT: Weld ☐ Flanged ☐ Threaded ☐ Coupled ☐ Other ☐ _____

6. CONFIGURATION AT POINT OF ACCIDENT: Straight ☐ Sag ☐ Overbend ☐ Sidebend ☐	7. PIPE WAS: Coated ☐ Not Coated ☐	8. PIPE WAS: Above Ground ☐ Below Ground ☐

FIGURE 3.1-3 - LEAK ACCIDENT REPORT FORM, CONTINUED

PART G - OCCURRED IN LINE PIPE (Answer sections G, H, or I ONLY if it specifically applies to the leak or accident), Continued

9. COVER (if below ground) in.	10. MAXIMUM OPERATING PRESSURE: psig	11. PRESSURE AT TIME & LOCATION OF ACCIDENT psig	12. SYSTEM PRESSURE TEST YES ☐ NO ☐

13. TEST MEDIUM USED; (If item 12, is Yes) Water ☐ Petroleum ☐ Air ☐	14. DURATION OF TEST hrs.	15. MAXIMUM TEST PRESSURE psig	16. DATE OF LATEST TEST

PART H - CAUSED BY CORROSION

1. LOCATION OF CORROSION EXTERNAL ☐ INTERNAL ☐	2. FACILITY COATED: YES ☐ NO ☐	3. FACILITY UNDER CATHODIC PROTECTION? YES ☐ NO ☐	4. TYPE OF CORROSION: GALVANIC ☐ OTHER ☐

PART I - CAUSED BY OUTSIDE FORCES

1. ☐ DAMAGE BY OPERATOR ☐ DAMAGE BY NATURAL FORCES ☐ EARTHQUAKE	☐ DAMAGE BY OPERATOR'S CONTRACTOR ☐ Washout ☐ Flood ☐ OTHER (Specify)_____	☐ Subsidence ☐ Landslide	☐ DAMAGE BY OTHERS (Name) _____ ☐ Frostheave

2. DID EXCAVATOR CALL? YES ☐ NO ☐	3. WAS PIPELINE TEMPORARILY MARKED FOR EXCAVATOR? YES ☐ NO ☐	4. DISTANCE TO NEAREST LINE MARKER: feet

1. DETAILS OF INCIDENT: (Complete description of Cause, Response, Repairs, Affected Area & Land Damages.)
Use back for any additional information

PERSON COMPLETING THIS REPORT (Name):	DATE:

NRC # = 800-424-8802

INITIAL NOTIFICATION OF NRC MUST NOT BE DELAYED PENDING COLLECTION OF ALL INFORMATION.

FIGURE 3.1-4 - FORM 4004 - RELEASE NOTIFICATION DATA SHEET

Incident Date:		Incident Time:		
Reporters Name:		Reporter's Company:		
		Reporter's Position:		
Reporters Address:		City / State:		
Reporters Phone:		Zip:		
Name of Person who notified the reporter of the incident:				
It is not necessary to wait for all information before calling NRC. National Response Center 1-800-424-8802				
Were Materials Discharged (please circle one)		Yes		No
Calling for Responsible Party (please circle one)		Yes		No
Incident Description				
Facility Name:		Facility Address or driving directions:		
Organization Type:		Facility Latitude/Longitude:		
Responsible Party: (Name of company)		Owner's Address:		2330 Loop 1604 West San Antonio, Texas 78248
Facility Contact Name & Title:		Facility Contact Phone No's	Office	
			Cell	
			Other	
Were Materials Discharged? Y____ N ____		Confidential? Y____ N ____		
Meeting Federal Obligations to Report? Y ___ N __		Date Called: _____		
Incident Description				
Location of Spill:		Source or cause of discharge:		
Material Released:		CHRIS Code:		
Total Quantity Released:		Was surface water impacted by the spill? (yes or no)		
Total Quantity Recovered:		Total quantity into the water:		
Net Loss:		Tank Number (above/below) involved or pipe diameter:		

Container Type (AST/UST):	Tank Capacity (gallons):		
Facility Oil Storage Capacity	Units of Measure:		
Nearest City:	County:	State:	ZIP
Distance from City (in miles):	Direction from City:	Section:	
Township:	Range:	Borough:	
Weather conditions at time of incident (wind, rain, snow, temperature, etc.):			
Was there a fire or explosion involved?	Number of Injuries:	Extent of Injuries if known:	
Number of Deaths:	Numbers Evacuated (if any):		
Was there any damage:	Yes / No / Unknown (please circle one)		
	Estimate Dollars of Damage:	Description:	
More Information about Medium:			
Additional Information not recorded elsewhere in the report:			

Response Actions	
Actions taken to correct, control, or mitigate the incident:	

Notifications

Group or Agency	Persons Notified	Date & Time Notified	Notify By:	Incident No.
NRC				
State Agency				
LEPC - County				
HSE Group:				
Other:				

Original: 10/20/2003 Revised: 3/6/07, 6/14/2007, 2/25/2009, 4/1/2009, 12/17/2012

FIGURE 3.1-5 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

FACILITY RESPONSE TEAM		
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**
Steve Kober Manager Terminal **Qualified Individual**	(503) 286-6732 x7114 (Office) (503) 597-9805 *(Mobile)	2
Don Marti (Operations Supervisor	(503) 286-6732 (Office) (b) (6) [redacted]	1

(Portland) **Qualified Individual**	*(360) 772- 1918 *(Mobile)	
Todd Clark Terminal Operator **Qualified Individual**	(503) 285-6732 (Office) (b) (6) (503) 969-5173 *(Mobile)	1
Todd Habets Director of Health, Safety and Environmental **Qualified Individual**	(916) 509-3256 (Elk Grove) (Office) (916) 479-6118 *(Mobile)	10
Chad Edinger VP & General Manager West Region **Qualified Individual**	(916) 509-3254 (Elk Grove) (Office) (916) 753-6751 *(Mobile)	10
Jerome Jackson Area Manager **Qualified Individual**	(916) 509-3274 (Office) (916) 317-0799 *(Mobile)	10
Joe Hufman Area Manager Terminal, Pipeline and Distributionn **Qualified Individual**	(916) 509-3272 (Elk Grove) (Office) (310) 427-9785 *(Mobile)	10

Refer to **APPENDIX A**, **Figure A.2-3** for personnel training records

FIGURE 3.1-5 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**ICS POSITION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Steve Kober Manager Terminal **Qualified Individual**	(503) 286-6732 x7114 (Office) (503) 597-9805 *(Mobile)	2	Incident Commander	x	x	x
Jerome Jackson Area Manager **Qualified Individual**	(916) 509-3274 (Office) (916) 317-0799 *(Mobile)	10	Incident Commander	x	x	x
Todd Habets	(916) 509-3256 (Elk		Incident Commander:			

Director of Health, Safety and Environmental **Qualified Individual**	Grove) (Office) (916) 479-6118 *(Mobile)	10	Deputy Incident Commander: Planing Section Chief; Environmental Unit Leader	x	x	x
Joe Hufman Area Manager Terminal, Pipeline and Distributionn **Qualified Individual**	(916) 509-3272 (Elk Grove) (Office) (310) 427-9785 *(Mobile)	10	Incident Commander	x	x	x
Don Marti (Operations Supervisor (Portland) **Qualified Individual**	(503) 286-6732 (Office) (b) (6) (Home) *(360) 772- 1918 *(Mobile)	1	Deputy IC, Safety Officer, Deputy Planning Section Chief, Operations Section Chief	x	x	x
Greg McKinney Director Corporate Safety	(806) 371-1311 (Office) (806) 676-2740 *(Mobile)	10		x	x	x
Greg Matula Director, Corporate Communications	(210) 918-2318 (Office) (210) 601-3897 *(Mobile)	10	Information & Liaison Officer			
Winnie Kane	(916) 509-3268 (Office) (b) (6) (Home) (503) 816-9806 *(Mobile)	10	Information Officer / Situation Unit Leader, Deputy Planning Chief	x	x	x
Jerry Stauffer Executive Director HSE Compliance	(210) 918-4942 (Office) (210) 957-4849 *(Mobile)	10		x	x	x
Robert Burns	(253) 627-5711 (Office) (b) (6) (Home) (253) 737-6940 *(Mobile)	2	Air Ops Director, On-Shore Supervisor, Logistics Section Support	x		

EMERGENCY RESPONSE TRAINING TYPE[1]

There are three different types of training described below including HAZWOPER, OPA, and

Qualified Individual/Incident Command Training. An "x" has been placed in the applicable columns (type 1, 2, or 3) in the table above for the type of training completed by each individual.	
TYPE[1]	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** for training dates.

FIGURE 3.1-5 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**ICS POSITION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Ron Walton VP, Risk Management	(210) 918-2258 (Office) (210) 323-9848 *(Mobile)	10	Risk Management	x	x	x
Dan Villarreal Corporate Security Manager	(210) 918-2253 (Office) (210) 487-9953 *(Mobile)	10	Security	x	x	x
Karen Thompson SVP General Counsel	(210) 918-2973 (Office) (210) 241-4800 *(Mobile)	10	Legal			

EMERGENCY RESPONSE TRAINING TYPE[1]	
There are three different types of training described below including HAZWOPER, OPA, and Qualified Individual/Incident Command Training. An "x" has been placed in the applicable columns (type 1, 2, or 3) in the table above for the type of training completed by each individual.	
TYPE[1]	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components

3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** for training dates.

FIGURE 3.1-5 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

EMERGENCY RESPONSE CONTRACTORS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**RESPONSIBILITY DURING RESPONSE ACTION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Clean Rivers Cooperative, Inc (Portland Terminal)	(503) 220-2040 (503) 295-3660 (fax)	1				

EMERGENCY RESPONSE TRAINING TYPE[1]	
There are three different types of training described below including HAZWOPER, OPA, and Qualified Individual/Incident Command Training. An "x" has been placed in the applicable columns (type 1, 2, or 3) in the table above for the type of training completed by each individual.	
TYPE[1]	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** for training dates.

FIGURE 3.1-6 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Initial		
National Response Center (PHMSA Only) Within 2 hrs for a reportable pipeline incident or as required by State law. Whichever is sooner.	(800) 424-8802* (202) 267-2675* (202) 267-1322 Fax	

U.S. Environmental Protection Agency, Region X - Spill Response and Investigation/Public Affairs	(206) 553-1263	
Occupational Safety and Health Administration (OSHA), Washington, DC - IMMEDIATE NOTIFICATION IS REQUIRED - For A FATALITY from a work-related injury, or HOSPITALIZATION of three (3) or more employees as a result of a work related incident.	1-800-321-OSHA (6742) - Emergency	
Oregon Department of Environmental Quality (DEQ) Northwest Division (Liaison for Portland area)	(800) 452-4011 In-state (503) 229-5696 (503) 229-5263 NW region (503) 229-5153 headquarters	
Recommended		
Federal Agencies		
Federal Aviation Administration	(866) 835-5322	
National Marine Fisheries Service	(503) 861-1818	
National Oceanic & Atmospheric Administration (NOAA) - Northwest Region	(206) 526-6317* (206) 526-4911 (Emerg. Only) (206) 526-6329 (206) 526-6087 weather	
NOAA Law Enforcement & Mammal Protection	(206) 526-6133	
NOAA National Marine Fisheries Service	(206) 230-5400	
U.S. Coast Guard - Marine Safety Office, Portland, OR	(503) 240-9301 watchstander (503) 240-9362 (503) 240-9379 safety office	
U.S. Fish and Wildlife Service (USFWS), Northeast Regional Office, Hadley, MA	(413) 253-8200 (413) 253-8456 (Fax)	
U.S. Fish and Wildlife Service, Region I	(503) 231-6223	
Washington Department of Ecology	(360) 407-6300	
Washington Department of Fish & Wildlife	(360) 902-2200 (360) 902-2534	

Washington Emergency Management Division	(800) 258-5990	

FIGURE 3.1-6 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS , CONTINUED

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Recommended		
State Agencies		
Oregon Department of Environmental Quality (DEQ) Spill Prevention and Management Division	(800) 452-0311* (503) 378-6377* (503) 229-6931 (503) 229-5969	
Oregon Department of Environmental, Air Quality Div.	(503) 229-5359	
Oregon Department of Fish & Wildlife Columbia River Management	(503) 657-2000	
Oregon Department of Fish & Wildlife Headquarters	(503) 947-6000	
Oregon Department of Transportation (Highways Division)	(503) 986-4000	
Oregon Emergency Management	(503) 378-2911	
Oregon Health Division	(503) 731-4000	
Oregon State Fire Marshall	(503) 378-3473	
Oregon State Police - Emergency Management Division/Oregon Emergency Response System, Salem, OR	(800) 452-0311 In-state (503) 378-6377 (503) 378-3387 (800) OILS-911 In-state	
Oregon State Police, Portland, OR	(503) 731-3027 (503) 731-3030	
Oregon Steel - Environmental Department	(503) 223-9228 (503) 286-9651	
Seattle Audubon Society	(206) 523-4483	

Local Agencies		
City of Portland - Environmental Services	(503) 823-7180* (503) 323-3398 (503) 823-8805	
Multnomah Co. Emergency Management (LEPC)	(503) 618-2363	
Multnomah Co. Environmental Health	(503) 988-3400	

FIGURE 3.1-6 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS , CONTINUED

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Recommended		
Local Agencies		
Multnomah Co. Transportation Division	(503) 988-5050	
Port of Portland General Office (not for spill)	(503) 944-7000	
Port of Portland Marine Security	(503) 240-2230	
Portland Water Bureau Repair (pipe burst only)	(503) 823-4874	
St. Helens City Public Works	(503) 397-3532	
Fire Departments		
Portland Fire Department	911* (503) 286-0579	
Emergency Medical Services		
American Medical Response	(503) 282-2232	
Hospitals		
Emanuel Hospital & Medical Center	(503) 413-2200	
Good Samaritan Hospital & Medical Center	(503) 413-7711 (503) 413-7241	
Law Enforcement		
Multnomah Co. Sheriff Department	(503) 255-3600	

	(503) 243-7952 (River Patrol) (503) 288-6788 (River Patrol)	
Portland Police Bureau	(503) 823-3333	
USCG Classified OSRO's		
Clean Rivers Cooperative, Inc (Portland Terminal) Portland , OR	(503) 220-2040 (503) 295-3660 (fax)	
Neighboring Facilities		
Boise Cascade Paper Division	(503) 397-2900	
Dyno Nobel Chemical - Environmental Department	(503) 397-2225	
Georgia Pacific	(503) 455-2221	

FIGURE 3.1-6 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS , CONTINUED

Note: Notification Forms can only be printed from the Section File (not available in the Forms Navigator)

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Recommended		
Neighboring Facilities		
Rainier City	(503) 556-7301	
Newspaper		
Associated Press	(212) 621-1500	
United Press International	(202) 898-8000	
Radio Stations		
KEX Radio	(503) 225-1190	
Television Stations		
KATU Channel 2	(503) 231-4222	
KGW Channel 8	(503) 226-5000 (503) 226-5111	

KOIN Channel 6	(503) 464-0600	
Utilities		
Portland General Electric	(503) 464-7777	
Weather		
Weather Forecast - Portland	(503) 261-9246	
Wildlife Rehabilitation		
International Bird Rescue Center	(707) 207-0380	
Tri-State Bird Rescue	(302) 737-7241 (302) 737-9543 (Main) (800) 710-0695 (Pager) (800) 710-0696 (Pager)	

SECTION 4 Last Revised: January 2009

RESPONSE TEAM ORGANIZATION

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4.1 Description

4.2 Activation Procedures

4.3 Team Member Response Times

4.4 Incident Command System / Unified Command

4.5 Qualified Individual (QI)

Figure 4.5-1 - Emergency Management Team (EMT) Activation Procedure

Figure 4.5-2 - Emergency Management Team (EMT) Organization Chart

4.6 Emergency Management Team (EMT) Job Descriptions and Guidelines

4.1 DESCRIPTION

The Company has developed its emergency response organization around the Incident Command System (ICS), which provides the structure for effective management of response resources. The Emergency Management Team (EMT) has been created and organized to plan for and manage oil spills and other emergencies.

The Company utilizes a Regional Response Team (RRT) to staff ICS positions during emergencies that exceed the capabilities of the on-site Emergency Management Team. The RRT provides enhanced assimilation with the Unified Command System during significant emergencies. Personnel from the RRT are trained to address Planning, Logistics, Administration/Finance, Information, and Liaison roles.

Job descriptions for each EMT member are provided in **SECTION 4.6**. The EMT will train by participating in exercises as noted in **APPENDIX A**. Refer to **FIGURE 3.1-1** for notification procedures.

4.2 ACTIVATION PROCEDURES

Following initial notification the IC may be able to respond without assistance from the EMT. If the situation requires more resources, additional personnel or management support may be requested from the EMT. The EMT activation procedure is provided in FIGURE 4.5-1.

In the case of a larger emergency, the RRT would be activated by the QI requesting additional resources through the General Manager. The General Manager would activate the RRT to the incident. Depending on the size of the event, the General Manager may request activation of the Corporate Emergency Response Plan (CERP). Activation of the CERP will initiate assistance from corporate personnel to provide additional resources, as needed.

4.3 TEAM MEMBER RESPONSE TIMES

See **FIGURE 3.1-5** for each team member's response time "EPA Facilities only".

4.4 INCIDENT COMMAND SYSTEM / UNIFIED COMMAND

The Incident Command System (ICS) will be used by the Company EMT for spill response. The EMT organization chart is provided in FIGURE 4.5-2. The organization can be expanded or contracted as necessary. If an OSRO or other contractor is used to staff ICS positions for the Spill Management Team, the commitment will be specified in writing.

The Unified Command System (UCS) is the accepted method of organizing key spill management entities within the Incident Command System. The primary entities include:

- Federal On-Scene Coordinator (FOSC)
- State On-Scene Coordinator (SOSC)
- Company Incident Commander

These three people share decision-making authority within the Incident Command System and are each responsible for coordinating other federal, state, and company personnel to form an effective integrated Emergency Management Team. Refer to **SECTION 4.6** for detailed checklists of the EMT roles and responsibilities as well as organizational interfaces with external parties.

4.5 QUALIFIED INDIVIDUAL (QI)

The Qualified Individual (QI) is an English-speaking representative, available on a 24-hour basis, and trained in the responsibilities outlined in this section. The QI has the following responsibilities and authorities as required by the Oil Pollution Act of 1990 (OPA 90):

- The Qualified Individual (QI) is granted full authority to implement the Facility Response Plan (FRP).
- Activate internal alarm and hazard communication systems to notify all appropriate personnel.
- Notify all response personnel and contractors (as needed).
- Identify the character, exact source, amount, and extent of the release and other necessary items needed for notifications.
- Notify and provide information to appropriate federal, state, and local authorities.
- Assess the interaction of the spilled substance with water and/or other substances stored at the facility and notify on-scene response personnel of assessment.
- Assess possible hazards to human health and the environment.
- Assess and implement prompt removal actions.
- Coordinate rescue and response actions.
- Access Company funds to initiate cleanup activities.
- Direct cleanup activities until properly relieved of the responsibility or the incident is terminated.

For further information on Qualified Individualâ€™s training, refer to **APPENDIX A**. Phone numbers for Qualified Individuals are provided in **FIGURES 1-2** and **3.1-5**.

FIGURE 4.5-1 - EMERGENCY MANAGEMENT TEAM (EMT) AND REGIONAL RESPONSE TEAM (RRT) ACTIVATION PROCEDURE

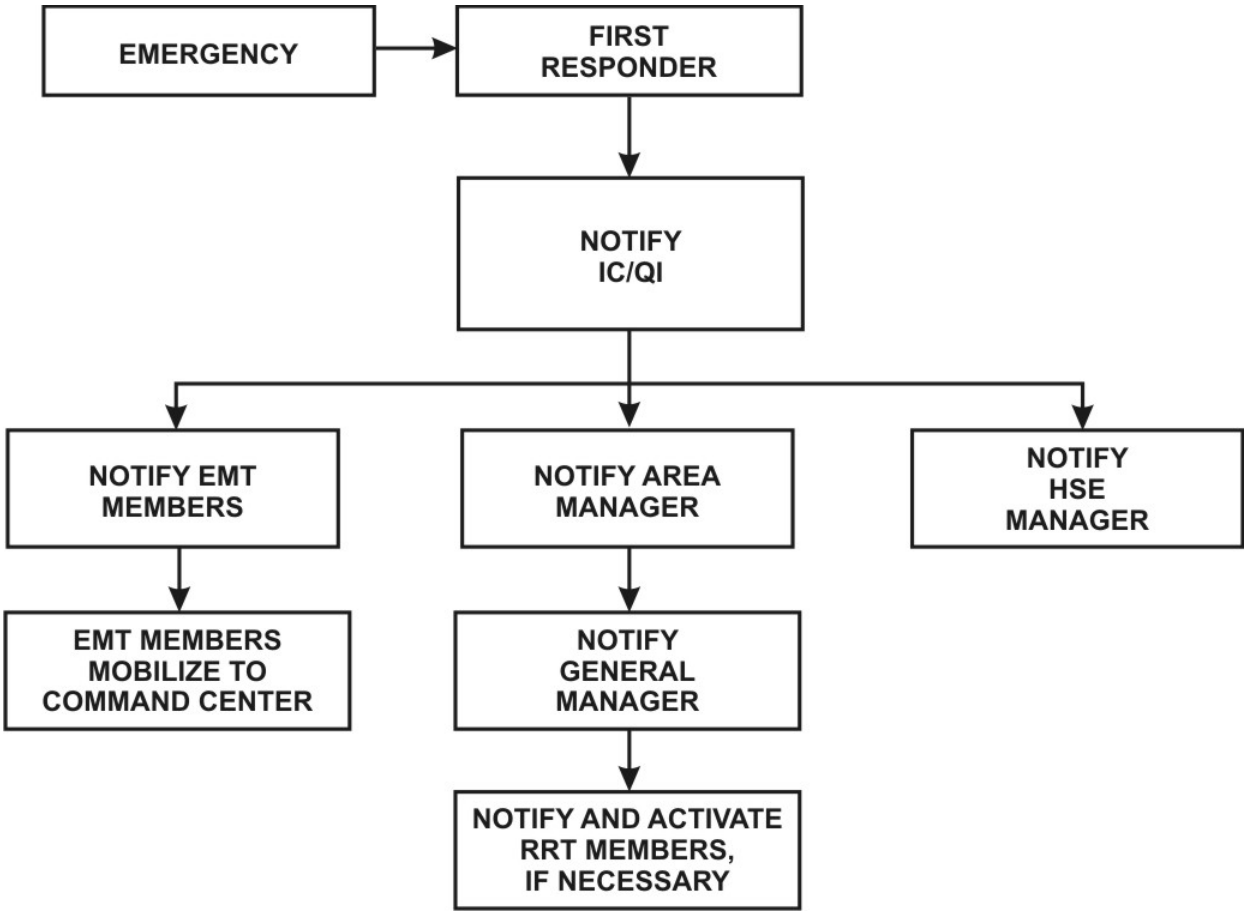
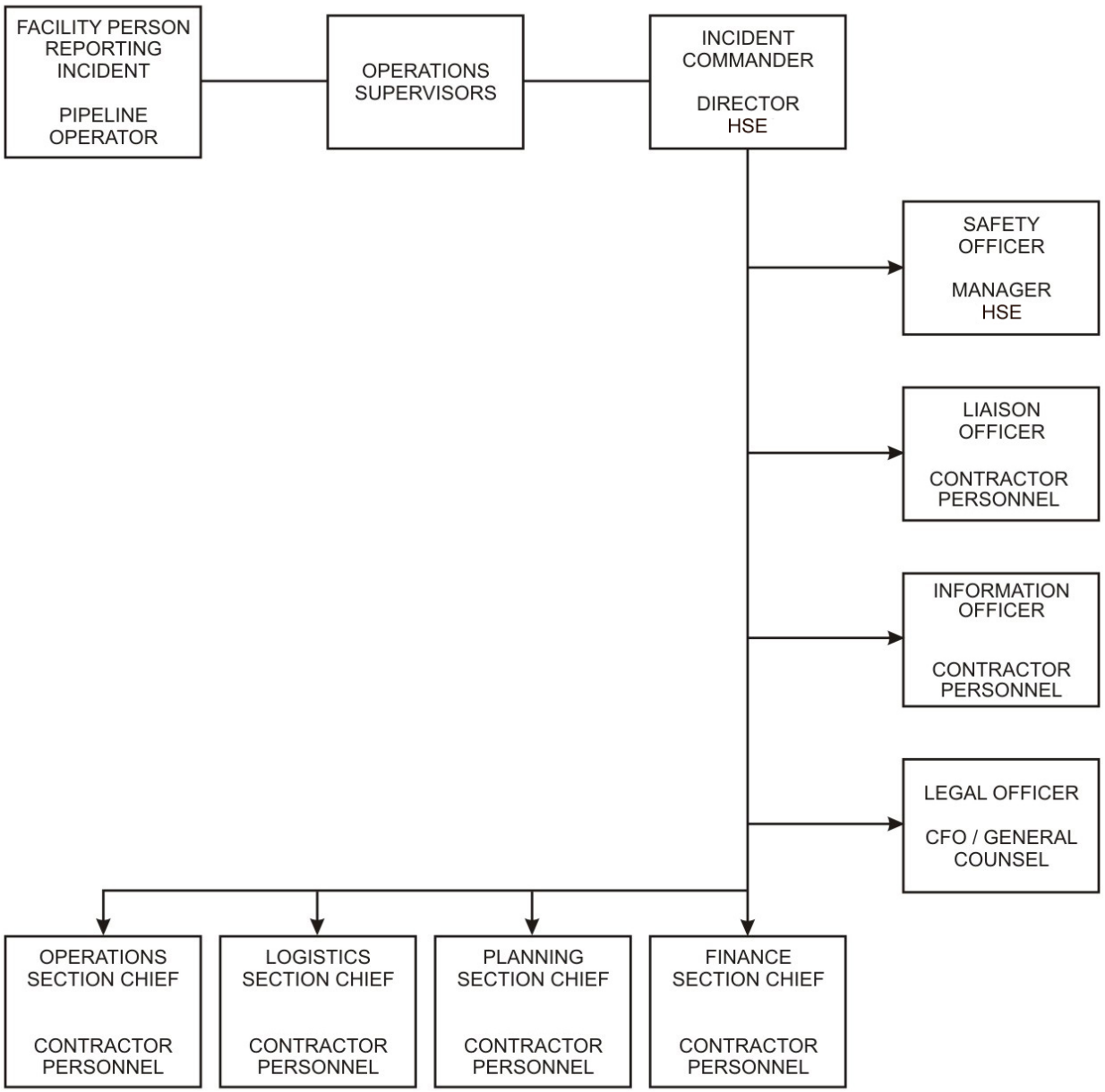


FIGURE 4.5-2 - EMERGENCY MANAGEMENT TEAM (EMT) ORGANIZATION CHART

(Click here for larger view)



4.6 EMERGENCY MANAGEMENT TEAM (EMT) JOB DESCRIPTIONS AND GUIDELINES

The following job descriptions and guidelines are intended to be used as a tool to assist EMT members in their particular positions within the Incident Command System (ICS):

- Incident Commander
- Safety Officer
- Operations Chief
- Planning Chief
- Logistics Chief
- Finance Chief

- Information Officer
- Liaison Officer

INCIDENT COMMANDER

The Incident Commander (IC) manages all activities related to an emergency response and acts as Qualified Individual (QI). As such, the Incident Commander needs to be familiar with the contents of the Facility Response Plan (FRP), Oil Spill Response Plan (OSRP), Emergency Response Action Plan (ERAP), and the Spill Prevention Control and Countermeasure Plan (SPCC). The Incident Commander (IC) must also be familiar with the operation of the Incident Command System (ICS) and the Unified Command Structure (UCS).

The primary goal of this system is to establish and maintain control of the emergency response. If the emergency involves a multi-jurisdictional response (Federal and State), the Unified Command Structure (UCS) should be established. **Realize that the Federal On-Scene Coordinator (FOSC) does have the authority to override the Incident Commander and assume control of the response**. Every effort should be made to establish a collaborative relationship to manage the incident site with the appropriate responding agencies.

As soon as possible but not later than one (1) week following an incident, the Incident Commander shall conduct a critique of the response and follow-up of action items. Participants shall include Operations Control personnel, Company supervisors, and employees and outside agencies involved in the response. An Incident Debriefing Form is provided in **SECTION 8.3**.

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Establish Incident Command/Unified Command Post.
- ☐ Activate necessary section(s) of the Incident Command System (ICS) to deal with the emergency. Fill out the appropriate section(s) of the Incident Command organization chart and post it at the Incident Command Center.
- ☐ Develop goals and objectives for response.
- ☐ Work with Safety Officer and Planning Section Chief to develop a Site Safety Plan (SSP).
- ☐ Approve, authorize, and distribute Incident Action Plan (IAP) and SSP.
- ☐ Conduct planning meetings and briefings with the section chiefs.
- ☐ As Qualified Individual coordinate actions with Federal On-Scene Coordinator (FOSC) and State On-Scene Coordinator (SOSC).
- ☐ In a multi-jurisdictional response, ensure that all agencies are represented in the ICS.
- ☐ Coordinate and approve media information releases with the FOSC, SOSC, and Public Information Officer (PIO).
- ☐ Keep management informed of developments and progress.
- ☐ Authorize demobilization of resources as they are no longer needed.
- ☐ Complete Standard Incident Debriefing Form (**FIGURE 8.3-1**).

SAFETY OFFICER

The Safety Officer is responsible for assessing and monitoring hazardous and unsafe situations at the emergency response site(s). The Safety Officer must develop measures that assure the safety of the public and response personnel. This involves maintaining an awareness of active and developing situations, ensuring the preparation and implementation of the Site Safety Plan (SSP) and assessing safety issues related to the Incident Action Plans (IAP).

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Obtain briefing from Incident Commander (IC).
- ☐ Develop, implement, and disseminate SSP with IC and section chiefs.
- ☐ Participate in planning meetings and briefings.
- ☐ Establish safety staff if necessary.
- ☐ Identify emergency contact numbers. Fill out emergency contact chart and post in the Incident Command Center.
- ☐ Conduct safety briefings with all emergency responders.
- ☐ Investigate accidents that have occurred during emergency response.
- ☐ Ensure proper hazard zones are established.
- ☐ Ensure all emergency responders have appropriate level of training.
- ☐ Ensure proper Personal Protective Equipment (PPE) is available and used.
- ☐ Advise Security/Medical Group Leader concerning PPE requirements.
- ☐ Ensure emergency alarms/warning systems are in place as needed.
- ☐ Participate in Post Incident Review (**SECTION 8.3**).

OPERATIONS CHIEF

The Operations Chief is responsible for the management of all operations applicable to the field response and site restoration activities. Operations directs field activities based on the Incident Action Plan (IAP) and Site Safety Plan (SSP).

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Obtain briefing from Incident Commander (IC).
- ☐ Participate in Incident Command planning meetings and briefings.
- ☐ Conduct planning meetings and briefings for Operations Section.
- ☐ Develop operations portion of IAP.
- ☐ Supervise the implementation of the IAP.

- ☐ Make or approve expedient changes to the IAP.
- ☐ Request resources needed to implement IAP.
- ☐ Approve list of resources to be released.
- ☐ Ensure safe tactical operations.
- ☐ Establish a staging area for personnel and equipment.
- ☐ Confirm first responder actions.
- ☐ Confirm the completion of rescue/evacuation and administering of first aid.
- ☐ Confirm site perimeters have been established.
- ☐ Coordinate activities of public safety responders, contractors, and mutual assistance organizations.
- ☐ Participate in Post Incident Review (**SECTION 8.3**).

PLANNING CHIEF

The Planning Chief is responsible for collecting, evaluating, and disseminating information related to the current and future events of the response effort. The Planning Chief must understand the current situation; predict the future course of events; predict future needs; develop response and cleanup strategies; and review the incident once complete.

The Planning Chief must coordinate activities with the Incident Commander (IC) and other Chiefs to ensure that current and future needs are appropriately handled.

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Obtain briefing from the IC.
- ☐ Establish and maintain communication with IC and other Section Chiefs.
- ☐ Advise IC on any significant changes of incident status.
- ☐ Conduct planning meetings and briefings for Planning section.
- ☐ Coordinate and provide input to the preparation of the Incident Action Plan (IAP).
- ☐ Participate in Incident Command planning meetings and briefings.
- ☐ In a multi-jurisdictional response, ensure that all agencies are represented in the Planning Section.
- ☐ Coordinate future needs for the emergency response.
- ☐ Determine response personnel needs.
- ☐ Determine personnel needs and request personnel for Planning section.
- ☐ Assign technical specialists (archaeologists, historians, biologists, etc.) where needed.
- ☐ Collect and analyze information on the situation.
- ☐ Assemble information on alternative response and cleanup strategies.
- ☐ Ensure situation status unit has a current organization chart of the Incident

Command Organization.

- ☐ Provide periodic spill movement/migration prediction.
- ☐ Participate in Post Incident Review (**SECTION 8.3**).

LOGISTICS CHIEF

The Logistics Chief is responsible for procuring facilities, services, and material in support of the emergency response effort.

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Obtain briefing from the Incident Commander (IC).
- ☐ Participate in Incident Command planning meetings and briefings.
- ☐ Conduct planning meetings and briefings for Logistics section.
- ☐ Participate in the preparation of the Incident Action Plan (IAP).
- ☐ Identify service and support requirements for planned operations.
- ☐ Identify sources of supply for identified and potential needs.
- ☐ Advise IC on current service and support requirements.
- ☐ Procure needed materials, equipment and services from sources by means consistent with the timing requirements of the IAP and Operations.
- ☐ Ensure all purchases are documented.
- ☐ Participate in Post Incident Review (**SECTION 8.3**).

FINANCE CHIEF

The Finance Chief is responsible for accounting, legal, right-of-way and risk management functions that support the emergency response effort. In this role, the primary responsibility is supporting the Command Staff and Logistics Section matters pertaining to expenses during and following the emergency response.

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Obtain briefing from Incident Commander (IC).
- ☐ Participate in Incident Command planning meetings and briefings.
- ☐ Conduct planning meetings and briefings for Finance section.
- ☐ Participate in preparation of the Incident Action Plan (IAP).
- ☐ Participate in planning meetings.
- ☐ Participate in Unified Command System (UCS) as incident warrants.

- ☐ Request assistance of corporate accounting, legal, right-of-way or risk management as needed.
- ☐ Assist with contracting administration.
- ☐ Participate in Post Incident Review (**SECTION 8.3**).

INFORMATION OFFICER

The Information Officer (IO) provides critical contact between the media/public and the emergency responders. The IO is responsible for developing and releasing information about the incident to the news media, incident personnel, appropriate agencies and public. When the response is multi-jurisdictional (involves the federal and state agencies), the IO must coordinate gathering and releasing information with these agencies.

The IO needs to communicate that the Company is conducting an effective response to the emergency. The IO is responsible for communicating the needs and concerns of the public to the Incident Commander (IC).

Responsibilities:

- ☐ Maintain Activity Log.
- ☐ Obtain briefing from IC.
- ☐ Participate in all planning meetings and briefings.
- ☐ Obtain outside information that may be useful to incident planning.
- ☐ Develop goals and objectives regarding public information.
- ☐ Arrange for necessary workspace, materials, telephones and staffing for Public Information Center (PIC).
- ☐ Establish a PIC, ensuring all appropriate agencies participate.
- ☐ Provide a single point of media contact for the IC.
- ☐ Coordinate media access to the response site as approved by the IC.
- ☐ Obtain approval for release of information from the IC.
- ☐ Arrange for meetings between media and emergency responders.
- ☐ Maintain list of all media present.
- ☐ Participate in Post Incident Review (**SECTION 8.3**)

LIAISON OFFICER

If a Unified Command Structure is not established, a Liaison Officer is appointed as the point of contact for personnel assigned to the incident from assisting or cooperating agencies.

Responsibilities:

- ☐ Maintain Activity Log.

- ☐ Obtain briefing from Incident Commander (IC).
- ☐ Participate in planning meetings and briefings.
- ☐ Identify and maintain communications link with agency representatives, assisting, and coordinating agencies.
- ☐ Identify current or potential inter-organizational issues and advise IC as appropriate.
- ☐ Coordinate with Legal Group Leader and Public Information Officer (PIO) regarding information and documents released to government agencies.
- ☐ Participate in Post Incident Review (**SECTION 8.3**).

SECTION 5 Last Revised: May 2008

INCIDENT PLANNING

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5.1 Documentation Procedures

5.2 Incident Action Plan Process and Meetings

Figure 5.2-1 Operational Period Planning Cycle

5.2.1 Incident Occurs / Notifications

5.2.2 Initial Response and Assessment

5.2.3 Unified Command Objectives Meeting

5.2.4 Tactics Meeting

5.2.5 Planning Meeting

5.2.6 Incident Action Plan (IAP) Preparation and Approval

5.2.7 Operations Briefing

5.2.8 Assess Progress

5.2.9 Initial Unified Command Meeting

5.2.10 Command Staff Meeting

5.2.11 Command and General Staff Breakfast / Supper

5.2.12 Business Management Meeting

5.2.13 Agency Representative Meeting

5.2.14 News Briefing

SECTION 5
INCIDENT PLANNING, CONTINUED

5.3 ICS Forms

5.3.1 Incident Briefing ICS 201-OS

5.3.2 Incident Action Plan (IAP) Cover Sheet

5.3.3 Incident Objectives ICS 202-OS

5.3.4 Organization Assignment List ICS 203-OS

5.3.5 Assignment List ICS 204-OS

5.3.6 Communications Plan ICS 205-OS

5.3.7 Medical Plan ICS 206-OS

5.3.8 Incident Status Summary ICS 209-OS

5.3.9 Unit Log ICS 214-OS

5.3.10 Individual Log ICS 214a-OS

5.3.11 Operational Planning Worksheet ICS 215-OS

5.4 Site Safety and Health Plan

5.5 Decontamination Plan

5.6 Disposal Plan

5.7 Dispersant Plan

5.8 Bioremediation

5.9 In-Situ Burning

5.10 Decanting

5.11 Incident Security Plan

5.12 Demobilization Plan

5.1 DOCUMENTATION PROCEDURES

Documentation of a spill response provides a historical record, keeps management informed, serves as a legal instrument, and is a means to account for the cleanup costs.

Documentation should begin immediately upon spill notification and continue until termination of all operations. Documentation should include the following:

- Spill origin and characteristics,
- Sampling surveys,
- Photographic surveys,
- Climatological data,
- Labor and equipment accounting, and
- Copies of all logs, contracts, contacts, and plans prepared for the incident.

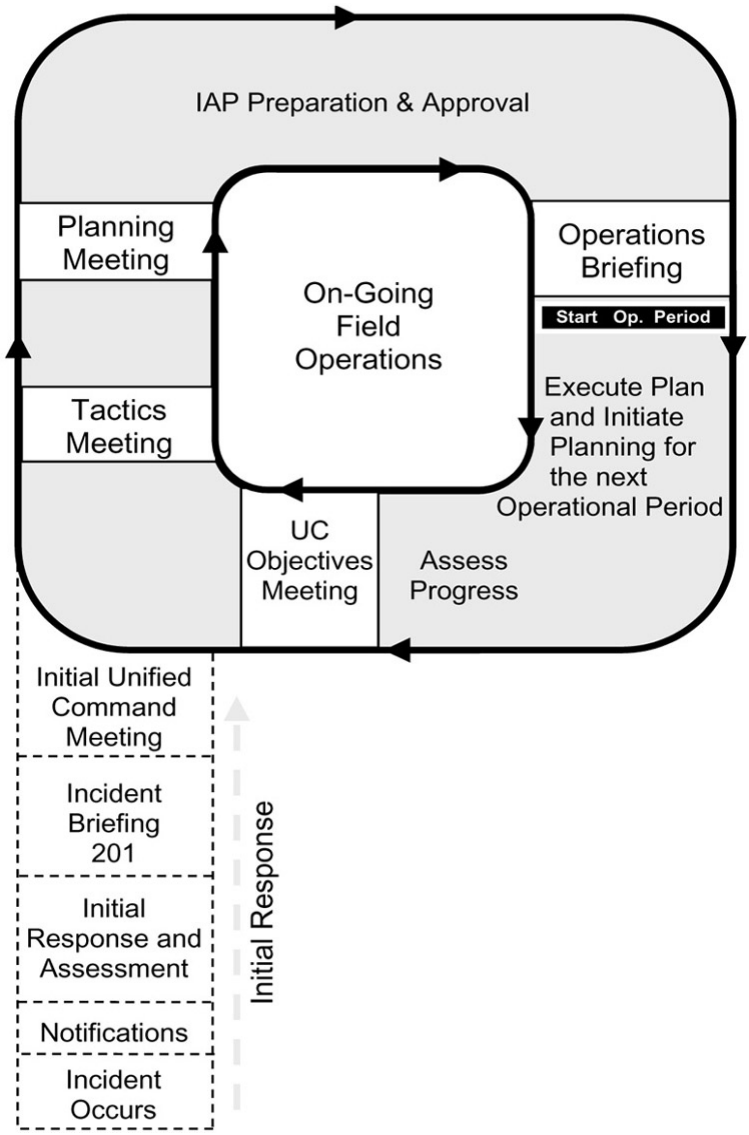
5.2 INCIDENT ACTION PLAN PROCESS AND MEETINGS

The period of INITIAL RESPONSE AND ASSESSMENT occurs in all incidents. Short-term responses (small in scope and/or duration, e.g., few resources working one operational period) often can be coordinated using only ICS 201 Briefings.

Longer-term, more complex responses, will likely require a dedicated Planning Section Chief (PSC) who must arrange for transition into the OPERATIONAL PERIOD PLANNING CYCLE. Certain meetings, briefings, and information-gathering during the Cycle lead to the Incident Action Plan (IAP) that guides operations of the next operational period. Only the meetings and events directly relevant to assembling the IAP are described. The IC/UC specifies the operational periods (e.g., 12-hour shifts, sunrise to sunset, 24-hour shifts etc.).

The SPECIAL PURPOSE meetings are most applicable to larger incidents requiring an OPERATIONAL PERIOD PLANNING CYCLE, but may have utility during INITIAL RESPONSE AND ASSESSMENT. The UNIFIED COMMAND MEETING and other special purpose meetings are briefly noted.

FIGURE 5.2-1 OPERATIONAL PERIOD PLANNING CYCLE



5.2.1 Incident Occurs / Notifications

When an incident occurs, notifications will be made to the appropriate Federal, State, and Local agencies and the initial assessment and response actions will begin.

5.2.2 Initial Response and Assessment

INCIDENT BRIEFING (ICS 201)

During the transfer of command process, an ICS 201 formatted briefing provides the incoming IC/UC with basic information regarding the incident situation and the resources allotted to the incident. Most importantly, it is the de facto Incident Action Plan (IAP) for the initial response and remains in force and continues to develop until the response ends or the Planning Section generates the incident's first IAP. It also is suitable for briefing individuals newly assigned to Command and General Staff, as well as needed assessment briefings for the staff.

When: New IC/UC; staff briefing, as required
Briefer: Current IC/UC
Attendees: Prospective IC/UC; Command, and General Staff, as required

Agenda: Using ICS 201 as an outline, included:

1. Situation (note territory, exposures, safety concerns, etc.; use map/charts).
2. Objectives and priorities.
3. Strategies and tactics.
4. Current organization.
5. Resource assignments.
6. Resources enroute and/or ordered.
7. Facilities established.

OPERATIONAL PERIOD PLANNING CYCLE
(Events most related to assembling IAP)

5.2.3 Unified Command Objectives Meeting

The IC/UC will review/identify and prioritize objectives for the next operational period for the ICS 202 form. Objectives from the previous operational period are reviewed and any new objectives are identified.

When: Prior to Tactics Meeting
Facilitator: UC Member
Attendees: UC Members; Command and General Staff, as appropriate
Agenda:

1. Review/identify objectives for the next operational period (clearly stated and attainable with the resources available, yet flexible enough to allow Operations Section Chief to choose tactics).
2. Review any open agenda items from initial/previous meetings.

5.2.4 Tactics Meeting

This 30-45 minute meeting creates the blueprint for tactical deployment during the next operational period. In preparation for the Tactics Meeting, the Planning Section Chief and Operations Section Chief review the current IAP and situation status information, as provided through the Situation Unit, to assess work progress against IAP objectives. The Operations Section Chief/Planning Section Chief will jointly develop primary and alternate strategies to meet objectives for consideration at the next Planning Meeting.

When: Prior to Planning Meeting
Facilitator: Planning Section Chief
Attendees: Planning Section Chief, Operations Section Chief, Logistics Section Chief, Resources Unit Leader, Situation Unit Leader, and Environmental Unit Leader
Agenda:

1. Review the objectives for the next operational period.
2. Develop strategies (primary and alternatives).
3. Prepare a draft of ICS 215 to identify resources that should be ordered through Logistics.

5.2.5 Planning Meeting

This meeting defines incident objectives, strategies, and tactics and identifies resource needs

for the next operational period. Depending on incident complexity, this meeting should last no longer than 45 minutes. This meeting fine-tunes objectives and priorities, identifies and solves problems, and defines work assignments and responsibilities on a completed ICS Form 215 (Operations Planning Worksheet). Meeting preparations include conducting a Tactics Meeting. Displays in the meeting room should include Objectives (ICS 202) for the next operational period, large sketch maps or charts clearly dated and timed, poster-size Operational Planning Worksheet (ICS 215), current resource inventory prepared by Resources Unit, and current situation status displays prepared by Situation Unit. After the meeting, the ICS 215 is used by the Logistics Section Chief to prepare the off-incident tactical and logistical resource orders, and used by Planning Section Chief to develop IAP assignment lists.

When: After the Tactics Meeting
Facilitator: Planning Section Chief
Attendees: Determined by IC/UC, generally IC/UC, Command Staff, General Staff, Air Operations Section Chief, Resources Unit Leader, Situation Unit Leader, Environmental Unit Leader, and Technical Specialists, as required
Agenda:

5.2.5 Planning Meeting, Continued

1. State incident objectives and policy issues. IC/UC
2. Briefing of situation, critical and sensitive areas, weather/sea forecast, resource status/availability. Planning Section Chief with Situation Unit Leader, Resources Unit Leader
3. State primary and alternative strategies to meet objectives. Operations Section Chief with Planning Section Chief, Logistics Section Chief
4. Designate Branch, Division, Group boundaries and functions, as appropriate; use maps and ICS 215. Operations Section Chief
5. Specify tactics for each Division, note limitations. Operations Section Chief, Situation Unit Leader assist
6. Specify resources needed by Divisions/Groups. Operations Section Chief, with Planning Section Chief, Logistics Section Chief
7. Specify operations facilities and reporting locations (plot on map). Operations Section Chief, Logistics Section Chief assist
8. Develop resources, support, and overhead order(s). Planning Section Chief, Logistics Section Chief
9. Consider support issues and agree on plans: communications, traffic, safety, medical, etc. Logistics Section Chief, Planning Section Chief assist
10. Assisting or cooperating agency and stakeholder group considerations regarding Incident Action Plan. Liaison Officer
11. Safety considerations regarding Incident Action Plan. Safety Officer
12. News media/public considerations regarding Incident Action Plan. Information Officer
13. Finalize, approve Incident Action Plan for next operational period. IC/UC

5.2.6 Incident Action Plan (IAP) Preparation and Approval

Immediately following the Planning Meeting, the attendees prepare their assignments for the IAP to meet the Planning Section Chief deadline for assembling the IAP components. The deadline will be early enough to permit timely IC/UC approval, and duplication of sufficient copies for the Operations Briefing and for overheads.

When: Immediately following Planning Meeting, Planning Section Chief assigns deadline

Facilitator: Planning Section Chief

Common Components:		Responsible to Prepare
1.	Incident Objectives (ICS 202)	[Resources Unit Leader]
2.	Organization List (ICS 203)	[Resources Unit Leader]
3.	Assignment List (ICS 204)	[Resources Unit Leader/Planning Section Chief]
4.	Communications Plan (ICS 205)	[Communications Unit Leader]
5.	Medical Plan (ICS 205)	[Medical Unit Leader]
6.	Incident Map	[Situation Unit Leader]

Optional Components (use as pertinent):

Optional Components (use as pertinent):		Responsible to Prepare
1.	Air Operations Summary (ICS 220)	[Air Operations Branch Director]
2.	Traffic Plan	[Ground Support Unit Leader]
3.	Demobilization Plan	[Demobilization Unit Leader]

5.2.7 Operations Briefing

This less-than-30-minute meeting conveys the IAP for the oncoming shift to the response organization. After this meeting, off-going field supervisors should be interviewed by their reliefs and by Operations Section Chief in order to further confirm or adjust the course of the new shift's IAP. Shifts in tactics may be made by the operations section supervisors. Similarly, a supervisor may reallocate resources within a division or group to adapt to changing conditions.

When: About an hour prior to each shift
Facilitator: Planning Section Chief
Attendees: IC/UC, Command Staff, General Staff, Branch Directors, Division/Group Supervisors, Task Force/Strike Team Leaders (if possible), Unit Leaders, others as appropriate.

Agenda:		Responsible to Present
1.	Review of IC/UC Objectives, changes to IAP.	[Planning Section Chief]
2.	Current response actions and last shift's accomplishments.	[Operations Section Chief]
3.	Weather and sea conditions forecast.	[Situation Unit Leader]
4.	Division/Group and air operations assignment.	[Operations Section Chief]
5.	Trajectory analysis.	[Situation Unit Leader]
6.	Transport, communications, supply updates.	[Logistics Section Chief]
7.	Safety message.	[Safety Officer]
8.	Financial report.	[Finance/Administration Section Chief]

9.	News Media report.	[Information Officer]
10.	Assisting/cooperating organization/agency reports of concern.	[Liaison Officer]
11.	Incident Action Plan endorsement and motivational remarks.	[IC/UC]

5.2.8 Assess Progress

The Operations and Planning Sections will review the incident response progress and make recommendations to the IC/UC in preparation for reviewing/identifying objectives for the next operational period. This feedback/information is gathered from various sources, including Field Observers, responder debriefs, stakeholders, etc.

SPECIAL PURPOSE MEETINGS

5.2.9 Initial Unified Command Meeting

Provides UC officials with an opportunity to discuss and concur on important issues prior to joint incident action planning. The meeting should be brief, and important points documented. Prior to the meeting, parties should review and prepare to address the agenda items. Planning Meeting participants will use the results of this meeting to guide the response efforts.

5.2.9 Initial Unified Command Meeting, Continued

When: When UC is formed, prior to the first operational period Planning Meeting
Facilitator: UC member
Attendees: Only ICs who will comprise UC
Agenda:

1. Identify jurisdictional priorities and objectives.
2. Present jurisdictional limitations, concerns, restrictions.
3. Develop collective set of incident objectives.
4. Establish and agree on acceptable priorities.
5. Adopt an overall strategy to accomplish objectives.
6. Agree on basic organizational structure and size.
7. Designate the best-qualified and acceptable Operations Section Chief.
8. Agree on General Staff personnel designations and planning, logistical, and finance agreements and procedures.
9. Agree on resource ordering procedures.
10. Agree on cost-sharing procedures.
11. Agree on informational matters.
12. Designate a Unified Command spokesperson.

5.2.10 Command Staff Meeting

Coordinate Command Staff functions, responsibilities and objectives. It is scheduled as necessary by the IC/UC. Command Staff (IC/UC, Safety Officer, Liaison Officer, Information Officer) attend.

5.2.11 Command and General Staff Breakfast / Supper

An opportunity for the Command (IC/UC, Safety Officer, Liaison Officer, Information Officer) and General Staff (Operations Section Chief, Planning Section Chief, Logistics Section Chief, Finance/Administration Section Chief) to gather under informal and relaxing conditions to share and update each other on developing issues.

5.2.12 Business Management Meeting

This under-30-minute meeting is for participants to develop and update the operating plan for finance and logistics support. The agenda could include: finance requirements and criteria imposed by contributing organizations, business operating plan for resource procurement and incident funding, cost analysis and financial summary data. Attendees include: Finance/Administration Section Chief, Cost Unit Leader, Logistics Section Chief, Supply Unit Leader, Demobilization Unit Leader. It is generally conducted before the PLANNING MEETING.

5.2.13 Agency Representative Meeting

To update agency representatives and ensure that they can support IAP. Conducted by Liaison Officer, attended by Agency Representatives. Most appropriately held after the PLANNING MEETING in order to announce plans for next operational period, yet allow for changes should the plan's expectations be unattainable by an agency.

5.2.14 News Briefing

To brief the news media and public on the most current and accurate incident facts. Set up by the Information Officer, moderated by an appropriate representative, and featuring selected spokespersons. Spokespersons should be prepared by the Information Officer to address anticipated issues. The briefing should be well planned, organized, and scheduled to meet the media’s needs.

5.3 ICS FORMS

All ICS Forms are available electronically via this Plan's Forms Navigator.

- INCIDENT BRIEFING FORM - ICS 201 (Initial Report Only)

  For use by the Command Staff to gather information on the Emergency Management Teamâ€™s (EMT) efforts to implement applicable response plans. It is prepared by the initial Incident Commander (IC) for providing documentation of the initial response.

- INCIDENT ACTION PLAN

  For use by the Planning Section to plan each dayâ€™s response actions. This plan consists of the portions identified on the IAP cover page and must be approved by the Incident Commander, Federal On-Scene Coordinator (FOSC), and State On-Scene Coordinator (SOSC).

  In addition, these Incident Command System (ICS) forms may be found on the U.S. Coast Guard web page: http://www.uscg.mil/pacarea/pm/icsforms/ics.htm

  - **INCIDENT ACTION PLAN (IAP) COVER SHEET**

    For use in presenting initial information, signature approval, and table of contents

of forms contained in the IAP.

- INCIDENT OBJECTIVES - ICS 202

  Describes the basic incident strategy, control objectives, and provides weather, tide and current information, and safety considerations for use during the next operational period.

- **ORGANIZATION ASSIGNMENT LIST - ICS 203**

  Provides ICS personnel with information on the units that are currently activated and the names of personnel staffing each position/unit.

- ASSIGNMENT LIST - ICS 204

  Submits assignments at the level of Division and Groups.

- COMMUNICATIONS PLAN - 205

  Is used to provide, in location, information on all radio frequency assignments down to Division/Group level for each operation period.

- MEDICAL PLAN - ICS 206

  Provides information in incident medical aid stations, transportation services, hospitals, and medical emergency procedures.

5.3 ICS FORMS, CONTINUED

All ICS Forms are available electronically via the Forms Navigator.

- **INCIDENT STATUS SUMMARY - ICS 209**

  Used to inform personnel about the status of response efforts. It is not included in the IAP.

- **UNIT LOG - ICS 214**

  Used to log activities for an entire unit.

- **INDIVIDUAL LOG - ICS 214a**

  Used to log activities for an individual.

5.3.1 Incident Briefing ICS 201-OS

1. Incident Name	2. Prepared By: (name)	

	Date: Time:	INCIDENT BRIEFING ICS 201-OS

3. Map/Sketch

(Include maps drawn here or attached, showing the total area of operations, the incident site/area, overflight results, trajectories, impacted shorelines or other graphics depicting situational and response status)

INCIDENT BRIEFING	March, 2000	ICS 201-OS (pg 1 of 4)

5.3.1 Incident Briefing ICS 201-OS, Continued

1. Incident Name	2. Prepared By: (name) Date: Time:	INCIDENT BRIEFING ICS 201-OS

4. Initial Incident Objectives

5. Summary of Current Actions

Time	Action/Note

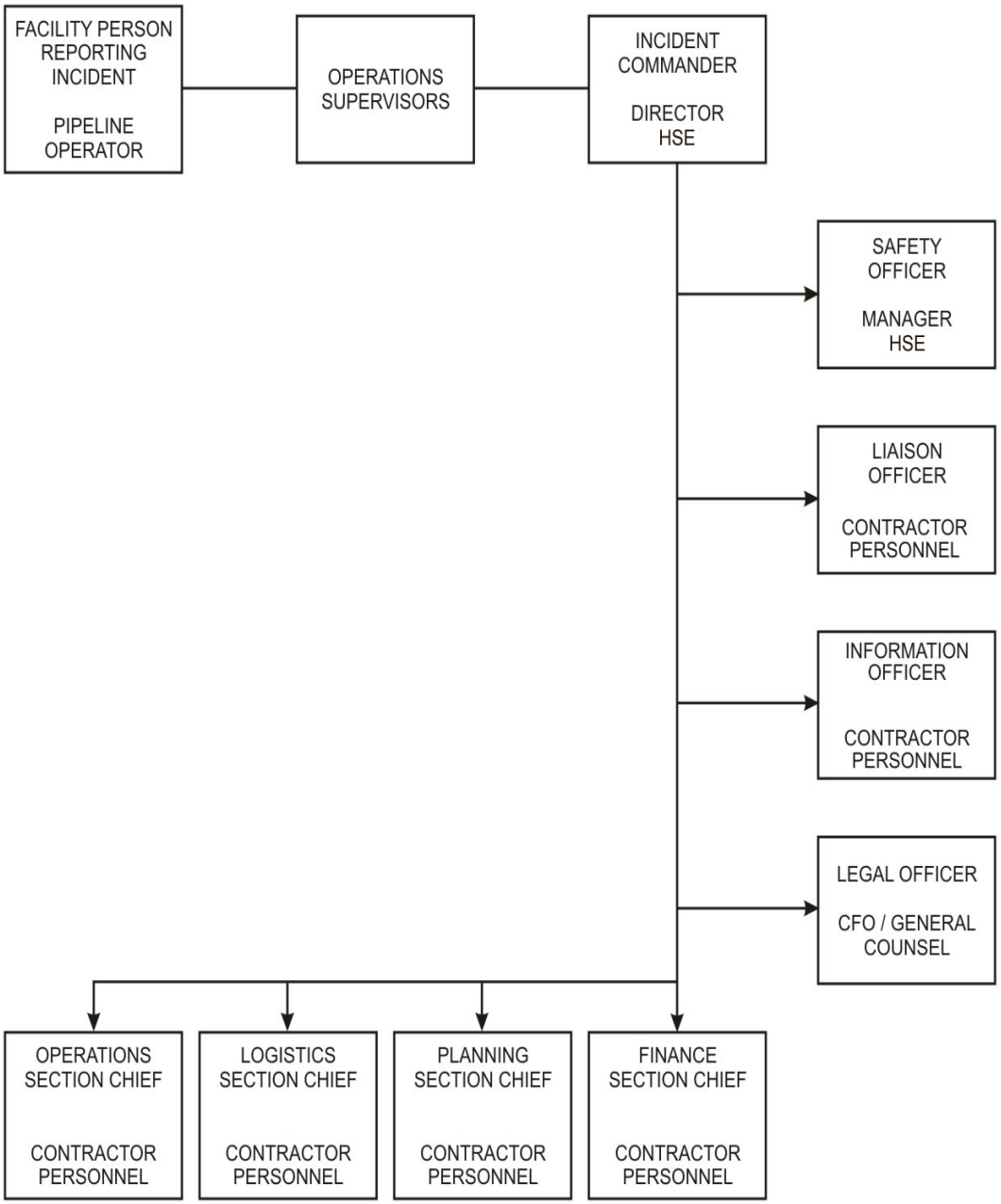
INCIDENT BRIEFING	March, 2000	ICS 201-OS (pg 2 of 4)

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5.3.1 Incident Briefing ICS 201-OS, Continued

1. Incident Name	2. Prepared By: (name) Date: Time:	INCIDENT BRIEFING ICS 201-OS

6. Current Organization



INCIDENT BRIEFING	March, 2000	ICS 201-OS (pg 3 of 4)

5.3.1 Incident Briefing ICS 201-OS, Continued

1. Incident Name	2. Prepared By: (name) Date: Time:	INCIDENT BRIEFING ICS 201-OS

7. Resources Summary

Resources Needed	Time Ordered	Resource Identifier	ETA	On Scene? (X)	Notes: (Location/Assignment/Status)

INCIDENT BRIEFING	March, 2000	ICS 201-OS (pg 4 of 4)

5.3.2 Incident Action Plan (IAP) Cover Sheet

1. Incident Name	2. Operational Period to be covered by IAP (Date/Time)		IAP COVER SHEET
	From:	To:	

3. Approved by:

FOSC

SOSC

IC

INCIDENT ACTION PLAN

The items checked below are included in this Incident Action Plan:

☐ ICS 202-OS (Incident Objectives)

☐ ICS 203-OS (Organization Assignment List)

☐ ICS 204-OS (Assignment List)

☐ ICS 205-OS (Communications Plan)

☐ ICS 206-OS (Medical Plan)

☐ ICS 209-OS (Incident Status Summary)

☐ ICS 214-OS (Unit Log)

☐ ICS 214a-OS (Individual Log)

☐

☐

4. Prepared By: (Planning Section Chief)	**Date/Time:**

IAP COVER SHEET	March, 2000

5.3.3 Incident Objectives ICS 202-OS

1. Incident Name	2. Operational Period (Date/Time) From: To:	INCIDENT OBJECTIVES ICS 202-OS
3. Overall Incident Objective(s)		
4. Objectives for Specified Operational Period		
5. Safety Message for Specified Operational Period Approved Site Safety Plan Located at:		
6. Weather: See Attached Weather Sheet		
7. Tides/Currents: See Attached Tide/Current Data		
8. Time of Sunrise:	**Time of Sunset:**	
9. Attachments (check if attached) ☐ Organization List (ICS 203-OS) ☐ Assignment List (ICS 204-OS) ☐ Communications Plan (ICS 205-OS) ☐ Medical Plan (ICS 206-OS) ☐ Weather		

10. Prepared By: (Planning Section Chief)	**Date/Time:**

INCIDENT OBJECTIVES	March, 2000	ICS 202-OS

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5.3.4 Organization Assignment List ICS 203-OS

1. Incident Name	2. Operational Period (Date/Time) From: To:	ORGANIZATION ASSIGNMENT LIST ICS 203-OS

3. Incident Commander and Staff

	Primary	Deputy
Federal:		
State:		
IC:		

Safety Officer :

Information Officer:

Liaison Officer:

4. Agency Representatives

Agency	Name

5. Planning Section

Chief
Deputy
Resources Unit
Situation Unit
Environmental Unit
Documentation Unit
Demobilization Unit
Technical Specialists

6. Logistics Section

Chief
Deputy
Time Unit
Procurement Unit
Compensation Unit
Cost Unit

a. Support Branch

Director
Supply Unit

7. Operations Section

Chief
Deputy

a. Branch I - Division/Groups

Branch Director
Deputy
Division / Group
Division / Group
Division / Group
Division / Group
Division / Group

b. Branch II - Division/Groups

Branch Director
Deputy
Division / Group
Division / Group
Division / Group
Division / Group
Division / Group

c. Branch III - Division/Groups

Branch Director
Deputy
Division / Group
Division / Group
Division / Group
Division / Group
Division / Group

d. Air Operations Branch

Air Operations Br. Dir.
Air Tactical Supervisor
Air Support Supervisor
Helicopter Coordinator
Fixed-wing Coordinator

8. Finance Section

Facilities Unit		Chief	
Transportation Unit		Deputy	
Vessel Support Unit		Time Unit	
Ground Support Unit		Procurement Unit	
b. Service Branch		Compensation Unit	
Director		Cost Unit	
Communications Unit			
Medical Unit			
Food Unit			

9. Prepared by: (Resources Unit)	Date/Time	
ORGANIZATION ASSIGNMENT LIST	March, 2000	ICS 203-OS

5.3.5 Assignment List ICS 204-OS

1. Incident Name	2. Operational Period (Date/Time) From: To:	ASSIGNMENT LIST ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel	**Name**	**Affiliation**	**Contact # (s)**
Operations Section Chief:			
Branch Director:			
Division/Croup Supervisor:			

6. Resources Assigned This Period	â€œXâ€ indicates 204a attachment with special instructions			
Strike Team/Task Force/ Resource Identifier	**Leader**	**Contact Info. #**	**# of Persons**	**Notes/Remarks**

7. Assignments

8. Special Instruction for Division/Group

9. Communications (radio and/or phone contact numbers needed for this assignment)			
Name/Function	**Radio: Freq./System/ Channel**	**Phone**	**Pager**
Emergency Communications			
Medical	Evacuation	Other	
10. Prepared By (Resources Unit Leader)	Date/Time	**11. Approved By** (Planning Section Chief)	Date/Time
ASSIGNMENT LIST	June, 2000		ICS 204-OS

5.3.6 Communications Plan ICS 205-OS

1. Incident Name	2. Operational Period (Date/Time) From: To:	COMMUNICATIONS PLAN ICS 205-OS

3. Basic Radio Channel Use

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

4. Prepared By (Communications Unit)	Date/Time

COMMUNICATIONS PLAN	March, 2000	ICS 205-OS

5.3.7 Medical Plan ICS 206-OS

1. Incident Name	2. Operational Period (Date/Time) From: To:	MEDICAL PLAN ICS 206-OS

3. Medical Aid Stations

Name	Location	Contact #	Paramedics On Site (Y/N)

4. Transportation

Ambulance Service	Address	Contact #	Paramedics On Board (Y/N)

5. Hospitals

Hospital Name	Address	Contact #	Travel Time		Burn Ctr?	Heli-Pad?
			Air	Ground		

6. Special Medical Emergency Procedures

7. Prepared By (Medical Unit Leader)	Date/Time	8. Reviewed By (Safety Officer)	Date/Time

MEDICAL PLAN March, 2000 ICS 206-OS

5.3.8 Incident Status Summary ICS 209-OS

1. Incident Name	**2. Period Covered By Report** From: To:	Time of Report	INCIDENT STATUS SUMMARY ICS 209-OS

3. Spill Status (Estimated, in Barrels)	[OPS/EUL/SSC]
Source Status:	Remaining Potential (bbl):
	Rate of Spillage (bbl/hr):
Secured ☐	Unsecured ☐

	Since Last Report	Total
Volume Spilled		
Mass Balance/Oil Budget		
Recovered Oil		
Evaporation		
Natural Dispersion		
Chemical Dispersion		
Burned		
Floating, Contained		
Floating, Uncontained		
Onshore		
Total Spilled Oil Accounted For:		

4. Waste Management (Estimated)	**[OPS/Disposal]**		
	Recovered	Stored	Disposed
Oil (bbl)			
Oily Liquids (bbl)			
Liquids (bbl)			

7. Safety Status	[Safety Officer]
Since Last Report	Total
Responder Injury	
Public Injury	

8. Equipment Resources			[RUL]	
Description	Ordered	Available / Staged	Assigned	Out of Service
Spill Resp. Vsls				
Fishing Vessels				
Tugs				
Barges				
Other Vessels				
Skimmers				
Boom (ft.)				
Sbnt/Snr Bm. (ft.)				
Vacuum Trucks				
Helicopters				
Fixed Wing				

Oily Solids (tons)			
Solids (tons)			

5. Shoreline Impacts (Estimated, in miles) **[PSC/EUL/SSC]**

Degree of Oiling	Affected	Cleaned	To Be Cleaned
Light			
Medium			
Heavy			
Total			

6. Wildlife Impacts **[OPS/Wildlife Br.]**

Numbers in ( ) indicate subtotal that are threatened / endangered species.					Died in Facility	
	Captured	Cleaned	Released	DOA	Euth.	Other
Birds						
Mammals						
Reptiles						
Fish						
Total						

9. Personnel Resources **[RUL]**

Description	People in Cmd. Post	People in the Field	Total People On Scene
Federal			
State			
Local			
RP			
Contract Personnel			
Volunteers			
Total Response Personnel From All Organizations:			

10. Special Notes

11. Prepared By (Situation Unit Leader)	Date/Time

INCIDENT STATUS SUMMARY March, 2000 ICS 209-OS

5.3.9 Unit Log ICS 214-OS

1. Incident Name	2. Operational Period (Date / Time) From: To:	UNIT LOG ICS 214-OS
3. Unit Name	4. Unit Leader (Name and ICS Position)	

5. Personnel Assigned

Name	ICS Position	Home Base

6. Activity Log (Continue on Reverse)	
Time	Major Events

7. Prepared by:	Date / Time

UNIT LOG	June 2000	ICS 214-OS

5.3.9 Unit Log ICS 214-OS, Continued

1. Incident Name	2. Operational Period (Date / Time) From: To:	UNIT LOG(Cont) ICS 214-OS
3. Unit Name	4. Unit Leader (Name and ICS Position)	

5. Personnel Assigned		
Name	ICS Position	Home Base

6. Activity Log (Continue on Reverse)	
Time	Major Events

7. Prepared by:	Date / Time

UNIT LOG	June 2000	ICS 214-OS

5.3.10 Individual Log ICS 214a-OS

1. Incident Name	2. Operational Period (Date / Time) From: To:	INDIVIDUAL LOG **ICS 214a-OS**

3. Individual Name	**4. ICS Section**	**5. Assignment / Location**

6. Activity Log	Page	of

TIME	MAJOR EVENTS

7. Prepared by:	**Date / Time**

INDIVIDUAL LOG	June 2000	ICS 214a-OS

5.3.11 Operational Planning Worksheet ICS 215-OS

1. Incident Name	2. Operational Period: (Date / Time) From: To:	OPERATIONAL PLANNING WORKSHEET ICS 215-OS

3. Division / Group or Location	4. Work Assignments	5. Resource / Equipment					6. Notes / Remarks	7. Reporting Location	8. Requested Arrival Time	9. "X" here if 204a Needed
		Resource								
		Req.								☐
		Have								
		Need								
		Req.								☐
		Have								
		Need								
		Req.								☐
		Have								
		Need								
		Req.								☐
		Have								
		Need								
		Req.								☐
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		Have							☐
		Need							
		Req.							
		Have							☐
		Need							
		Req.							
		Have							☐
		Need							
10. Total Resources Required						13. Prepared by:			
11. Total Resources On Hand						Date:		Time:	
12. Total Resources Needed									
OPERATIONAL PLANNING WORKSHEET						June 2000			ICS 215-OS

5.4 SITE SAFETY AND HEALTH PLAN

PLAN REVIEW:		
Incident Safety Officer:		
APPROVALS:		
Incident Commander:		
Operations Officer:		
Haz Mat Division Officer:		
PLAN PREPARED:	DATE:	TIME:
Incident Location:		
Incident Number:		
HAZARDOUS SITUATION:	(Known or suspected; contaminated media; type storage	

	container; type occupancy; obvious leaks, spills, or breaches; physical damage)
RESPONDING AGENCIES:	
Agency:	Name:
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

All government and contractor personnel who enter the exclusion zones or use air purifying respirators must be enrolled in a medical monitoring program.

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

GENERAL SAFETY RULES AND EQUIPMENT:

1. There will be no eating, drinking, or smoking in the exclusion zone or the contamination reduction zone.

2. All personnel must pass through the contamination reduction zone to enter or exit the exclusion zone (hot zone).

3. At a minimum, Decontamination Team members must be in one (1) level of protection lower than that of the entry teams.

4. All decontamination equipment and systems must be in place before an entry can be made.

5. Entry team will consist of a minimum of two members with the same number of personnel assigned to a backup team. All entry personnel will adhere to the buddy system.

6. At the end of the incident, or directly after a possible exposure, each entry team member will take a full body shower and launder any personal clothing used at the scene.

7. All breathing air shall be certified as Grade D or better.

8. Where practical, all tools shall be of the nonsparking type.

9. Fire equipment shall be on hand when the situation warrants such support. At a minimum, fire extinguishers shall be available on scene.

10. Since incident evacuation may be necessary if an explosion, fire, or other event occurs; an individual shall be assigned to sound, alert, and notify the responsible command personnel and public officials (if required). The evacuation signal shall be four short blasts on an air horn every 30 seconds until all personnel are known to be evacuated.

11. An adequately stocked Emergency Medical Services (EMS) Unit shall be on-site at all times.

12. The location and telephone number of the nearest medical facility shall be posted and known to all personnel.

GENERAL SAFETY BRIEFING:

Before any incident actions are taken, a briefing from the Command Staff will be accomplished with all personnel present. Personnel will sign a log sheet, attesting to being present at the briefing. Topics discussed should include, but not limited to known and suspected hazards along with the operation's goals and objectives.

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

EMERGENCY ACTION CONDITIONS:

Code Green All conditions are normal and incident work may continue.

Code Red All or specific work activities must cease at once due to one of the following:

- Indications of emissions from the incident such as CGI readings of 25% or greater, less than 19.5% oxygen, or one Mr/Hr of ionizing radiation are present.
- Current or projected meteorological data indicates that a probable impact on working conditions could occur.
- If background readings obtained during cessation of activities worsen, reassessment of the findings should be confirmed; actions to lower levels of

contaminant or contingencies for further incident monitoring must take place.

- If this condition exists, incident personnel will immediately notify command staff.

Officials making evacuation/public health decisions will address the need for a public health advisory to potentially affected areas. This is because incident control methods may or may not reduce the source of contamination or threat to the general public.

If needed, a temporary sheltering or evacuation plan should be considered until levels of contamination are reduced or contained to levels deemed safe by all responsible authorities. Confirmation of these levels will be done by generally approved monitoring methods agreed to by the authorities in charge.

Sheltering/Evacuation Plan:
Ordered By:

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

LIST OF ACCESS AUTHORIZED PERSONNEL (Outside Agencies):
SPECIALIZED TASK ASSIGNMENTS:
LEVELS OF PROTECTION SELECTED:

Initial Site Survey:	A	B	C	D
Entry Team:	A	B	C	D
Backup Team:	A	B	C	D
Decon Team:	A	B	C	D

Level A - To be selected when the greatest level of skin, respiratory, and eye protection is required.

Level B - The highest level of respiratory protection is necessary but a lesser level of skin protection is needed.

Level C - The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met.

Level D - A work uniform affording minimal protection: used for nuisance contamination only.

SKETCH OR ATTACH PLOT PLAN HERE:

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

RESPONSE SAFETY CHECK-OFF SHEET

TYPE OF RESPONSE:	
Highway	Industrial
Railway	Marine
Residential	Other
Specify:	
TYPE OF SAFETY PLAN:	
Federal	State
Local	Other
Specify:	
SUSPECTED CHEMICAL(S) INVOLVED:	
1.	2.
3.	4.
5.	6.
7.	8.
9.	10.

INITIAL LEVEL OF PROTECTION: (If level D you must justify)			
A	B	C	D
INITIAL MEDICAL SCREENING COMPLETE: ☐ Yes ☐ No			
If no, justify:			
In the event of fire or explosion:			
In the event of potential or actual ionizing radiation exposure:			

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

In the event migration and contamination beyond the boundaries of the incident:
EMERGENCY SERVICES:
Emergency medical facility:
Ambulance service:
Poison Control Center:
Chemical manufacturerâ€™s representative:

EMERGENCY PROCEDURES (in the event of personnel exposure):
EMERGENCY PROCEDURES (in the event of personnel injury):
HAZARD ASSESSMENT:
Attach Hazardous Materials Safety Data Sheets (MSDS), or other reference materials, for chemicals involved to this document.
MONITORING PROCEDURES:
Monitoring the incident to identify concentration of contaminants in all media. List the instruments to be used and what areas to be monitored.
Hot Zone (Excursion Zone)
Warm Zone (Contamination Reduction Zone)
Cold Zone (Support Zone)

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

MEDICAL MONITORING: (Procedures to be used to monitor personnel for evidence of personal exposure.)
PERSONNEL POTENTIALLY EXPOSED TO HAZARDOUS MATERIALS:

NAME	POSITION	DATE/TIME

DECONTAMINATION PROCEDURES:
(Contaminated personnel, surfaces, materials, instruments, other equipment.)

DECONTAMINATION SOLUTIONS USED:

DISPOSAL PROCEDURES:

Authorized By:

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

POST RESPONSE:

Level of protection used:

A B C D

Rationale:

EQUIPMENT DECONTAMINATION:

	Clothing	SCBA/Resp.	Monitoring
Disposed:			
Cleaned:			
No Action:			

Specify:

TOTAL APPROXIMATE TIME IN HOT ZONE:	Days	Hours
DATE PREPARED:	PREPARED BY:	
Reviewed By:		
Assistance in preparing this safety plan can be obtained from Haz Mat personnel.		

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

HEALTH AND SAFETY / RESPONSE PLAN

APPLIES TO SITE:					
DATE:					
PRODUCTS:					(ATTACH MSDS)
SITE CHARACTERIZATION	☐ Marine vessel	☐ Pipeline	☐ Storage facility		
	☐ Truck/Rail car	☐ Other			
Water	☐ Shoreline	☐ Wetlands	☐ Other		
	☐ Rocky	☐ Sandy	☐ Muddy	☐ Other	
	☐ River	☐ Creek	☐ Canal	☐ Bay	☐ Ocean
Land	☐ Mountains	☐ Hills	☐ Brushland	☐ Forest	☐ Grassland
	☐ Other				
Use	☐ Public	☐ Government	☐ Residential	☐ Commercial	
	☐ Recreational	☐ Industrial	☐ Farmland	☐ Other	
Weather	☐ Temp _____Â°F	☐ Wind/Dir. _____ mph	☐ Rain		
	☐ Snow	☐ Ice		☐ Other	
Pathways for Dispersion	☐ Air	☐ Water	☐ Land	☐ Other	
Site Hazards					
☐ Chemical hazards	☐ Boats				
☐ Slips, trips, falls	☐ Helicopters				
☐ Heat stress	☐ Noise				
☐ Cold stress	☐ Pumps, hoses				
☐ Weather	☐ Steam, hot water				
☐ Drowning	☐ Fire/Explosion				
☐ Heavy equipment	☐ Poor visibility				
☐ Drum handling	☐ Motor vehicles				
☐ Wildlife/plants	☐ Confined spaces (see attachment/appendix)				
☐ Hand/power tools	☐ Ionizing radiation				
☐ Lifting	☐ Other				

Air Monitoring			
% LEL	% O_2	PPM Benzene	PPM H_2S
☐ Other (specify)			

☐ See attachment - Monitoring Results/Methods

CONTROL MEASURES:
Engineering Controls

☐ Source of release secured ☐ Valve(s) closed ☐ Facility shut down
☐ Site secured
☐ Other

Personal Protective Equipment (PPE) HAZWOPER Coordination with OSRO

☐ PVC suits ☐ PE/TYVEK suits ☐ Respirator
☐ Site secured ☐ PVC gloves ☐ Other
☐ Other ☐ Hard hats ☐ Eye protection

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

HEALTH AND SAFETY / RESPONSE PLAN

CONTROL MEASURES (cont'd):
Decontamination

☐ Stations established (see site map)

Sanitation

☐ Facilities provided per OSHA 1910.120(n)

Illumination

☐ Facilities provided per OSHA 1910.120(m)

Medical Surveillance

☐ Facilities provided per OSHA 1910.120(f)

WORK PLAN: (buddy system must be used.)

☐ Booming ☐ Skimmers ☐ Vac. trucks ☐ Pumping ☐ Excavation
☐ Heavy equipment ☐ Sorbent pads ☐ Patching ☐ Hot work ☐ Shoring
☐ Appropriate permits issued
☐ Other (describe):

TRAINING (HAZWOPER training program):

☐ Verified site workers trained per OSHA 1910.120

ORGANIZATION (See Incident Command System chart.):

EMERGENCY PLAN (See site map and Daily Medical Plan - ICS 206.):

SITE SECURITY:

- ☐ Pre-entry briefing
- ☐ Security level Low Medium High
- ☐ Other topics

DATE/TIME/PLAN COMPLETED: By:

5.4 SITE SAFETY AND HEALTH PLAN, CONTINUED

SITE DIAGRAM

GENERAL DIAGRAM INSTRUCTIONS

1. Site Diagram should include the following (label the items drawn with corresponding letter):

   A. Sketch with major feature locations (buildings, drainage paths, roads, etc.)
   B. Hazardous substance location
   C. Work zones (exclusion, contamination reduction, support)
   D. Command center and decontamination area
   E. Access and access restrictions
   F. Routes of entry
   G. Wind direction
   H. Emergency evacuation routes
   I. Assembly points
   J. First aid locations
   K. Communication system

5.5 DECONTAMINATION PLAN

Incident Name:	Location:
Effective Date of Plan:	Effective Time Period of Plan:
Spill Location:	Plan Prepared By:

- Work Zones:

  - Support (cold) zone
  - Contamination reduction (warm) zone
  - Exclusion (hot) zone

  These zones are identified by signs, barrier tape or other means. Decontamination is performed in the contamination reduction zone. When responders exit the exclusion zone they must be decontaminated.

  Crews are available to assist in decontamination procedures as needed. The crews must wear appropriate personal protective equipment (PPE), and are responsible for packaging and labeling of contaminated PPE.

- Decontamination Stations:

  Decontamination is performed within the contamination reduction zone, which is appropriately lined to prevent the spread of contaminants. Dikes are installed under the lining to contain runoff.

5.5 DECONTAMINATION PLAN, CONTINUED

Procedures for these stations are as follows:

MAXIMUM MEASURES FOR DECONTAMINATION		
STATION 1	Segregated equipment drop	Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
STATION 2	Boot cover and glove wash	Scrub outer boot cover and gloves with decontamination solution or detergent and water.
STATION 3	Boot cover and glove rinse	Rinse off decontamination solution from Station 2 using copious amounts of water.
STATION 4	Tape removal	Remove tape around boots and gloves and deposit in container with plastic liner.
STATION 5	Boot cover removal	Remove boot covers and deposit in containers with plastic liner.
STATION 6	Outer glove removal	Remove outer gloves and deposit in container with plastic liner.
STATION 7	Suit and boot wash	Wash splash suit, gloves, and safety boots. Scrub with long-handled scrub brush and decontamination solution.
STATION 8	Suit, boot, and glove rinse	Rinse off decontamination solution using water. Repeat as many times as necessary.
STATION 9	Canister or mask change	If worker leaves exclusion zone to change canister or this is the last step in the decontamination procedure; worker's canister is exchanged, new outer gloves and boot covers are donned, joints are taped, and the worker returns to duty.
STATION 10	Safety boot removal	Remove safety boots and deposit in container with plastic liner.
STATION 11	Splash suit removal	With assistance of helper, remove splash suit. Deposit in container with plastic liner.
STATION 12	Inner glove wash	Wash inner gloves with decontamination solution.
STATION 13	Inner glove rinse	Rinse inner gloves with water.
STATION 14	Face piece removal	Remove face piece. Deposit in container with plastic liner. Avoid touching face with fingers.
STATION 15	Inner glove removal	Remove inner gloves and deposit in lined container.
STATION 16	Inner clothing removal	Remove clothing soaked with perspiration and place in lined container. Do not wear inner clothing off-site since there is a possibility that small amounts of contamination might have been transferred in removing the protective suit.

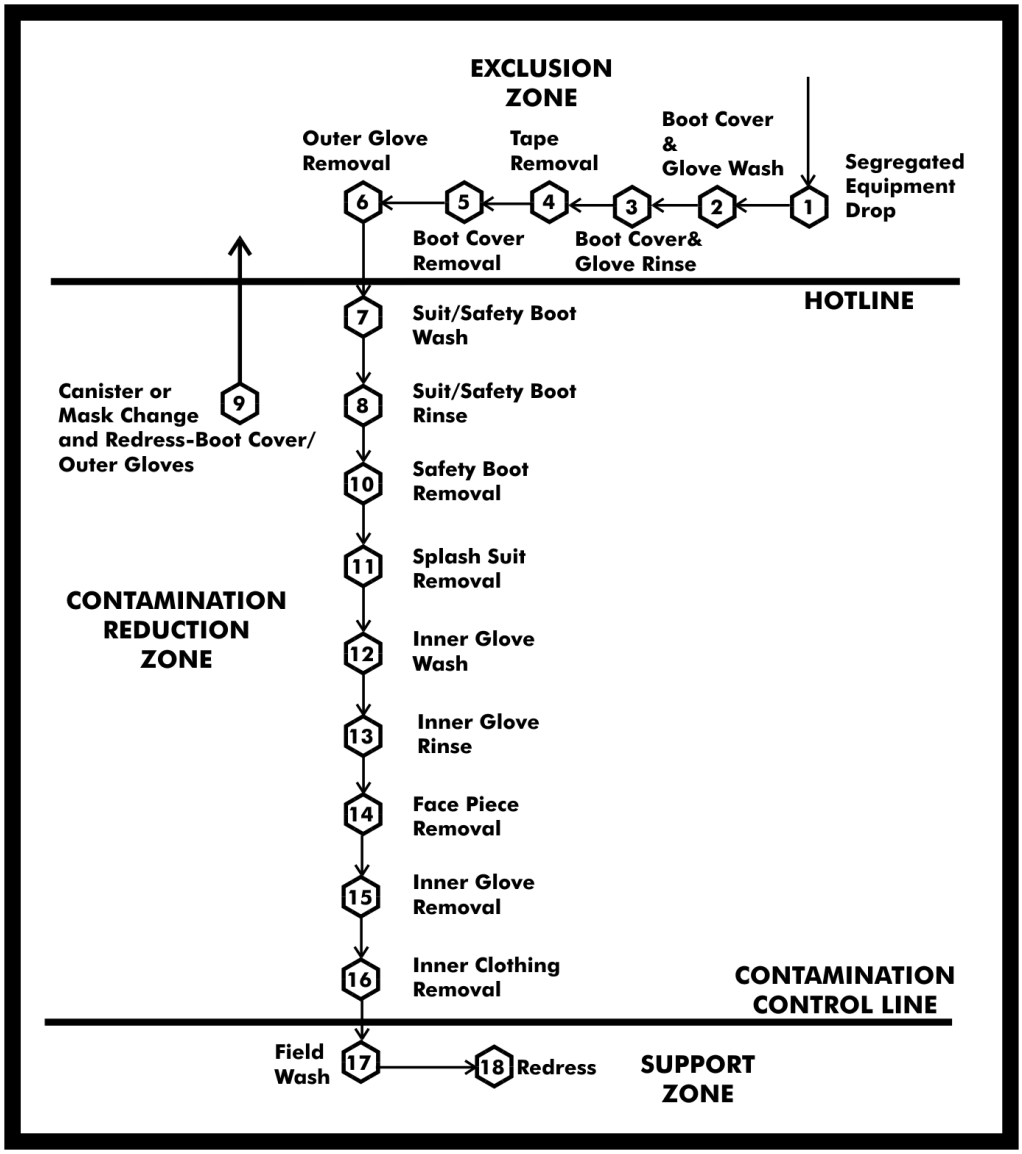
5.5 DECONTAMINATION PLAN, CONTINUED

Procedures for these stations are as follows:

MAXIMUM MEASURES FOR DECONTAMINATION, CONTINUED		
STATION 17	Field wash	Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available.
STATION 18	Re-dress	Put on clean clothes.

5.5 DECONTAMINATION PLAN, CONTINUED

DECONTAMINATION PROCEDURES, MAXIMUM DECONTAMINATION LAYOUT

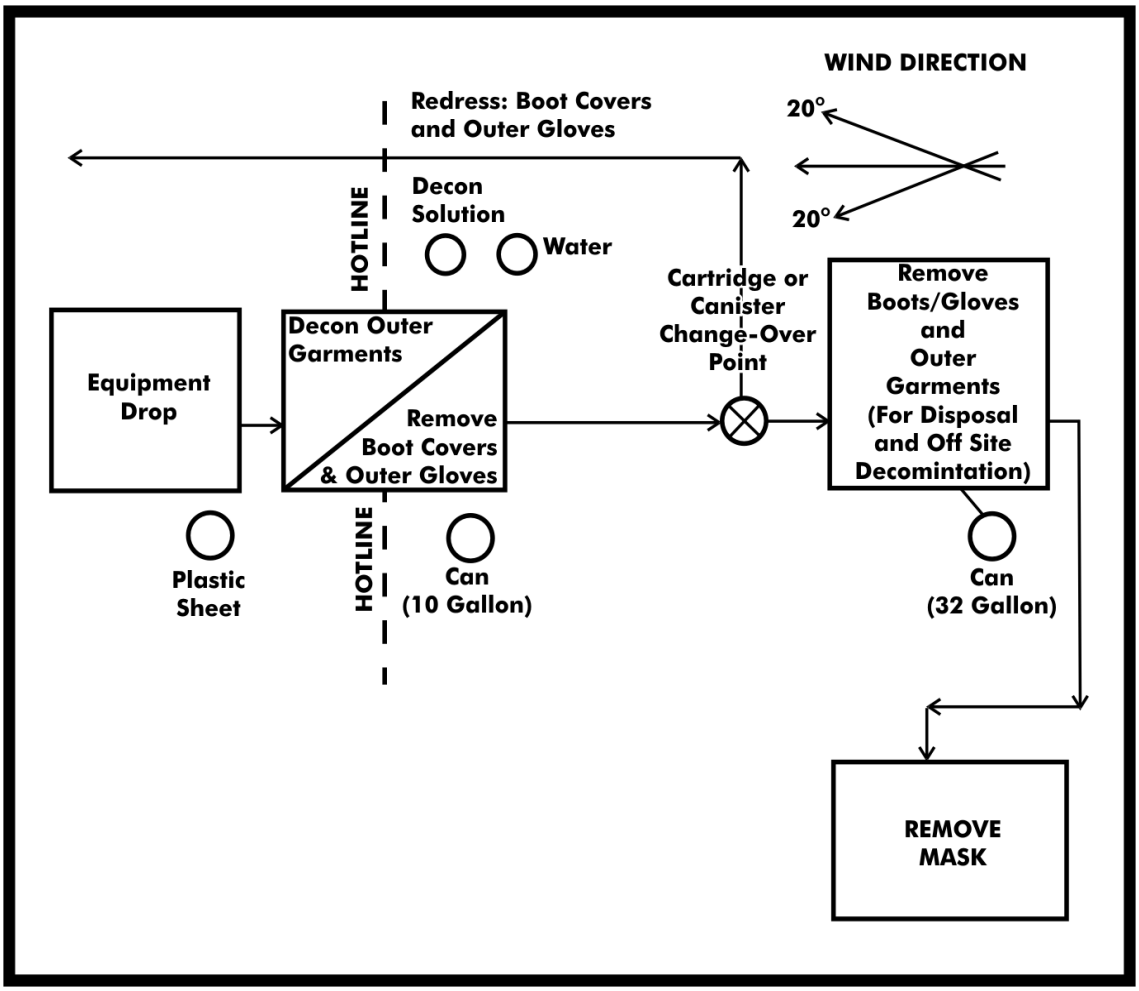


5.5 DECONTAMINATION PLAN, CONTINUED

MINIMUM MEASURES FOR DECONTAMINATION		
STATION 1	Equipment drop	Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
STATION 2	Outer garment, boots and gloves wash and rinse	Scrub outer boots, outer gloves, and splash suit with decontamination solution or detergent and water. Rinse off using copious amounts of water.
STATION 3	Outer boot and glove removal	Remove outer boots and gloves. Deposit in container with plastic liner.
STATION 4	Canister or mask change	If worker leaves exclusion zone to change canister (or mask) or this is the last step in the decontamination procedures; worker's canister is exchanged, new outer gloves and boot covers are donned, joints are taped, the worker returns to duty.
STATION 5	Boot, gloves, and outer garment removal	Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
STATION 6	Face piece removal	Face piece is removed. Avoid touching face with fingers. Face piece deposited on plastic sheet.
STATION 7	Field wash	Hands and face are thoroughly washed. Shower as soon as possible.

5.5 DECONTAMINATION PLAN, CONTINUED

DECONTAMINATION PROCEDURES, MINIMUM DECONTAMINATION LAYOUT



5.6 DISPOSAL PLAN

Date:	Location:
Source of release:	
Amount of release:	
Incident name:	
State On-Scene Coordinator:	
Federal On-Scene Coordinator:	
Time required for temporary storage:	
Proposed storage method:	

Disposal priorities:

Sample date:	Sample ID:
Analysis required (type):	
Laboratory performing analysis:	

Disposal options:

	Available	Likely	Possible	Unlikely

Landfill:				
In-situ/ bio-remediation:				
In-situ burn:				
Pit burning:				
Hydrocyclone:				
Off-site incineration:				
Reclaim:				
Recycle:				

Resources required for disposal options:

General information:

Generator name:	U.S. EPA ID#:
Waste properties:	Waste name:
U.S. EPA waste code:	State waste code:
EPA hazardous waste:	
Waste storage and transportation:	
Proposed storage method:	
Proposed transportation method:	

5.6 DISPOSAL PLAN, CONTINUED

Permits required for storage:
Permits required for transportation:
Estimated storage capacity:
Number and type of storage required:
Local storage available for temporary storage of recovered oil:

PPE required for waste handling:

Waste coordinator:	Date:

Resources required for disposal options:

Incident name:	
Sample number:	Date sent:
Source of sample:	
Date sample data received:	
Waste hazardous:	Non-hazardous:
Permits/variances requested:	
Approval received on waste profile:	
Date disposal can begin:	
Disposal facilities:	
Profile number:	
Storage contractors:	
Waste transporters:	
PPE designated and agrees with Site Safety and Health Plan:	

5.6 DISPOSAL PLAN, CONTINUED

Additional information:
Waste coordinator:

5.7 DISPERSANT PLAN AUTHORIZATION CHECKLIST

1.	**Dispersability:** Available technical information or experience suggests that the spilled product is dispersible and will still be dispersible in the time frame of anticipated application of dispersants.
2.	**National Contingency Plan (NCP) Listed Dispersant:** The dispersant to be used is listed on the current NCP Product Schedule and is considered appropriate for the oil type and conditions. www.epa.gov/oilspill/ncp
3.	**Inadequacy of other options:** Mechanical response equipment alone is not deemed adequate (due to the magnitude of the spill, availability, or timeliness) to protect potential resources at risk. Environmental trade-offs of dispersant use have been considered.
4a. 4b.	**Dispersant Availability and Timeliness:** Enough dispersant and application equipment has been confirmed to be available to: **a)** make an impact on the spilled product, and **b)** be deployable within the proposed time frame.
5.	**Weather Conditions:** Weather and sea conditions are conducive to dispersant application by the chosen system or platform. (Generally, for aerial application: wind £25 knots, visibility ³3 statute miles, and ceiling ³1000 feet. Generally for boat application**,** a sea state that will allow the vessel to be used to conduct an effective and safe spray operation.)
6.	**PPE:** Personal protective equipment for personnel on-site will conform to the appropriate dispersant's MSDS and safe industry practice.
7a.	**General Adequacy of Dispersant Spray System and Personnel Competency:** In addition to any other requirements of the Region X RRT and Northwest Area Committee, the general criteria for evaluating the suitability for use of any dispersant system should be the ability of the party or parties requesting approval to demonstrate to the satisfaction of the FOSC, the following: **a)** That the application system has been i. Specifically designed for its intended purpose, or ii. If not specifically designed for dispersant use, has been used previously and was deemed to be effective and appropriate, and will be used again in a similar manner, or iii. By some other specific means of documentation or experience reasonably deemed to be effective and appropriate under the circumstances.
7b.	**b)** That the design and operation of the application system can reasonably be expected to apply the chemical dispersant in a manner consistent with the dispersant manufacturer's recommendations, especially with regard to dosage rates, and concentrations.
7c.	**c)** That the operation will be supervised or coordinated by personnel who have experience, knowledge, specific training, and/or recognized competence with chemical dispersants and the type of system to be used.
8a.	**Aerial Application Operational and Technical Issues:** In the case of Aerial Application of dispersants: **a)** The FOSC must ensure that the Responsible Party's dispersant operation provides for a dispersant controller over the spray zone able to effectively direct the dispersant aircraft in carrying out the dispersant operation, including avoiding the spraying of birds and marine mammals that may be in the area.
8b.	**b)** Aircraft spray systems must be capable of producing dispersant droplet sizes that

	provide for optimal dispersant effectiveness as described in ASTM guidelines or as supported by peer-reviewed research.

5.7 DISPERSANT PLAN AUTHORIZATION CHECKLIST, CONTINUED

9.	**Boat Application Operational Technical Issues:** If the system involves spray arms or booms that extend out over the edge of a boat and have fan type nozzles that spray a fixed pattern of dispersant, the dispersant operator has confirmed that application will comply with the following ASTM standards as appropriate: a) ASTM F 1413-92 Standard Guide for Oil Spill Dispersant Application Equipment: Boom and Nozzle Systems b) ASTM F 1460-93 Standard Practice for Calibrating Oil Spill Dispersant Application Equipment Boom and Nozzle Systems c) ASTM F 1737-96 Standard Guide for Use of Oil Spill Dispersant Application Equipment during Spill Response: Boom and Nozzle Systems.
10.	**Fire Monitor Operational and Technical Issues:** If the system involves the use of a fire monitor and or fire nozzle to apply the dispersants from a boat, the dispersant operator has confirmed that application will comply with ASTM Standard F 2465-05 for fire monitors and has provided the information in paragraph 7 of the Standard titled "Information to be provided by the user" to ensure that the fire monitor meets the standard and is acceptable for use. The specific fire monitor system(s) intended for use must have been specifically designed for dispersant application and/or must have been specifically calibrated via field trial for dispersant use.
11.	**SMART Deployment:** The FOSC has activated Special Monitoring of Applied Response Technologies (SMART), including a SMART observer, at a minimum, to fly over the response zone to visually assess effectiveness of the dispersant applications (Tier I). See Section 4612 and 9670.
12.	**Wildlife Observation:** A specialist in aerial surveillance of wildlife or overflight observation should accompany the SMART observer in order to observe birds and marine mammals that should be avoided in the potential dispersant application area. Both U.S. Fish and Wildlife Service and NOAA have been given the opportunity to provide such specialists. The DOI and NOAA RRT representatives have been notified of the spill and are responsible for notifying and mobilizing their respective qualified wildlife observation specialists in time for the dispersant application. If specialists with U.S. Fish and Wildlife Service and NOAA are not available at the time of dispersant application, the FOSC has designated an aerial surveillance specialist, preferably from a Federal or State Trustee agency. For case-by-case approval zones, the state RRT representative with jurisdiction and/or tribe with off reservation treaty rights has been given the opportunity to provide a wildlife aerial surveillance observer. The state RRT representative with jurisdiction and/or the tribe(s) with off reservation treaty rights in the area threatened by the discharge have been notified and are responsible for mobilizing their respective qualified wildlife observation specialist in time for the dispersant application.
13.	**Endangered Species Act (ESA) and Essential Fish Habitat (EFH) Consultations:** RRT representatives of DOI and DOC have been notified and, if listed species and/or critical habitat are present in the area or could be present, emergency consultation has been initiated. FWS and NMFS representatives have provided recommendations to avoid and/or minimize impacts to listed species and/or critical habitat, advised the FOSC whether incidental take related to response actions is anticipated and, if so, advised the

	FOSC to document incidental take for use in formal consultation post-response. Both the FOSC and FWS/NMFS representatives will maintain records of oral and written communications. In case-by-case approval zones, the state RRT representative with jurisdiction and/or the tribe(s) with off reservation treaty rights in the area threatened by the discharge has been given the opportunity to provide input on listed species and/or critical habitat.

*** If the answer to any item on the checklist is "N," explanation and justification for authorization of dispersant use must be included in After-Action Report. (NACP 4611.2)**

5.8 BIOREMEDIATION

The use of bioremediation in open water is an unproven technology that currently shows little or no promise of removing significant quantities of oil from the surface of the water prior to shoreline impact or natural dispersion. Bioremediation by nutrient enhancement or seeding of biodegrading organisms is therefore not allowed on the surface of open water. This policy can be reviewed by the RRT if there is new and significant evidence that bioremediation can be a significant factor in oil removal on open water.

Bioremediation of Shorelines

Seeding of exotic organisms for pollution response is prohibited in Response Region Ten. This is due to unproven efficacy of such procedures and the unknown ecological effects resulting from the implementation of such.

Bioremediation is an effective technique for the encouragement of oil biodegradation on some contaminated shorelines. Nonetheless, this strategy is unlikely to lead to rapid decontamination of beaches. Consequently, bioremediation should be used as the primary treatment only when oil concentrations are low (less than 15 grams of oil for every kilogram of sediment) and conventional forms of cleanup (heavy equipment use or manual cleaning) are likely to do more damage than good. Bioremediation should be considered as a polishing technique after gross contamination is removed by conventional means.

The use of bioremediation for oil spill clean up will be allowed only on a case-by-case basis.

5.9 IN-SITU BURNING

The following checklist and worksheet are provided as a summary of important information to be considered by the Unified Command in reviewing any request to conduct in-situ burning in response to an oil spill in Washington, Oregon, and Idaho waters. The flowchart shown in **FIGURE 6.4-1** summarizes the process for making a burn decision. The decision to burn involves three basic factors. If the oil has ignited due to collision or another means, allowing continued burning may be unavoidable or beneficial. Second, the decision to burn must consider whether this tool will offer a greater level of efficiency in removing oil on water and/or reducing oil impacts to sensitive resources. Third, the decision must evaluate whether it is practical, feasible, and safe to burn given the spill and conditions involved.

The application process begins with a simple preliminary feasibility analysis. If that analysis concludes that in-situ burning may be feasible, the application checklist and window-of-opportunity worksheet should be completed. The checklist is divided into several sections of information about the spill, weather, proposed burning plan, and potential impacts. Most

checklist questions reference items on the worksheet. When completed, the checklist and worksheet will identify the window-of-opportunity when in-situ burning would be allowed based on environmental, public health, and operational constraints. Note that the checklist must be updated for each new burn scenario proposed. It is important to note that even if the checklist and worksheet fail to show that in-situ burning is appropriate at one point in time (i.e., a "NO" answer), changes in environmental or other factors may make in-situ burning a feasible option at a later time.

5.9 IN-SITU BURNING, CONTINUED

Preliminary Feasibility Analysis

1. Is the spilled oil already burning? Yes ___ No ___

Þ If yes, skip remaining questions and proceed with the rest of application.

2. Are prevailing and forecasted winds and atmospheric conditions likely to cause heavy smoke exposure to populated areas? Yes___ No ___

Þ If no, proceed with Question 3.

3. Do natural resource managers concur that in-situ burning will cause less overall harm to marine resources (e.g., heat, burn residue) than the harm to those resources anticipated if in-situ burning does not occur (e.g., oiling of shorelines, wildlife, kelp, etc)? Yes___ No ___

Þ If yes, proceed with Question 4.

4. Are equipment and trained personnel available to conduct in-situ burning operations? Yes___ No ___

Þ If yes, proceed with Question 5.

5. Is the oil concentration and type suitable for containment and burning? Yes___ No___

Þ If yes, proceed with rest of application.

If any answer to the above questions does not result in instructions to proceed with the application, approval of an in-situ burning application is very unlikely at this point of time until conditions change.

5.9 IN-SITU BURNING, CONTINUED

Application Checklist

Spill Data

Date of incident (month/date/year): _____ Time of incident: _____

Name of incident/responsible party :

Location of incident _____ Latitude: _____ N Longitude _____ W

Type(s) of oil spilled:

Estimated volume of oil spilled into water: _____

Estimated volume of oil at risk of spilling: _____

Release status: Stopped __ Intermittent __ Continuous __ Outflow Rate: _____

Forecasted surface area of spill at time of projected burn: _____

Continuous slick ___ Large patches ___ Ribbons/streamers ____

Will oil concentration be sufficient to burn? Yes ___ No ___

Þ **See #1 on worksheet**

Anticipated oil trajectory (attach NOAA forecasts if available):

Forecasted oil distance/direction to nearest land at time of projected burn:

Expected areas and times of shoreline oil impact:

Þ **See #2 on worksheet**

Estimated percentage of natural dispersion and evaporation during:

first 24 hours _____ second 24 hours _____

Oil emulsification at this time: Unknown ___ None ___ Light (*0-20%)* ___

Moderate (*21-50%)*__ Heavy (*over 50%)* ___

Will emulsification likely be less than 50% at projected time of burn?

Yes __ No __ Unknown __ Þ **See #3 on worksheet**

Distance (*in miles*) and direction to nearest population center

(> 100 people per sq. mile):

Name of nearest population center:

Weather/Environmental Conditions <u>at time of projected burn</u>

Temperature: Air = _____ °F Water = _____ °F

Weather: Clear __ Partly cloudy __ Overcast __ Rain __ Fog __

Snow __ Freezing __

5.9 IN-SITU BURNING, CONTINUED

Surface visibility _____ Ceiling level _____

Is prevailing and forecasted visibility more than 500 ft. vertically and 0.5 mile horizontally? Yes ___ No ___ Þ **See #4 on worksheet**

Surface current: Speed _____ Direction _____

Wind conditions: Speed _____ Direction (from) _____

Are prevailing and forecasted winds less than 25 knots? Yes ___ No ___

Þ **See #5 on worksheet**

Tide state: Flood ____ Ebb ____ Slack Water ____

Sea State: Calm ___ Choppy ____ Swell (in feet) ____

Waves: Less than 1 ft __ 1-3 ft __ More than 3 ft __

Direction (from) ____ Þ **See #6 on worksheet**

Other weather/sea condition information:

Proposed Burning Plan

Location of the proposed burn relative to the spill site:

Location of the proposed burn relative to nearest ignitable slick(s):

Location and direction of the proposed burn relative to nearest land:

Can accidental fires be avoided? Yes ___ No ____ If yes, what actions are planned:

Can ignition/burn occur at a safe distance from other response operations and public, recreational, and commercial activities? Yes ___ No ___

Þ See #7 on worksheet

Method(s) used to notify residents living within the potential smoke plume trajectory:

Þ See #8 on worksheet

Method(s) used to notify mariners and aircraft pilots:

Method(s) used to avoid impacts to marine life in vicinity of burn:

Type of ignition system proposed for use:

When will ignition system, fire-resistant boom, and deployment equipment/vessels be on-scene and available for use?

Þ See #9 on worksheet

5.9 IN-SITU BURNING, CONTINUED

How will ignition be carried out:

If a heli-torch ignition system is to be used, is the helicopter qualified for offshore flight and does it meet FAA certification requirements?
Yes ___ No ____

Method used to collect/concentrate oil, if any:

Amount of fire boom available for use at time of projected burn:
_____ feet **Þ See #9 on worksheet**

Number of boom-towing vessels and support vessels available:

Proposed location of oil containment relative to spill source:

Proposed burning strategy:

___ Immediate ignition at or near source

___ Ignition away from source after containment and movement to safe location

___ Controlled burning in boom or natural collection site at or near shore

___ Possible need for multiple ignition attempts.

Are floating debris and other safety hazards acceptable? Yes ___ No ___

Are sufficient numbers of trained personnel available on-scene to conduct safe and effective burn? Yes ___ No ___ **Þ See #10 on worksheet**

Estimated amount of oil to be burned:

Estimated duration of burn:

Method of collecting burned oil residue:

Estimated amount of burned oil residue to be collected:

Proposed interim storage and disposal of burned oil residue:

Back-up plan for collecting contained oil if burn fails:

Burn Impacts

Is adequate air modeling support available? Yes ___ No ___

Do prevailing conditions and air modeling results indicate that PM-10 standards can be met? Yes ___ No ___ Þ **See #11 on worksheet**

c. Will visibility remain safe at sensitive locations (e.g., airports, freeways)?

Yes __ No __

d. Are adequate air support and burn monitoring equipment on-scene and available?

Yes ___ No ___ Þ **See #12 on worksheet**

e. How will operational impacts to wildlife in vicinity be monitored?

5.9 IN-SITU BURNING, CONTINUED

Name of Application Preparer: _____

Date/Time Submitted to Planning Section Chief: _____

Approval by Planning Chief: _____

Unified Command Decision:

____ Approval to implement burn plan

____ Approval to conduct small pilot burn

____ Burn plan disapproved at this time

5.9 IN-SITU BURNING, CONTINUED

Window of Opportunity Worksheet

Spill Time and Date:

Spill Name:

This worksheet should be filled out in conjunction with the In-Situ Burning Application Checklist. Fill in top row based on time of incident (e.g., if incident is at 0300, fill that in for hour 1; 0400 for hour 2, etc.). For each worksheet item, mark in each time segment where the item applies. The likely window-of-opportunity equates to those time segments where all items are marked.

Windown of Opportunity Feasibility Factors	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time	Hr. __ Time
Spill Data/Environmental Conditions												
1. Oil concentration is suitable for containment & burning												
2. Burning can still reduce significant shoreline impacts												
3. Oil emulsification is less than 50%												
4. Visibility > 500 ft. vertically & > 0.5 mile horizontally												
5. Wind speed is less than 25 knots												
6. Wave height less than 3 feet												
Proposed Burning Plan												
7. Burn can occur at safe distance from public & activities												
8. Public notification needs have been addressed												
9. All burn equipment on-scene and ready												
10. Trained personnel on-scene & ready												
Burn Impacts												
11. PM-10												

standards can be met												
12. Air monitoring equipment & support are set up & ready												

5.10 DECANTING

OIL SPILL DECANTING AUTHORIZATION FORM
The federal and state OSCs, under authority of RCW 90.56.320(1) and WAC 173-201A-110 (in Washington), or ORS/OAR _____ (in Oregon), hereby approve the use of decanting as a means of expediting the recovery of oil during the following spill cleanup operation:
Date(s) Approval Effective:
Name of Spill Incident:
Federally Defined Response Area:
Name of Requester:
Location and Description of Proposed Decanting Operation: (continue on reverse, if necessary)
<u>The decanting operation must meet the following conditions:</u> 1. All decanting should be done in a designated "Response Area" within a collection area, vessel collection well, recovery belt, weir area, or directly in front of a recovery system. 2. Vessels employing sweep booms with recovery pumps in the apex of the boom shall decant forward of the recovery pumps. 3. Vessels not equipped with an oil/water separator should allow retention time for oil held in internal or portable tanks before decanting commences. 4. Containment boom must / need not (circle one) be deployed around the collection area to prevent loss of decanted oil or entrainment.

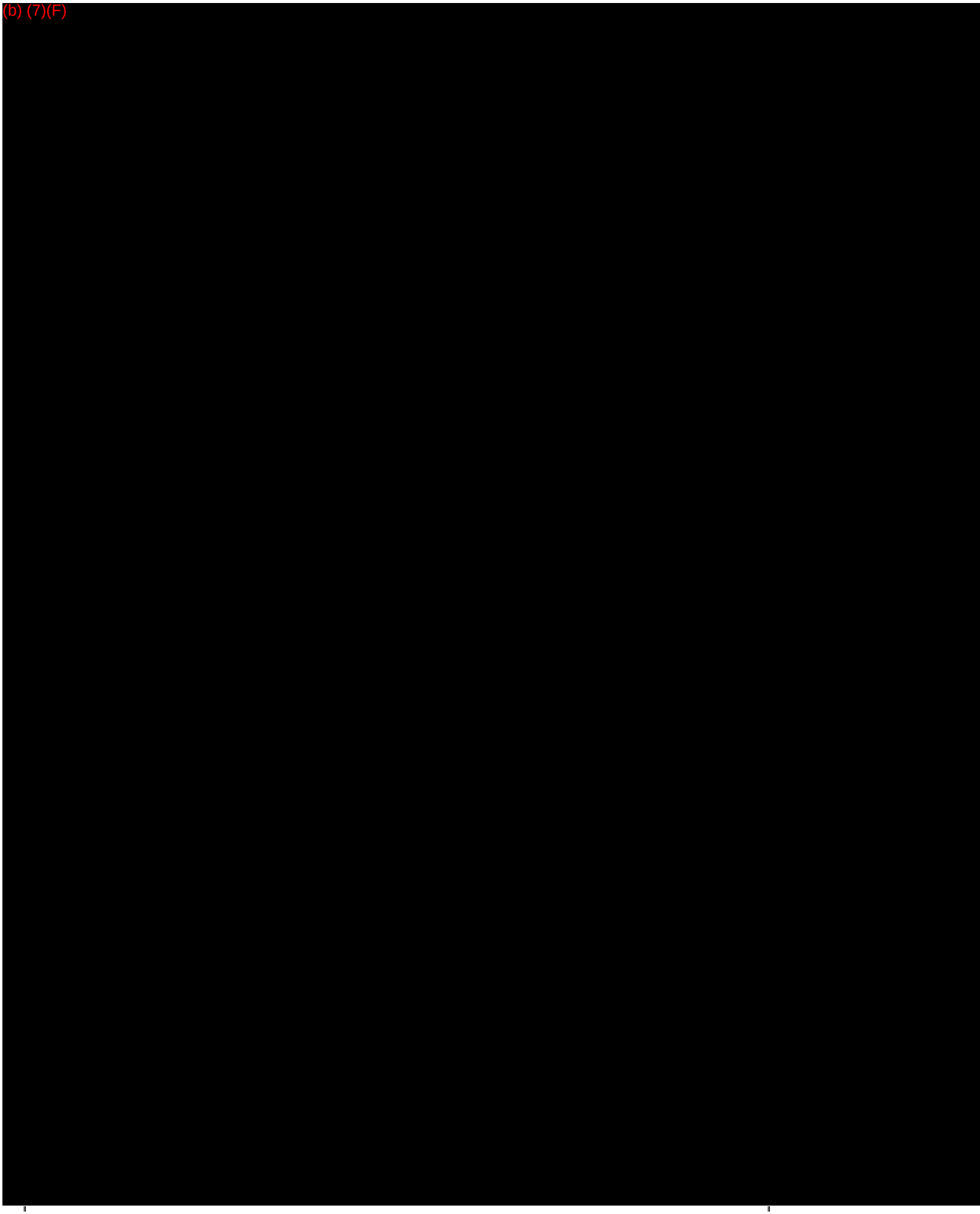
5.	Visual monitoring of the decanting shall be maintained at all times so that discharge of oil in the decanted water is detected promptly.
6.	Decanting in areas where vacuum trucks, portable tanks, or other collection systems are used for shore cleanup will be subject to the same rules as vessels.
7.	Additional conditions: (continue on reverse if necessary)

SIGNATURE: Federal OSC	Date:
SIGNATURE: State OSC	Date:

NOTE: When verbal authorization is given, a copy of this form must be immediately expedited to the requester (must be a person of authority in the cleanup organization) to ensure that the conditions and limitations are clearly understood by all parties.

(b) (7)(F)




(b) (7)(F)

(b) (7)(F)

5.12 DEMOBILIZATION PLAN

Incident name:	**Location:**
Effective date of plan:	**Effective time period of plan:**
Spill location:	**Plan prepared by:**

Demobilization procedures:

- Operations Section will determine which resources are ready for release from a specific collection site.
- The Planning Section will provide guidance on release priorities and demobilization recommendations.
- Information maintained by the Planning Section will be utilized to assist in the prioritization.
- Each incident will require a Decontamination Area.
- Decontaminated equipment will be returned to appropriate staging area for release or re-deployment.
- Transports for equipment will be required if remote from staging area.
- The Planning Section will document all demobilization and decontamination activities.
- Equipment designated for re-assignment will be mobilized to the appropriate staging area.
- The Supervisor will ensure a log is maintained documenting that proper decontamination procedures are performed for each piece of equipment.
- The Operations Section will ensure that redeployed personnel receive proper rest prior to returning to duty.
- The Planning Section Chief will monitor personnel redeployment activities to ensure number of hours worked is within acceptable guidelines.

- The Operations Section Chief must approve the Demobilization Plan before decontamination, release, or redeployment of any resources.

SECTION 6 Last Revised: May 2008

SENSITIVE AREAS / RESPONSE TACTICS

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6.1 Area Description

6.1.1 Hydrographic and Climatic Conditions

6.1.2 Physical Geographic Features / Navigational Hazards

6.2 Spill Containment / Recovery

Figure 6.2-1 - Response Tactics for Various Shorelines

6.3 Sensitive Area Protection

Figure 6.3-1 - Sensitive Area Protection Implementation Sequence

Figure 6.3-2 - Summary of Shoreline and Terrestrial Cleanup Techniques

6.4 Alternative Response Strategies

6.4.1 Dispersants

6.4.2 Bioremediation

6.4.3 In-Situ Burn

Figure 6.4-1 - In-Situ Burn Decision Process

6.4.4 Decanting

6.5 Wildlife Protection and Rehabilitation

6.6 Endangered and Threatened Species By State

6.7 Vulnerability Analysis (Detailed)

6.8 Tactical Overview Map

6.9 Tactical Plan Index

6.10 Tactical Plans

6.11 Sensitivity Maps

6.1 AREA DESCRIPTION

Site specific maps and response tactics are included in **SECTION 6.7** and **SECTION 6.9**. Description of shoreline types and specific shoreline protection and cleanup techniques are presented in **FIGURE 6.2-1 and FIGURE 6.3-2.** The strategies and response examples are guidelines and must be evaluated during the response to ensure that the selected response methods are appropriate for the situation.

6.1.1 Hydrographic and Climatic Conditions

HYDROGRAPHIC AND CLIMATIC CONDITIONS	
Wind:	West to East 5 mph
Temperature:	Normal Daily Maximum Temperature: 62.1Â°F, Normal Daily Minimum Temperature: 44.8Â°F
Tides and Currents:	Water current: 1 knot, Tides: 1.5 ft. tide
Local Visibility Problems:	None known

6.1.2 Physical Geographic Features

PHYSICAL GEOGRAPHIC FEATURES / NAVIGATION HAZARDS	
Bathymetry:	26 to 77 feet
Beach Types:	Gravel Beaches, Mixed Sand and Gravel Beaches
Type of Soil and Terrain:	Exposed Rocky Shores, Exposed Solid Man-Made Structures, Riprap, Sheltered Solid Man-Made Structures, Sheltered Tidal Flats, Sheltered Vegetated Low Banks
Buoys, Moorings or other Underwater Structures:	None known. However Dock is 29 feet low mean water level.
Navigational Hazards:	Traffic follows River navigational policies.
Traffic Patterns:	No anchoring but twoâ€“way traffic up/down stream.

6.2 SPILL CONTAINMENT / RECOVERY

Containment and recovery refer to techniques that can be employed to contain and recover terrestrial and aquatic petroleum spills.

Terrestrial spills typically result from pipeline or tank leaks. The Company is equipped with secondary containment systems for areas with non-pressurized storage tanks. Spills occurring within the secondary containment area or along pipeline and piping areas should be contained at or near their source to minimize the size of the cleanup area and quantity of soil affected.

Containment is most effective when conducted near the source of the spill, where the oil has not spread over a large area and the contained oil is of sufficient thickness to allow effective recovery and/or cleanup. The feasibility of effectively implementing containment and recovery techniques is generally dependent upon the size of the spill, available logistical resources, implementation time, and environmental conditions or nature of the terrain in the spill area.

For terrestrial spills, trenches and earthen berms or other dams are most often used to contain oil migration on the ground surface. Recovery of free oil is best achieved by using pumps, vacuum sources, and/or sorbents.

Spills that reach water spread faster than those on land. They also have greater potential to contaminate water supplies, to affect wildlife and populated areas, and to impact manmade structures and human activities. Responses on water should therefore emphasize stopping the spill, containing the oil near its source, and protecting sensitive areas before they are impacted.

Sorbents are used to remove minor on-water spills. For larger spills, booming is used to protect sensitive areas and to position oil so it can be removed with skimmers or vacuum trucks.

Due to entrainment, booming is not effective when the water moves faster than one knot or waves exceed 1.5 feet in height. Angling a boom will minimize entrainment. Using multiple, parallel booms will also improve recovery in adverse conditions. A summary of booming techniques is provided on the following page.

Containment/Diversion Berming	• Berms are constructed ahead of advancing surface spills to contain spill or divert spill to a containment area. • May cause disturbance of soils and some increased soil penetration.
Blocking/Flow-Through Dams	• Construct dam in drainage course/stream bed to block and contain flow of spill. Cover with plastic sheeting. If water is flowing, install inclined pipes during dam construction to pass water underneath dam. • May increase soil penetration.
Culvert Blocking	• Block culvert with plywood, sandbags, sediments, etc., to prevent oil from entering culvert.
Interception Trench	• Excavate ahead of advancing surface spill to contain spill and prevent further advancement; cover bottom and gradients with plastic. • May cause disturbance of soils and increased soil penetration.

Containment Booming	• Boom is deployed around free oil. • Boom may be anchored or left to move with the oil.
Diversion Booming	• Boom is deployed at an angle to the approaching oil. • Oil is diverted to a less sensitive area. • Diverted oil may cause heavy oil contamination to the shoreline downwind and down current. • Anchor points may cause minor disturbance to the environment.
Exclusion Booming	• Boom is placed around a sensitive area or across an inlet, a river mouth, a creek mouth, or a small bay. • Approaching oil is contained or deflected (diverted) by the boom. • Anchor points may cause minor disturbance to the environment.

Sorbent Booming	• Used only on quiet water with minor oil contamination. • Boom is anchored along a shoreline or used in a manner described above. • May use boom made of sorbent material or may pack sorbent material between multiple booms placed parallel to each other.

Other cleanup methods include natural recovery, manual removal/scraping, low-pressure flushing, warm water washing, and burning. Berms and dams are also used in shallow waterways to protect areas.

Cleanup methods are provided in the appropriate Area Contingency Plan (ACP), NOAA's "Shoreline Assessment Manual," and NOAA's "Options for Minimizing Environmental Impacts of Freshwater Spill Response." (See http://www.response.restoration.noaa.gov for the latter two.)

FIGURE 6.2-1 - RESPONSE TACTICS FOR VARIOUS SHORELINES

TYPES	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY

Developed/ Unforested land	• This class includes towns, cities, farms, pastures, fields, reclaimed wetlands, and other altered areas
	• Organisms and algae may be common in riprap structures and on pilings
		• Oil would percolate easily between the gravel and boulders of riprap structures
		• Oil would coat the intertidal areas of solid structures
		• Biota would be damaged or killed under heavy accumulations
			• May require high pressure spraying:
			  • To remove oil
			  • To prepare substrate for recolonization of barnacle and oyster communities
			  • For aesthetic reasons

Freshwater Flat	• Mud or organic deposits located along the shore or in shallow portions of nontidal freshwater lakes and ponds • They are exposed to low wave and current energy • They are often areas of heavy bird use	• Oil is expected to be deposited along the shoreline • Penetration of spilled oil into the water-saturated sediments of the flat will not occur • When sediments are contaminated, oil may persist for years	• These areas require high priority for protection against oil contamination • Cleanup of freshwater flats is nearly impossible because of soft substrate • Cleanup is usually not even considered because of the likelihood of mixing oil deeper into the sediments during the cleanup effort • Passive efforts, such as sorbent boom can be used to retain oil as it is naturally removed

Fresh Marsh	• Found along freshwater ponds and lakes
	• These marshes have various types of vegetative cover, including floating aquatic mats, vascular submerged vegetation, needle and broad-leaved deciduous scrubs and shrubs, and broad-leaved
		• Small amounts of oil will contaminate the outer marsh fringe only; natural removal by wave action can occur within months
		• Large spills will cover more area and may persist for decades
		• Oil, particularly the heavy fuel oils, tends to adhere readily to marsh grasses
			• Marshes require the highest priority for shoreline protection
			• Natural recovery is recommended when:
			  • A small extent of marsh is affected
			  • A small amount of oil impacts the marsh fringe
			• The preferred cleanup method is a combination of low-pressure flushing,

	evergreen scrubs and shrubs • Birds and mammals extensively use fresh marshes for feeding and breeding purposes		sorption, and vacuum pumping performed from boats • Any cleanup activities should be supervised closely to avoid excessive disturbances of the marsh surface or roots • Oil wrack and other debris may be removed by hand
Swamp	• Swamps are freshwater wetlands having varying water depths with vegetation types ranging from shrubs and scrubs to poorly drained forested wetlands. Major vegetative types include: scrubs, shrubs, evergreen trees, and hardwood forested woodlands • Birds and mammals use swamps during feeding and breeding activities	• Even small amounts of spilled oil can spread through the swamp • Large spills will cover more area and may persist for decades since water-flushing rates are low • Oil, particularly the heavy fuel oils, will adhere to swamp vegetation • Unlike mangroves, the roots of swamp forest trees are not exposed; thus, little damage to trees is expected. Any underbrush vegetation, however, would be severely impacted	• No cleanup recommended under light conditions • Under moderate to heavy accumulations, to prevent chronic oil pollution of surrounding areas placement of sorbent along fringe swamp forest (to absorb oil as it is slowly released) may be effective under close scientific supervision • Proper strategic boom placement may be highly effective in trapping large quantities of oil, thus reducing oil impact to interior swamp forests • Oil trapped by boom can be reclaimed through the use of skimmers and vacuums

FIGURE 6.2-1 - RESPONSE TACTICS FOR VARIOUS SHORELINES, CONTINUED

TYPES	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Open water	• Have ocean like waves and currents	• Most organisms are mobile enough to	• Booming, skimming, vacuuming, and

	• Weather changes effect on-water conditions • River mouths present problems • Thermal stratification occurs	move out of the spill area • Aquatic birds are vulnerable to oiling • Human usage (such as transportation, water intakes, and recreational activities) may be restricted	natural recovery are the preferred cleanup methods • Should not use sorbents, containment booming, skimming, and vacuuming on gasoline spills • Cleanup options include physical herding, sorbents, and debris/vegetation removal
Large rivers	• May have varying salinities, meandering channels, and high flow rates • May include manmade structures (such as dams and locks) • Water levels vary seasonally • Floods generate high suspended sediment and debris loads	• Fish and migratory birds are of great concern • Under flood conditions, may impact highly sensitive areas in floodplains • Human usage may be high • When sediments are contaminated, oil may persist for years	• Booming, skimming, and vacuuming are the preferred cleanup methods • Should not use sorbents, containment booming, skimming, and vacuuming on gasoline spills • Cleanup options include natural recovery, physical herding, sorbents, and debris/vegetation removal
Small lakes and ponds	• Water surface can be choppy • Water levels can fluctuate widely • May completely freeze in winter • Bottom sediments near the shore can be soft and muddy • Surrounding area may include wet meadows and marshes	• Wildlife and socioeconomic areas likely to be impacted • Wind will control the oil's distribution	• Booming, skimming, vacuuming, and sorbents are the preferred cleanup methods • Should not use containment booming, vacuuming, sorbents, and skimming on gasoline spills • Cleanup options include physical herding, sorbents, and debris/vegetation removal
Small rivers and streams	• Wide range of water bodies - fast flowing streams to slow moving bayous with low muddy banks and	• Usually contaminate both banks and the water column, exposing a large number of biota to being oiled	• Booming, skimming, vacuuming, sorbents, barriers, and berms are the preferred cleanup methods • Should not use

	fringed with vegetation • May include waterfalls, rapids, log jams, mid-channel bars, and islands • Weathering rates may be slower because spreading and evaporation are restricted	• Water intakes for drinking water, irrigation, and industrial use likely to be impacted	containment booming, sorbents, vacuuming, and skimming on gasoline spills • Cleanup options include physical herding, natural recovery, debris removal, vegetation removal, and in-situ burn

6.3 SENSITIVE AREA PROTECTION

Protection refers to the implementation of techniques or methods to prevent oil from making contact with a shoreline or aquatic area that is determined to be sensitive for environmental, economic, cultural, or human use reasons. Implementation of sensitive area protection techniques must consider a number of factors such as sensitive features, priorities for areas to be protected, and potential degree of impact. In the event a product spill reaches a major area waterway, it may be necessary to protect downstream sensitive areas if it appears that local containment and recovery efforts will not be sufficient to control the entire spill. Major waterways and specific sensitive areas located downstream of the Facility are provided in SECTION 6.7.

FIGURE 6.3-1 - SENSITIVE AREA PROTECTION IMPLEMENTATION SEQUENCE

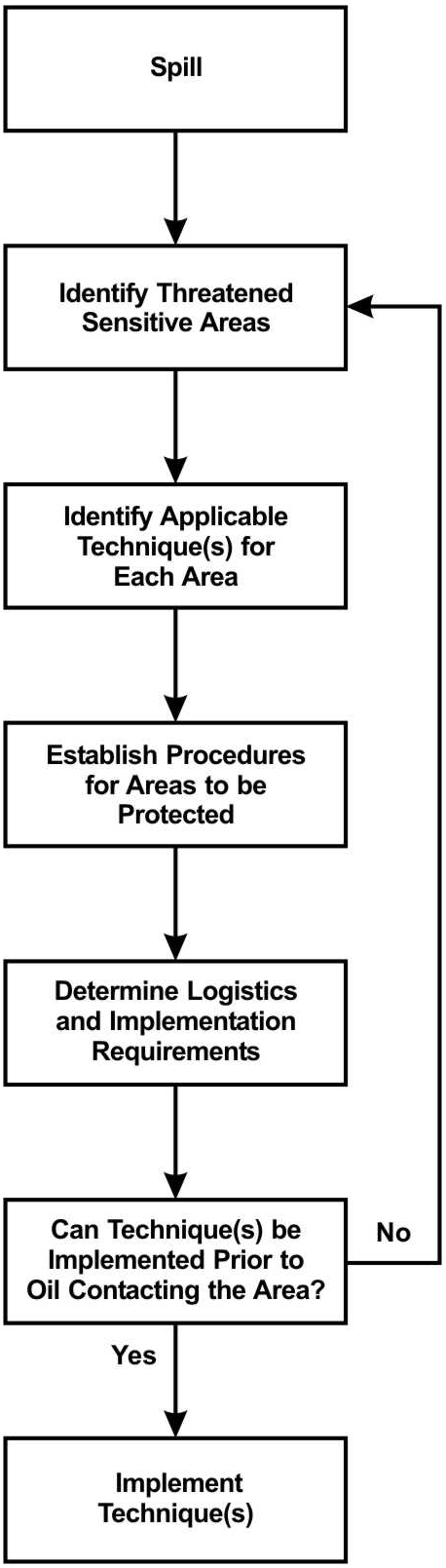


FIGURE 6.3-2 - SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL

				EFFECTS
Removal				
1. Manual Removal	Hand tool (scrapers, wire brushes, shovels, cutting tools, wheel barrows, etc.) are used to scrape oil off surfaces or recover oiled sediments, vegetation, or debris where oil conditions are light or sporadic and/or access is limited.	Equipment misc. hand tools Personnel 10-20 workers	• Can be used on all habitat types • Light to moderate oiling conditions for stranded oil or heavy oils that have formed semi-solid to solid masses • In areas where roosting or birthing animals cannot or should not be disturbed	• Sediment disturbance and erosion potential
2. Mechanical Removal	Mechanical earthmoving equipment is used to remove oiled sediments and debris from heavily impacted areas with suitable access.	Equipment motor grader, backhoe, dump truck elevating scrapers Personnel 2-4 workers plus equipment operators	• On land, wherever surface sediments are accessible to heavy equipment • Large amounts of oiled materials	• Removes upper 2 to 12 inches of sediments
3. Sorbent Use	Sorbents are applied manually to oil accumulations, coatings, sheens, etc. to remove and recover the oil.	Equipment misc. hand tools misc. sorbents Personnel 2-10 workers	• Can be used on all habitat types • Free-floating oil close to shore or stranded on shore, secondary treatment method after gross oil removal • Sensitive areas where access is	• Sediment disturbance and erosion potential • Trampling of vegetation and organisms • Foot traffic can work oil deeper into soft sediments

			restricted	
4. Vacuum / Pumps / Skimmers	Pumps, vacuum trucks, skimmers are used to remove oil accumulations from land or relatively thick floating layers from the water.	Equipment 1-2 50- to 100-bbl vacuum trucks w/ hoses 1-2 nozzle screens or skimmer heads Personnel 2-6 workers plus truck operators	• Can be used on all habitat types • Stranded oil on the substrate • Shoreline access points	• Typically does not remove all oil • Can remove some surface organisms, sediments, and vegetation
Washing				
5. Flooding	High volumes of water at low pressure are used to flood the oiled area to float oil off and out of sediments and back into the water or to a containment area where it can be recovered.Â Frequently used with flushing.	Equipment 1-5 100- to 200-gpm pumping systems 1 100-ft perforated header hose per system 1-2 200-ft containment booms per system 1 oil recovery device per system Personnel 6-8 workers per system	• All shoreline types except steep intertidal areas • Heavily oiled areas where the oil is still fluid and adheres loosely to the substrate • Where oil has penetrated into gravel sediments • Used with other washing techniques	• Can impact clean downgradient areas • Can displace some surface organisms if present • Sediments transported into water can affect water quality

FIGURE 6.3-2 - SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES, CONTINUED

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
Washing, Continued				
6. Flushing	Water streams at low to moderate pressure, and possibly elevated temperatures, are used to remove	Equipment 1-5 50- to 100-gpm/ 100-psi pumping systems with manifold 1-4 100-ft hoses	• Substrates, riprap, and solid man-made structures • Oil stranded	• Can impact clean downgradient areas • Will displace many surface

	oil from surface or near-surface sediments through agitation and direct contact.Â Oil is flushed back into the water or a collection point for subsequent recovery.Â May also be used to flush out oil trapped by shoreline or aquatic vegetation.	and nozzles per system 1-2 200-ft containment booms per system 1 oil recovery device per system Personnel 8-10 workers per system	onshore • Floating oil on shallow intertidal areas	organisms if present • Sediments transported into water can affect water quality • Hot water can be lethal to many organisms • Can increase oil penetration depth
7. Spot (High Pressure Washing)	High pressure water streams are used to remove oil coatings from hard surfaces in small areas where flushing is ineffective.Â Oil is directed back into water or collection point for subsequent recovery.	Equipment 1-5 1,200- to 4,000-psi units with hose and spray wand 1-2 100-ft containment booms per unit 1 oil recovery device per unit Personnel 2-4 workers per unit	• Bedrock, man-made structures, and gravel substrates • When low-pressure flushing is not effective • Directed water jet can remove oil from hard to reach sites	• Will remove most organisms if present • Can damage surface being cleaned • Can affect clean downgradient or nearby areas
In Situ				
8. Passive Collection	Sorbent/snare booms or other sorbent materials are anchored at the waterline adjacent to heavily oiled areas to contain and recover oil as it leaches from the sediments.	Equipment 1,000-2,000 ft sorbent/snare boom 200-400 stakes or anchor systems Personnel 4-10 workers	• All shoreline types • Calm wave action • Slow removal process	• Significant amounts of oil can remain on the shoreline for extended periods of time
9. Sediment Tilling	Mechanical equipment or hand tools are used to till lightly to moderately oiled surface	Equipment 1 tractor fitted with tines, dicer, ripper blades, etc. or 1-4 rototillers or 1 set of hand tools Personnel	• Any sedimentary substrate that can support heavy equipment • Sand and	• Significant amounts of oil can remain on the shoreline for extended periods of time • Disturbs surface

	sediments to maximize natural degradation processes.	2-10 workers	gravel beaches with subsurface oil • Where sediment is stained or lightly oiled • Were oil is stranded above normal high waterline	sediments and organisms

FIGURE 6.3-2 - SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES, CONTINUED

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
In Situ, Continued				
10. In Situ Bioremediation	Fertilizer is applied to lightly to moderately oiled areas to enhance microbial growth and subsequent biodegradation of oil.	Equipment 1-2 fertilizer applicators 1 tilling device if required Personnel 2-4 workers	• Any shoreline habitat type where nutrients are deficient • Moderate to heavily oiled substrates • After other techniques have been used to remove free product on lightly oiled shorelines • Where other techniques are destructive or ineffective	• Significant amounts of oil can remain on the shoreline for extended periods of time • Can disturb surface sediments and organisms
11. Log/DebrisÂ Â Burning	Oiled logs, driftwood, vegetation, and debris are	Equipment 1 set of fire control equipment 2-4 fans	• On most habitats except dry muddy	• Heat may impact local near-surface organisms

	burned to minimize material handling and disposal requirements.Â Material should be stacked in tall piles and fans used to ensure a hot, clean burn.	1 supply of combustion promoter Personnel 2-4 workers	substrates where heat may impact the biological productivity of the habitat • Where heavily oiled items are difficult or impossible to move • Many potential applications on ice	• Substantial smoke may be generated • Heat may impact adjacent vegetation
12. Natural Recovery	No action is taken and oil is allowed to degrade naturally.	None required	• All habitat types • When natural removal rates are fast • Degree of oiling is light • Access is severely restricted or dangerous to cleanup crews • When cleanup actions will do more harm than natural removal	• Oil may persist for significant periods of time • Remobilized oil or sheens may impact other areas • Higher probability of impacting wildlife

FIGURE 6.3-2 - SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES, CONTINUED

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
In Situ, Continued				
13. Dispersants	Dispersants are used to reduce	Dispersants Boat or aircraft	• Water bodies with	• Use in shallow water could

(All facility personnel who might be involved in an oil spill response have been informed that detergents or other surfactants are prohibited from being used on an oil spill in the water, and that dispersants can only be used with the approval of the Regional Response Team, the interagency group composed of federal and state agency representatives that coordinates oil spill responses; and Dispersants are not authorized for use in EPA Region V)	the oil/water interfacial tension thereby decreasing the energy needed for the slick to break into small particles and mix into the water column. Specially formulated products containing surface-active agents are sprayed from aircraft or boats onto the slick.		sufficient depth and volume for mixing and dilution • When the impact of the floating oil has been determined to be greater than the impact of dispersed oil on the water-column community	affect benthic resources • May adversely impact organisms in the upper 30 feet of the water column • Some water-surface and shoreline impacts could occur
1 - Per 1000 feet of shoreline or oiled area				

Cleanup methods are provided in the appropriate Area Contingency Plan (ACP), NOAA's "Shoreline Assessment Manual," and NOAA's "Options for Minimizing Environmental Impacts of Freshwater Spill Response." (See http://response.restoration.noaa.gov for the latter two.)

6.4 ALTERNATIVE RESPONSE STRATEGIES

While mechanical cleanup and recovery is always the initial and primary response tool, other response technologies are considered by the Region X RRT and Northwest Area Committee to be integral components of effective spill response that should to be available for use, as appropriate, in a timely and efficient manner. The use of response technologies such as in-situ burning, dispersants, and other oil spill cleanup agents should be considered when the environmental benefit of their use is expected to outweigh adverse effects.

As required by Section 300.905 of the NCP, in order for a FOSC to authorize the use of a dispersing, surface washing, surface collecting or bioremediation agent, it must be listed on the NCP Product Schedule. Burning agents are not listed on the NCP Product Schedule. The U.S. EPA maintains the NCP Product Schedule and it can be found at http://www.epa.gov/oilspill/ncp.

6.4.1 Dispersants

Dispersants - Applying chemical agents, usually by aircraft, to aid in breaking up surface slicks and dispursing oil within the water column. (See Section 4610 of the NWAC for more policy on dispersant use)

Areas within the Region X RRT and Northwest Area Committee area of responsibility fall into three different zones with respect to dispersant use: a pre-approval zone, case-by-case approval zones, or no dispersant use zones (See NWAC Section 4610 “Region X RRT Dispersant Use Zones Summary Table”).

Within a designated pre-approval zone, the FOSC may authorize the use of dispersants without further concurrence or consultation with the RRT. The FOSC will determine whether to authorize the use of dispersants through the information gathering and decision-making process outlined in the “FOSC Dispersant Authorization Checklist” (NWACP Section 4611).

The Dispersant **Pre-Approval Zone** is as follows:

- Marine waters 3 to 200 nautical miles from the coastline or an island shoreline ***except*** for waters designated as a part of a National Marine Sanctuary and the Makah Tribe Usual and Accustom marine area or waters within three miles of the border of the Country of Canada, the State of California, or the Makah Tribe Usual and Accustom marine area.

The Dispersant **Case-by-Case Approval Zones** are as follows:

- All marine waters that are both within 3 nautical miles from the coastline or an island shoreline and greater than 10 fathoms (60 feet) in depth.
- Waters designated as a part of a National Marine Sanctuary and waters that are part of the Makah Tribe Usual and Accustom marine area which are also greater than 10 fathoms (60 feet) in depth.
- Waters of the Strait of Juan de Fuca and North Puget Sound from Point Wilson to Admiralty Head and north, and greater than 10 fathoms (60 feet) in depth.
- Marine waters within 3 miles of the borders of the State of California, Makah Tribe Usual and Accustom marine area, and the country of Canada. In considering the use of dispersants within 3 miles of border of State of California, the Region X RRT will consult with the Region IX RRT. In consideration of the use of dispersants within 3 miles of the Makah Tribe Usual and Accustom marine area, the Region X RRT will consult with the Makah Tribal government. In considering the use of dispersants within 3 miles of the International border with Canada, the Region X RRT will consult with the Joint Coastal Pollution Response Team (Coastal JRT) comprised of representatives of the U.S. and Canadian governments.

6.4.1 Dispersants, Continued

The **No Dispersant Use Zones** are as follows:

- Marine waters that are both less than three nautical miles from the coastline and less than or equal to 10 fathoms (60 feet) in depth.
- Marine waters south of a line drawn between Point Wilson (b) (7)(F) W) and Admiralty Head ((b) (7)(F)
- Freshwater environments.

The Northwest Area Contingency Plan Checklist for gathering dispersant use information is provided in **SECTION 5.7**.

6.4.2 Bioremediation

The use of bioremediation in open water is an unproven technology that currently shows little or no promise of removing significant quantities of oil from the surface of the water prior to shoreline impact or natural dispersion. Bioremediation by nutrient enhancement or seeding of biodegrading organisms is therefore not allowed on the surface of open water. This policy can be reviewed by the RRT if there is new and significant evidence that bioremediation can be a significant factor in oil removal on open water.

Bioremediation of Shorelines
Seeding of exotic organisms for pollution response is prohibited in Response Region Ten. This is due to unproven efficacy of such procedures and the unknown ecological effects resulting from the implementation of such.

Bioremediation is an effective technique for the encouragement of oil biodegradation on some contaminated shorelines. Nonetheless, this strategy is unlikely to lead to rapid decontamination of beaches. Consequently, bioremediation should be used as the primary treatment only when oil concentrations are low (less than 15 grams of oil for every kilogram of sediment) and conventional forms of cleanup (heavy equipment use or manual cleaning) are likely to do more damage than good. Bioremediation should be considered as a polishing technique after gross contamination is removed by conventional means.

The use of bioremediation for oil spill clean up will be allowed only on a case-by-case basis.

6.4.3 In-Situ Burn

The purpose of the policy is to define the conditions under which burning may occur on a pre-approved or case-by-case basis and define conditions under which burning will not be allowed. The complete policy defines the procedure for arriving at the decision to burn or not to burn, describes the regulatory and statutory framework, and provides background information on logistics, environmental impacts, health and safety, and monitoring. The policy applies to all marine waters as well as inland areas covered by the Northwest Area Plan. This section summarizes key sections of the policy.

It is the policy of the Northwest Area Committee to use, and in certain cases, encourage in-situ burning, provided that requirements specified herein have been met. A primary consideration in the decision to burn is the protection and safety of human life. The authority to approve a burn rests with the Unified Command, who must determine that an application to burn conforms to these guidelines. The decision to burn or not burn must be made expeditiously.

6.4.3 In-Situ Burn, Continued

Pre-approval areas are defined as those areas which are more than three miles from population. All other areas will be considered on a case-by-case basis. Monitoring and sampling will be conducted where there is the potential for people to be exposed to the smoke. As general guidance, people should not be exposed to small particles (PM-10) in concentrations that exceed 150 micrograms per cubic meter of air averaged over one hour. The concentrations should never exceed 150 micrograms per cubic meter averaged over 24 hours.

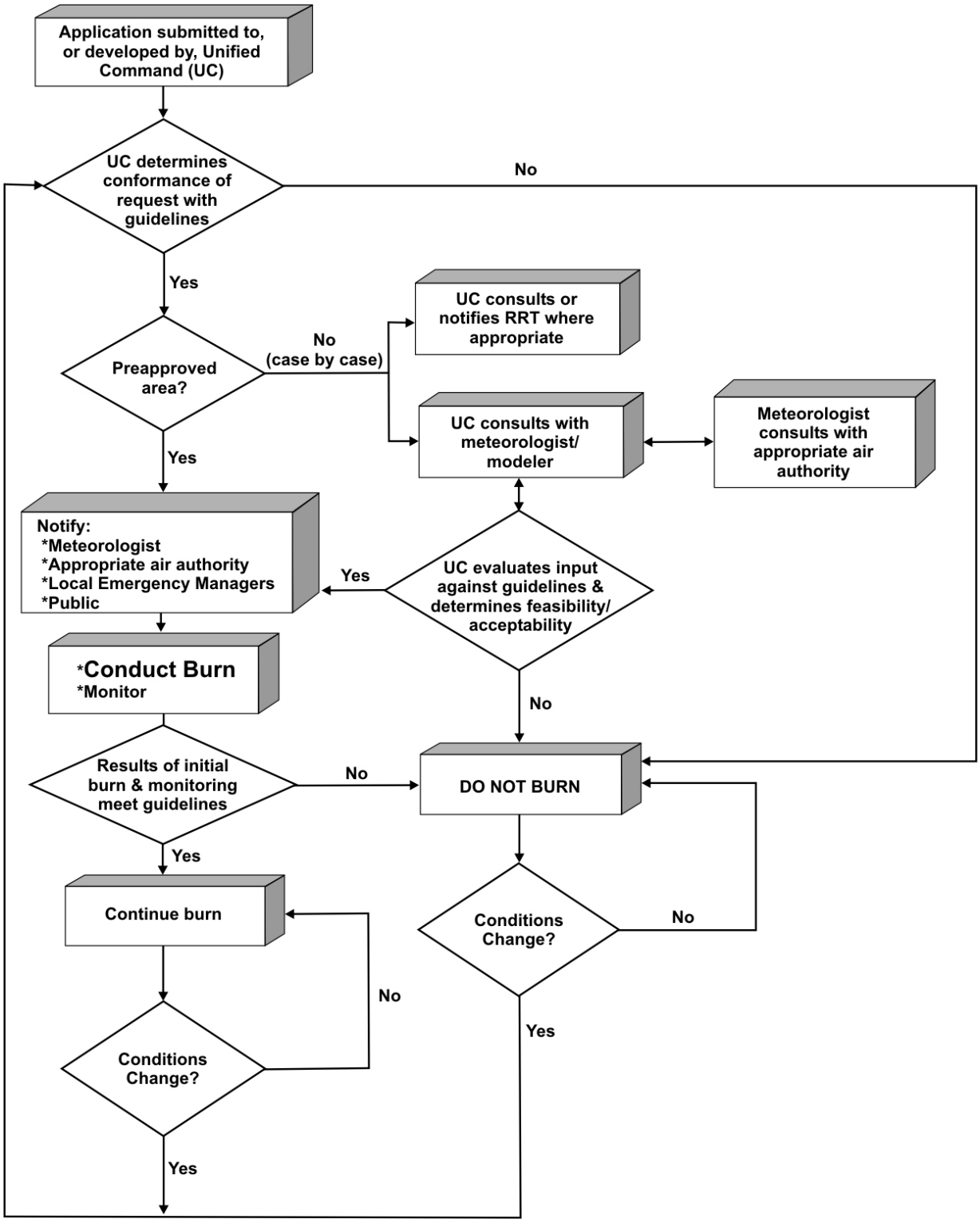
Authorization Procedures

These guidelines provide a common decision-making process to evaluate the appropriateness of using in-situ burning during a spill response. The process is based on the premise that a rapid decision is essential if in-situ burning is ever to be used since oil emulsifies (becomes mixed with water) and is more difficult to ignite as time goes on. Therefore, the fewest number of decision-makers as possible are involved in deciding whether or not to burn.

Under these guidelines, authorization to use in-situ burning rests with the Unified Command (UC). The UC consists of federal, state, and responsible party on-scene coordinators as well as local and tribal on-scene coordinators, as appropriate. The UC, as part of the Incident Command System (ICS), is responsible for overseeing the entire response effort, which includes the decision to use in-situ burning. The decision process is greatly expedited by the use of the unified command structure, by the establishment of a single application (see attached checklist and worksheet located after the decision process flowchart), and mutually agreed upon operational controls. **FIGURE 6.4-1** summarizes the in-situ burn decision process.

Refer to NWAC Section 4621 for In-Situ Burn Policy detail.

FIGURE 6.4-1 - IN-SITU BURN DECISION PROCESS



6.4.4 Decanting

When oil is spilled on the water, mechanical recovery of the oil is the principal approved method of responding. However, the mechanical recovery process and associated systems necessarily involve placing vessels and machinery in a floating oil environment. Incidental returns of oil into the response area, such as oil that falls back into the recovery area from vessels and machinery that are immersed and working in the oil, are an inevitable part of the mechanical recovery process. Similarly, separation or “decanting” of water from recovered oil

and return of excess water into the response area can be vital to the efficient mechanical recovery of spilled oil because it allows maximum use of limited storage capacity, thereby increasing recovery operations.

This practice is currently recognized as a necessary and routine part of response operations that is appropriately addressed in Area Contingency Plans. (See National Contingency Plan Revisions, 59 F.R. 47401, Sept. 15, 1994.) In addition, some activities, such as those associated with oil recovery vessels, small boats, and equipment cleaning operations, may result in incidental discharges. These activities may be necessary to facilitate response operations on a continuing basis, and all of these activities are considered to be “incidental discharges.”

Decanting Policy

This policy addresses “incidental discharges” associated with spill response activities. “Incidental discharge” means the release of oil and/or oily water within the response area in or proximate to the area in which oil recovery activities are taking place during and attendant to oil spill response activities.

Incidental discharges include, but are not limited to, the decanting of oily water, oil and oily water returns associated with runoff from vessels and equipment operating in an oiled environment, and the wash down of vessels, facilities, and equipment used in the response. “Incidental discharges” as addressed by this policy do not require additional permits and do not constitute a prohibited discharge. See 33 CFR 153.301, 40 CFR 300, RCW 90.56.320(1), WAC 173-201A-110, ORS 468b.305 (2)(b).

The following criteria should be considered by the FOSC and/or SOSC in determining whether to approve decanting unless circumstances dictate otherwise:

- All decanting should be done in a designated “Response Area” within a collection area, vessel collection well, recovery belt, weir area, or directly in front of a recovery system.
- Vessels employing sweep booms with recovery pumps in the apex of the boom should decant forward of the recovery pump.
- All vessels, motor vehicles, and other equipment not equipped with an oil/water separator should allow retention time for oil held in internal or portable tanks before decanting commences.
- When deemed necessary by the FOSC and/or SOSC or the response contractor a containment boom will be deployed around the collection area to minimize loss of decanted oil or entrainment.
- Visual monitoring of the decanting area shall be maintained so that discharge of oil in the decanted water is detected promptly.
- Decanting in areas where vacuum trucks, portable tanks, or other collection systems are used for shore cleanup will be subject to the same rules as vessels.

6.4.4 Decanting, Continued

The response contractor or responsible party will seek approval from the FOSC and/or SOSC

prior to decanting by presenting the Unified Command with a brief description of the area for which decanting approval is sought, the decanting process proposed, the prevailing conditions (wind, weather, etc.) and protective measures proposed to be implemented. The FOSC and/or SOSC will review such requests promptly and render a decision as quickly as possible. FOSC authorization is required in all cases and SOSC authorization is required for decanting activities in state waters.

The FOSC and/or SOSC will review and provide directions and authorization as appropriate to requests to wash down vessels, facilities, and equipment to facilitate response activities.

Other activities related to possible oil discharges associated with an oil spill event, such as actions to save a vessel or protect human life, which may include such actions as pumping bilges on a sinking vessel are not covered by this policy.

6.5 WILDLIFE PROTECTION AND REHABILITATION

- The Company will support wildlife protection and rehabilitation efforts during the response, and assist in these efforts in alignment with local, state, and federal authorities and certified contractors.
- Company personnel will not attempt to rescue or clean affected wildlife, because such actions may cause harm to the individuals or may place the animals at further risk.
- Federal and state agencies responsible for wildlife capture and rehabilitation will typically coordinate capturing and rehabilitating oiled wildlife; a list of these agencies is included in **FIGURE 3.1-6**.
- Wildlife rehabilitation specialists may be utilized to assist in capturing and rehabilitating oiled animals as well as deterring unaffected animals away from the spill site.

6.6 ENDANGERED AND THREATENED SPECIES BY STATE

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Albatross, short-tailed	*Phoebastria (=Diomedea) albatrus*	Pelagic; often in regions of high productivity	E	Oregon
Butterfly, Fender's blue	*Icaricia icarioides fenderi*	Pine barrens and oak savannas on sandy soils	E	Oregon
Chub, Borax Lake	*Gila boraxobius*	Borax Lake, with its highly variable thermal springs	E	Oregon
	Erigeron	Heavy soils in seasonally		

Daisy, Willamette	*decumbens var. decumbens*	wet native or dry upland prairie grasslands	E	Oregon
Deer, Columbian white-tailed Columbia River DPS	*Odocoileus virginianus leucurus*	Farmlands, brushy areas, woods, and suburbs and gardens	E	Oregon
Desert-parsley, Bradshaw's	*Lomatium bradshawii*	Open, clay soil bottomland with seasonal standing water	E	Oregon
Fritillary, Gentner's	*Fritillaria gentneri*	Open, somewhat dry, low elevation, mixed oak-madrone woodlands	E	Oregon
Lily, Western	*Lilium occidentale*	Pacific coastal wetlands	E	Oregon
Lomatium, Cook's	*Lomatium cookii*	Bottoms of vernal pools or the tops of the mounds	E	Oregon
Meadowfoam, large flowered wooly	*Limnanthes floccosa grandiflora*	Vernal pools	E	Oregon
Milk-vetch, Applegate's	*Astragalus applegatei*	Flat seasonally moist remnants of alkaline floodplain grasslands of the Klamath Basin	E	Oregon
Popcornflower, rough	*Plagiobothrys hirtus*	Open, moist, poorly drained clay soils	E	Oregon
Rock-cress, McDonald's	*Arabis mcdonaldiana*	Rocky serpentine areas	E	Oregon
Salmon, sockeye U.S.A. (Snake River, ID stock wherever found.)	*Oncorhynchus (=Salmo) nerka*	Adult sockeye oceanic; kokanee do best in high, cold, large mountain lakes	E	Oregon
Sea turtle, leatherback	*Dermochelys coriacea*	Warm sands of tropical beaches	E	Oregon

E - Endangered
T - Threatened

6.6 ENDANGERED AND THREATENED SPECIES BY STATE , CONTINUED

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Sucker, Lost River	*Deltistes luxatus*	Deep water lakes and impoundments; deep pools of small to medium rivers	E	Oregon
Sucker, Modoc	*Catostomus microps*	Shallow mud-bottomed pools of cool creeks	E	Oregon
Sucker, shortnose	*Chasmistes brevirostris*	Open waters of large shallow lakes and river channels	E	Oregon
Whale, humpback	*Megaptera novaeangliae*	Surface of the ocean	E	Oregon
Whale, killer Southern Resident DPS	*Orcinus orca*	Open ocean and coastal waters	E	Oregon
Wire-lettuce, Malheur	*Stephanomeria malheurensis*	Broad hilltop composed of volcanic tuff	E	Oregon
Wolf, gray Western Distinct Population Segment	*Canis lupus*	Open tundra and forests	E	Oregon
Butterfly, Oregon silverspot	*Speyeria zerene hippolyta*	Coastal salt spray meadows, stabilized dunes, montane meadows	T	Oregon
Catchfly, Spalding's	*Silene spaldingii*	Grasslands intermingled with ponderosa pine woodlands	T	Oregon
Checker-mallow, Nelson's	*Sidalcea nelsoniana*	Moist, open ground, prairie merges with deciduous woodland	T	Oregon
Chub, Hutton tui	*Gila bicolor ssp.*	Springs in the Alkali subbasin	T	Oregon
Chub, Oregon	*Oregonichthys crameri*	Slow-moving pools, sloughs, backwaters, ponds, and reservoirs	T	Oregon

Dace, Foskett speckled	*Rhinichthys osculus ssp.*	Foskett Spring and its outflow; very small springholes and rivulets	T	Oregon
Fairy shrimp, vernal pool	*Branchinecta lynchi*	Ephemeral water of swales and vernal pools	T	Oregon
Four-o'clock, MacFarlane's	*Mirabilis macfarlanei*	Gentle to very steep, open river canyon slopes	T	Oregon

E - Endangered
T - Threatened

6.6 ENDANGERED AND THREATENED SPECIES BY STATE , CONTINUED

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Howellia, water	*Howellia aquatilis*	Bottom sediments of ponds and sloughs	T	Oregon
Lupine, Kincaid's	*Lupinus sulphureus (=oreganus) ssp. kincaidii (=var. kincaidii)*	Remnant upland and wetland prairies	T	Oregon
Lynx, Canada (Contiguous U.S. DPS)	*Lynx canadensis*	Mature forests with dense undergrowth	T	Oregon
Murrelet, marbled CA, OR, WA	*Brachyramphus marmoratus*	Coastal, old-growth forests of the Pacific Northwest	T	Oregon
Owl, northern spotted	*Strix occidentalis caurina*	Forest, woodlands	T	Oregon
Paintbrush, golden	*Castilleja levisecta*	Open grasslands	T	Oregon
Plover, western snowy Pacific coastal pop.	*Charadrius alexandrinus nivosus*	Coastal wetlands and coastal dune	T	Oregon
Salmon,	*Oncorhynchus*			

chinook fall Snake R.	*(=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chinook lower Columbia R.	*Oncorhynchus (=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chinook spring/summer Snake R.	*Oncorhynchus (=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chinook upper Willamette R.	*Oncorhynchus (=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chum Columbia R.	*Oncorhynchus (=Salmo) keta*	Coastal waters; enters streams to spawn	T	Oregon
Salmon, coho OR, CA pop.	*Oncorhynchus (=Salmo) kisutch*	Inshore waters at mid-depths or near surface; spawns in coastal streams, sometimes far inland	T	Oregon
Sea turtle, green except where endangered	*Chelonia mydas*	Coasts, open sea	T	Oregon
Sea turtle, loggerhead	*Caretta caretta*	Estuaries, coastal streams and salt marshes	T	Oregon

E - Endangered
T - Threatened

6.6 ENDANGERED AND THREATENED SPECIES BY STATE , CONTINUED

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Sea-lion, Steller eastern pop.	*Eumetopias jubatus*	Coastal waters near shore and over the continental slope	T	Oregon
Steelhead lower Columbia R.	*Oncorhynchus (=Salmo)*	Small headwater streams, large rivers,	T	Oregon

	mykiss	lakes, or reservoirs		
Steelhead middle Columbia R.	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Steelhead Snake R. Basin	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Steelhead upper Willamette R.	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Sturgeon, North American green U.S.A. (CA) Southern Distinct Population Segment	*Acipenser medirostris*	Freshwater and Saltwater	T	Oregon
Sucker, Warner	*Catostomus warnerensis*	Spawns over silt-free gravel substrate in low gradient streams	T	Oregon
Thelypody, Howell's spectacular	*Thelypodium howellii spectabilis*	Moist, moderately well-drained, somewhat alkaline meadows	T	Oregon
Trout, bull U.S.A., conterminous, lower 48 states	*Salvelinus confluentus*	Bottom of deep pools in cold rivers and large tributary streams	T	Oregon
Trout, Lahontan cutthroat	*Oncorhynchus clarki henshawi*	Inshore marine and estuarine waters; lakes; coastal, inland, and alpine streams	T	Oregon

E - Endangered
T - Threatened

6.7 VULNERABILITY ANALYSIS (DETAILED)

VULNERABILITY ANALYSIS (DETAILED)
Water Intakes:
(b) (7)(F) [redacted]

(b) (7)(F)

[redacted]

Residential Areas:
Residential population is thinly scattered throughout the area adjacent to the Facility and downstream along the Willamette and Columbia Rivers and the Multnomah Channel. Farm properties are predominant on Sauvie Island and along the river. Any evacuation efforts for these areas will be coordinated with the local emergency assistance agencies (police department, fire department, etc.).

6.7 VULNERABILITY ANALYSIS (DETAILED), CONTINUED

VULNERABILITY ANALYSIS (DETAILED)
Businesses:
The immediate area surrounding the Facility is for the most part commercialized. It is unlikely that such businesses would be directly impacted by the spill, although they could be indirectly impacted by interruption of river traffic and perhaps some limited interruptions of highway and rail traffic. Any evacuation efforts and any highway and rail closures for these areas will be coordinated with the local emergency assistance agencies (police department, fire department, etc.). The USCG and the Port of Portland authorities would control river traffic.
Wetlands or Other Sensitive Environments:
The area surrounding the Facility and the downstream areas of potential impact are highly populated with fish and wildlife and wetlands and other sensitive environments are numerous. During a response situation the USFWS and applicable state agencies will be contacted for information regarding wetlands and other sensitive environments. Working with those agencies and using the several reference documents that address the treatment of such environments during a spill response, the Company will:

Identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge.

Identify potential environmental effects on fish and wildlife, wetlands, and other sensitive environments resulting from removal actions or countermeasures.

Fish and Wildlife:

The area surrounding the Facility and the downstream areas of potential impact are highly populated with fish and wildlife and wetlands and other sensitive environments are numerous.

During a response situation the USFWS and applicable state agencies will be contacted for information regarding wetlands and other sensitive environments. Working with those agencies and using the several reference documents that address the treatment of such environments during a spill response, the Company will:

Identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge.

Identify potential environmental effects on fish and wildlife, wetlands, and other sensitive environments resulting from removal actions or countermeasures.

Lakes and Streams:

Waterways (rivers, creeks, sloughs) that may be potentially impacted by a discharge originating at the Facility are identified on the maps.

During a response situation the USFWS and applicable state agencies will be contacted for information regarding wetlands and other sensitive environments. Working with those agencies and using the several reference documents that address the treatment of such environments during a spill response, the Company will:

Identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge.

Identify potential environmental effects on fish and wildlife, wetlands, and other sensitive environments resulting from removal actions or countermeasures.

6.7 VULNERABILITY ANALYSIS (DETAILED), CONTINUED

VULNERABILITY ANALYSIS (DETAILED)

Endangered Flora and Fauna:

Endangered flora and fauna that may be potentially impacted by a discharge originating at the Facility are identified in this plan on maps.

Recreational Areas:

The recreational areas that may be potentially impacted by a discharge originating at the Facility are more fully identified on the maps.

Transportation Routes (Air, Water, Land):
There are various public roadways and waterways which may be potentially effected by a discharge originating from the Facility. The local emergency assistance agencies (police department, fire department, etc.) and the U.S. Coast Guard and Port of Portland authorities (as applicable) would be contacted for traffic control in the impacted areas.
Utilities:
Some power companies operate power plants and other facilities in the areas potentially impacted by a discharge from the Facility. They would be advised in order to determine possible impact.
Other Applicable Areas:
The Willamette and Columbia Rivers and connecting waterways are bordered by numerous dock facilities, other commercial facilities, and recreational/public use areas. Most of the commercial facilities are up-river along the Willamette where the spill trajectory is possible but unlikely. Any evacuation efforts necessary for these areas will be coordinated with the local emergency assistance agencies (police department, fire department, etc.), State Police, U.S. Coast Guard, and other agencies as the situation demands.

6.8 TACTICAL OVERVIEW MAP

6.9 TACTICAL PLAN INDEX

SITE #	SITE NAME

6.10 TACTICAL PLANS

Click here for Tactical Plan

6.11 SENSITIVITY MAPS

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6.11 SENSITIVITY MAPS

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6.11 SENSITIVITY MAPS

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6.11 SENSITIVITY MAPS

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6.11 SENSITIVITY MAPS

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6.11 SENSITIVITY MAPS

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SUSTAINED RESPONSE ACTIONS

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7.1 Response Resources

7.1.1 Facility Response Equipment

Figure 7.1-1 - Regional Company and Response Contractor's Equipment List / Response Time

7.1.2 Response Equipment Inspection and Maintenance

7.1.3 Contracts, Contractor Equipment, and Labor

7.1.4 Command Post

Figure 7.1-2 - Command Post Checklist

7.1.5 Staging Area

7.1.6 Communications Plan

Figure 7.1-3 - Communications Checklist

7.2 Public Affairs

Figure 7.2-1 - Incident Fact Sheet

7.3 Site Security Measures

Figure 7.3-1 - Site Security Checklist

Figure 7.3-2 - Facility Security

7.4 Waste Management

Figure 7.4-1 - Waste Management Flow Chart

Figure 7.4-2 - General Waste Containment and Disposal Checklist

SECTION 7
SUSTAINED RESPONSE ACTIONS, CONTINUED

7.4.1 Waste Storage

Figure 7.4-3 - Temporary Storage Methods

7.4.2 Waste Transfer

7.4.3 Waste Disposal

Figure 7.4-4 - Facility-Specific Disposal Locations

7.1.1 Facility Response Equipment

BOOM					
TYPE/MODEL/YEAR	QUANTITY	SIZE	CONTAINMENT AREA (sq ft)	STORAGE LOCATION	
Containment Boom/Skirt Type	3,000â€™	18â€		South Dock Float	
Containment Boom/Skirt Type	1,500â€™	18"		South Equipment Shed	
Containment Boom/Skirt Type	1000'	18		Warehouse by North Dock	
SORBENTS					
TYPE/YEAR	QUANTITY	ABSORPTION CAPACITY (gal)	STORAGE LOCATION	OPERATIONAL STATUS	
Pads	10 bags		Warehouse	Operational	
Absorbent Boom	160 feet		Warehouse	Operational	
OTHER					
TYPE/YEAR	QUANTITY	STORAGE LOCATION	OPERATIONAL STATUS		
Work Boat - 22 ft Response Boat / Built 2006	1		Operational		

***Note:** Response equipment is tested and deployed as described in **FIGURE A.1-2** and **FIGURE A.1-4**.

FIGURE 7.1-1 - REGIONAL COMPANY AND RESPONSE CONTRACTOR'S EQUIPMENT LIST / RESPONSE TIME

* USCG Classified OSRO for facility

COMPANY/CONTRACTOR	EQUIPMENT	RESPONSE TIME
*Clean Rivers Cooperative, Inc (Portland Terminal) Portland , OR	Full Response Capability (The Terminal is an active member of Clean Rivers Cooperative for both aerial oil tracking and wildlife rehabilitation with cooperation from IBRRC.	1 hours

*Note: Response times are based on 35 mph for land (five knots for water) and take into account traffic, weather, and other environmental conditions that could restrict response efforts.

7.1.2 Response Equipment Inspection and Maintenance

Company response equipment is tested and inspected as noted below. The Manager of Operations is responsible for ensuring that the following response equipment and testing procedures are implemented. These consist of:

Containment boom	During semiannual boom deployment exercises, boom will be inspected for signs of structural deficiencies. If tears in fabric or rotting is observed, boom will be repaired or replaced. In addition, end connectors will be inspected for evidence of corrosion. If severe corrosion is detected, equipment will be repaired or replaced.
Miscellaneous equipment	Other response equipment identified in this Plan will be inventoried and tested on a semiannual basis to ensure that the stated quantities are in inventory and in proper working order. The equipment inspection and deployment exercises are recorded and maintained at the facility and retained for a period of five years. Exercise requirements are listed in **APPENDIX A.1**. A Spill/Exercise Documentation form is in **FIGURE A.1-3**. **FIGURE A.1-4** provides a log for response equipment testing and deployment drills.

7.1.3 Contractors, Contractor Equipment, and Labor

- The Company's primary response contractors' names and phone numbers, as well as other companies who can provide spill response services are provided in **FIGURE 3.1-6**.
- The Company has ensured by contract the availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to the worst case discharge or the substantial threat of such discharge.
- Contractors without USCG classification deploy and inspect boom to meet PREP guidelines. Company requires that these exercises are completed annually.
- **APPENDIX B** contains evidence of contracts for the Company's primary response contractors and equipment lists of contractors without USCG classification.

7.1.4 Command Post

In the event of a major spill or other emergency, both a Company off-site EMT Command Center and a Command Post (located close to but at a safe distance back from the incident scene) may be established. For a minor emergency, only a Command Post may be established. Refer to **FIGURE 7.1-2** for guidelines in establishing a Command Post.

FIGURE 7.1-2 - COMMAND POST CHECKLIST

		DATE/TIME	DATE/TIME

COMMAND POST CHECKLIST	INITIALS	STARTED	COMPLETED
Ensure adequate space for size of staff.			
Ensure 24-hour accessibility.			
Ensure personal hygiene facilities.			
Ensure suitability of existing communications resources (phone/fax/radio).			
Ensure suitability of private conference and briefing rooms.			
Identify Command Post security requirements, safe location.			
Notify other parties of Command Post location; provide maps/driving directions.			
Determine staging areas and incident base locations.			
Identify future need to move, upgrade facilities.			

Command Posts for this facility are located at "list location":The main office will be the mitigation command center and the location of shelter at the Facility if conditions permit.

7.1.5 Staging Area

According to the incident type and magnitude, numerous staging areas may be required to support containment and cleanup operations. The staging area should be located in the cold zone inside the delineated isolation perimeter.

In selecting a suitable staging area, the following criteria should be considered:

- Accessibility to impacted areas;
- Proximity to secure parking, airports, docks, pier, or boat launches; and
- Accessibility to large trucks and trailers which may be used to transfer equipment.

In addition, the staging area should:

- Be in a large open area in order to provide storage for equipment and not interfere with equipment loading and offloading operations.
- Have a dock/pier on site for deploying equipment.
- Have moorage available for vessels to aid the loading/offloading of personnel.

Staging areas for this facility are located at "list location": Main tank farm entrance adjacent to railroad tracks

7.1.6 Communications Plan

Company owned communications equipment and quantities commonly used to address

response communications are listed below:

5 - computers 5 - cellphones 3 - landlines 2 - fax

Additional communications equipment (satellite phones, VHF portable radios with chargers and accessories, command post with UHF, VHF, single sideband, marine, aeronautical, telephone, and hard-line capability) may be provided by the Company or leased from a communications company in the area. Communications with government agencies, state police, and contractors can be conducted on portable radios. Refer to **FIGURE 7.1-3** for guidelines to setup communications.

The Communications Plan, written at the time of an incident, will identify telephone numbers and radio frequencies used by responders. This may also involve activation of multiple types of communications equipment and coordination among multiple responding agencies and contractors.

FIGURE 7.1-3 - COMMUNICATIONS CHECKLIST

COMMUNICATIONS CHECKLIST	INITIALS	DATE/TIME STARTED	DATE/TIME COMPLETED
Develop a Communications Plan.			
Ensure adequate phone lines per staff element - contact local provider.			
Ensure adequate fax lines - contact local provider.			
Evaluate need for internet access.			
Ensure recharging stations for cellular phones.			
VHF radio communications: • Establish frequencies. • Assign call signs. • Distribute radios. • Establish communications schedule.			
Ensure recharging stations for VHF radios.			
Determine need for VHF repeaters.			
Ensure copy machine available.			
Ensure communications resource accountability.			
Ensure responders have capability to communicate with aircraft.			

Note: Actions on this checklist may not be applicable or may be continuous activities.

7.2 PUBLIC AFFAIRS

This section contains guidelines for dealing with the media during an emergency. The Incident

Commander will play a key role in providing the initial public assessment and taking the first steps to provide the Company's public response. Information in this section includes:

- Guidelines for dealing with the media
- Incident Fact Sheet (**FIGURE 7.2-1**)

7.2 PUBLIC AFFAIRS, CONTINUED

GUIDELINES FOR DEALING WITH THE MEDIA

- The Terminal or Regional Managers are the most logical person for reporters to seek out for information.
- Reporters will look elsewhere to find out what happened if you do not answer their questions; however, if you do not have this information or are not prepared to answer a particular question, say so then say when they can expect the answers to their questions (such as one hour).
- It is important to be courteous to all media representatives and to provide a safe place for them to wait until a Company representative can meet them; you may need to provide an initial statement.
- IMPORTANT: Notify Regional Management and/or Corporate Communications for guidance in addressing media inquires.

Provide	• A brief, general description of what happened. • Number of injured or killed, if known. • Steps being taken to handle the emergency.
Don't provide	• Names of deceased or seriously injured employees until the next of kin have been notified. • Speculation about the cause of the emergency. • Any statement implying personal or Company negligence. • Cost estimates of damage.
Other considerations	• Safety considerations should always receive priority in determining access to Company property. • Anticipate likely questions. • There are only six questions that can be asked about any subject: who, what, when, where, why, and how. • Keep answers short and understandable. Don't use industry jargon or acronyms.

- Answer only the question that is asked by the reporter.
- Give the most important facts first.
- Talk to the public's concern about the incident such as whether these were deaths, injuries, any threat to the public, or danger of explosion or fire.

7.2 PUBLIC AFFAIRS, CONTINUED

Other considerations, continued:

- If you don't know the answer to a question, don't be afraid to say "I don't know"; make note of the question and tell the reporter that you will try to get the answer - then do it. Don't use the phrase "No Comment".
- Don't be defensive.
- There is no such thing as "Talking off the record"; assume that anything and everything you say to a reporter is going to be printed and/or used in the story.
- Avoid "What If?" or speculative questions; these questions should be answered with a restatement of the problem and what is being done to control it.
- Don't speculate about the cause of the incident.
- Don't minimize the situation.

FIGURE 7.2-1 - INCIDENT FACT SHEET

What occurred:
When (time):
Where (location):
What are hazards:
How is the situation being handled:
How many people involved:
Confirmed injuries/fatalities:
Treatment location:
Name of injured (release only after next of kin are notified):

Name of fatalities (release only after next of kin are notified):
What agencies have been notified:
On scene? (yes/no):
Who is in charge:
Has outside help been requested:
Who:
On scene? (yes/no):
Is there danger to the plant:
Is there danger to the community:
What:
Is there an environmental hazard:
What is the environmental hazard:
What is being done to minimize environmental threat:
Is there a need for evacuation:

(b) (7)(F)



(b) (7)(F)

(b) (7)(F)

7.4 WASTE MANAGEMENT

Initial oil handling and disposal needs may be overlooked in the emergency phase of a response, which could result in delays and interruptions of cleanup operations. Initially, waste management concerns should address:

- Equipment capacity,
- Periodic recovery of contained oil, and
- Adequate supply of temporary storage capacity and materials.

The following action items should be conducted during a spill response:

- Development of a Site Safety and Health Plan (**SECTION 5.4**) addressing the proper PPE and waste handling procedures.
- Development of a Disposal Plan (**SECTION 5.6**) in accordance with any federal, state, and/or local regulations. Facility-specific disposal locations for different types of materials are listed in **FIGURE 7.4.4**.
- Continuous tracking of oil disposition in order to better estimate amount of waste that could be generated over the short and long-term.
- Organization of waste collection, segregation, storage, transportation, and proper disposal.
- Minimization of risk of any additional pollution.
- Regulatory review of applicable Federal, State, and Local laws and ensure compliance, and, if appropriate, obtain permits.
- Documentation of all waste handling and disposal activities.
- Disposal of all waste in a safe and approved manner.

Good hazardous waste management includes:

- Reusing materials when possible.
- Recycling or reclaiming waste.
- Treating waste to reduce hazards or reducing amount of waste generated.

7.4 WASTE MANAGEMENT, CONTINUED

- The management of the wastes generated in cleanup and recovery activities must be

conducted with the overall objective of ensuring:

- Worker safety,
- Waste minimization,
- Cost effectiveness, and
- Minimization of environmental impacts.

- Proper disposal.
- Minimization of present and future environmental liability.

Solid wastes, such as sorbents, PPE, debris, and equipment will typically be transported from the collection site to a designated facility for:

- Storage
- Waste segregation
- Packaging
- Transportation

Once this process is complete, the waste will be shipped off-site to an approved facility for required disposal.

A general flow chart for waste management guidelines is provided in **FIGURE 7.4-1**. An overall checklist for containment and disposal is provided in **FIGURE 7.4-2**.

FIGURE 7.4-1 - WASTE MANAGEMENT FLOW CHART

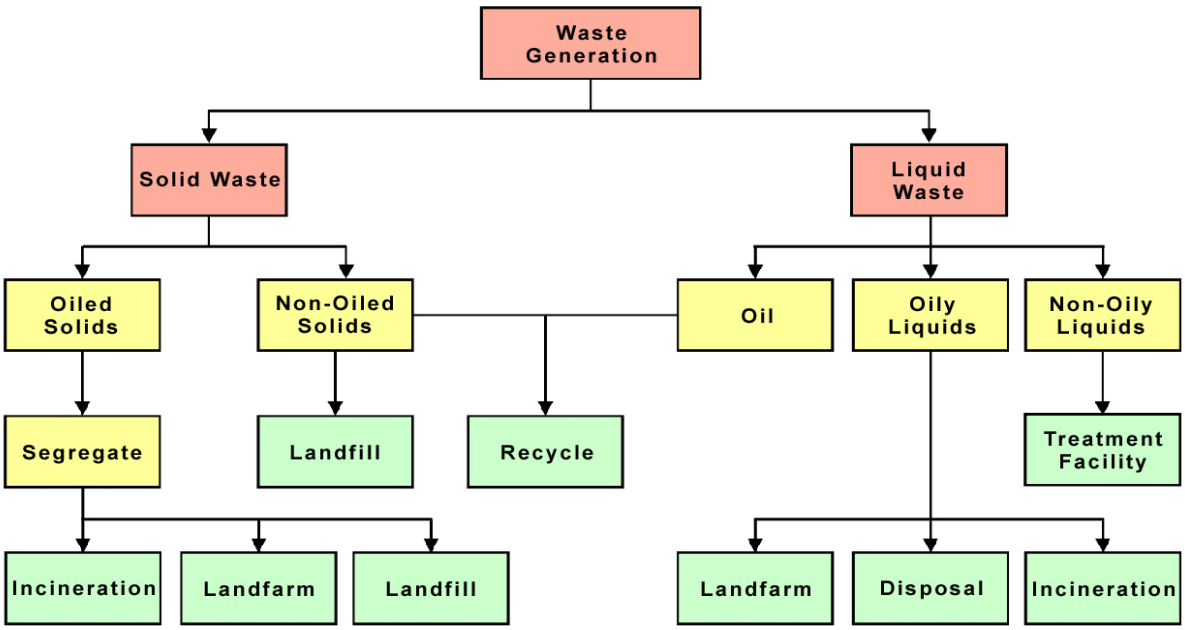


FIGURE 7.4-2 - GENERAL WASTE CONTAINMENT AND DISPOSAL CHECKLIST

CONSIDERATION	YES/NO/NA

Is the material being recovered a waste or reusable product?	
Has all recovered waste been containerized and secured so there is no potential for further leakage while the material is being stored?	
Has each of the discrete waste streams been identified?	
Has a representative sample of each waste stream been collected?	
Has the sample been sent to an approved laboratory for the appropriate analysis, (i.e. hazardous waste determination)?	
Has the appropriate waste classification and waste code number(s) for the individual waste streams been received?	
Has a temporary EPA identification number and generator number(s) been received, if they are not already registered with EPA?	
Have the services of a registered hazardous waste transporter been contracted, if waste is hazardous?	
If the waste is nonhazardous, is the transporter registered?	
Is the waste being taken to an approved disposal site?	
Is the waste hazardous or Class I nonhazardous?	
If the waste is hazardous or Class I nonhazardous, is a manifest being used?	
Is the manifest properly completed?	
Are all federal, state, and local laws/regulations being followed?	
Are all necessary permits being obtained?	
Has a Disposal Plan been submitted for approval/review?	
Has PPE and waste-handling procedures been included in the Site Safety and Health Plan to protect the health and safety of waste handling personnel?	

7.4.1 Waste Storage

During an oil spill, the volume of oil that can be recovered depends on the storage capacity available. Typical short-term (temporary) storage methods are provided in FIGURE 7.4-3. If storage containers such as bags or drums are used, the container should be clearly marked and/or color-coded to indicate the type of material or waste contained and/or the ultimate disposal option.

Use of any site for storage is dependent on the approval of local authorities. The following elements affect the choice of a potential storage site:

- Geology
- Soil
- Surface water
- Covered materials
- Climatic factor
- Ground water
- Flooding
- Slope
- Capacity
- Land use

- Toxic air emissions
- Access
- Security
- Public contact

FIGURE 7.4-3 - TEMPORARY STORAGE METHODS

CONTAINMENT	PRODUCT						
	OIL	OIL/WATER	OIL/SOIL	OIL/DEBRIS (Small)	OIL/DEBRIS (Medium)	OIL/DEBRIS (Large)	CAPACITY
Drums	X	X	X				0.2-0.5 yd^3
Bags		X	X	X			1.0-2.0 yd^3
Boxes		X	X	X			1-5 yd^3
Open top rolloff	X	X	X	X	X	X	8-40 yd^3
Roll top rolloff	X	X	X	X	X	X	15-25 yd^3
Vacuum box	X	X					15-25 yd^3
Frac tank	X	X					500-20,000 gal
Poly tank	X	X					200-4,000 gal
Vacuum truck	X	X	X				2,000-5,000 gal
Tank trailer	X	X					2,000-4,000 gal
Barge	X	X					3,000+ gal
Berm, 4 ft		X	X	X	X	X	1 yd^3
Bladders	X	X					25-1,500 gal

7.4.2 Waste Transfer

In most oil spill response operations, it would be necessary to transfer recovered oil and oil debris from one point to another several times before the oil and oily debris are ultimately disposed of at a state approved disposal site. Depending on the location of response operations, any or all of the following transfer operations may occur:

- Directly into the storage tank of a vacuum device.
- Directly in to impermeable bags that, in turn, are placed in impermeable containers.
- From a vacuum device storage tank to a truck.
- From containers to trucks.
- From trucks to lined pits.

- From lined pits to incinerators and/or landfills.
- From a tank truck to a processing system (i.e., oil/water separator).
- From a processing system to a recovery system and/or incinerator.
- From a skimming vessel or flexible bladder to a barge.
- From a barge to a tank truck.
- Directly into the storage tank on a dredge.
- From portable or vessel mounted skimmers into flexible bladder tanks, the storage tanks of the skimming vessel itself, or a barge.

There are four general classes of transfer systems that could be employed to effect oily waste transfer operations. The following is a brief description of the four transfer systems:

Pumps
Rotary pumps, such as centrifugal pumps, may be used when transferring large volumes of oil, but they may not be appropriate for pumping mixtures of oil and water. The extreme shearing action of centrifugal pumps tends to emulsify oil and water, thereby increasing the viscosity of the mixture and causing low, inefficient transfer rates.

The resultant emulsion would also be more difficult to separate into oil and water fractions. Lobe or "positive displacement" pumps work well on heavy, viscous oils, and do not emulsify the oil/water mixture. Double-acting piston and double acting diaphragm pumps are reciprocating pumps that may also be used to pump oily wastes.

7.4.2 Waste Transfer, Continued

Vacuum Systems
Vacuum systems, such as air conveyors, vacuum trucks and portable vacuum units, may be used to transfer viscous oils and debris but they usually pick up a very high water/oil ratio.

Belt / Screw Conveyors
Conveyor may be used to transfer oily wastes containing a large amount of debris. These systems can transfer weathered debris laden oil either horizontally or vertically for short distances but are bulky and difficult to operate.

Wheeled Vehicles
Wheeled vehicles may be used to transfer liquid waste of oily debris to storage or disposal sites. These vehicles are readily available but have a limited rate (i.e., 100 bbls) and require good site access.

7.4.3 Waste Disposal

In order to obtain the best overall Incident Disposal Plan, a combination of methods should be used. There is no template or combination of methods that can be used in every spill situation. Each incident should be reviewed carefully to ensure an appropriate combination of disposal techniques are employed.

The following is a brief description of some disposal techniques available for recovered oil and oily debris.

Recycling
Recycling involves processing discarded materials for another use.

Incineration
This technique entails the destruction of the recovered oil by high temperature thermal oxidation reactions. There are licensed incineration facilities as well as portable incinerators that may be brought to a spill site. Incineration may require the approval of the local Air Pollution Control Authority.

In-Situ Burning / Open Burning
Burning techniques entail igniting oil or oiled debris allowing it to burn under ambient conditions. These disposal techniques are subject to restrictions and permit requirements established by federal, state, and local laws. Permission for in-situ burning may be difficult to obtain when the burn takes place near populated areas.

As a general rule, in-situ burning would be appropriate only when atmospheric conditions will allow the smoke to rise several hundred feet and rapidly dissipate. Smoke from burning oil will normally rise until its temperature drops to equal the ambient temperature. Afterwards, it will travel in a horizontal direction under the influence of prevailing winds.

Landfill Disposal
This technique entails burying the recovered oil in a approved landfill in accordance with regulatory procedures. Landfill disposal of free liquids is prohibited by federal law in the United States.

FIGURE 7.4-4 - FACILITY-SPECIFIC DISPOSAL LOCATIONS

MATERIAL	DISPOSAL FACILITY	LOCATION
Recovered Product	Cowlitz Clean Sweep Clean Harbors Oil Re-refining Company	Cowlitz: 9420 NW St. Helens Road Portland, OR 97231 Attn: Scott Gilfillan Clean Harbors: 42 Longwater Drive Norwell, MA 02061 Oil Re-refining Company: 4150 N. Suttle Road Portland, OR 97217
Contaminated Soil	same as above	same as above
Contaminated Equipment	same as above	same as above
Personnel Protective Equipment	same as above	same as above

Decontamination Solutions	same as above	same as above
Adsorbents and Spent Chemicals	same as above	same as above

SECTION 8 Last Revised: May 2008

DEMOBILIZATION / POST-INCIDENT REVIEW

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8.1 Terminating the Response

8.2 Demobilization

Figure 8.2-1 - Demobilization Checklist

8.3 Post-Incident Review

Figure 8.3-1 - Standard Incident Debriefing Form

8.3.1 Final Spill Cleanup Report

8.1 TERMINATING THE RESPONSE

- A team of federal, state, and Company personnel must certify that each area is clean before halting cleanup operations.
- Demobilize equipment and personnel at the first opportunity in order to reduce cost.
- Consider which resources should be demobilized first; for example, berthing expenses can be saved by demobilizing out-of-area contractors before local ones.
- Equipment may need both maintenance and decontamination before being demobilized.
- All facilities (staging area, Command Post, etc.) should be returned to their pre-spill condition before terminating operations.
- Determine what documentation should be maintained, where, and for how long.
- Contract personnel may be more susceptible to "suffering" injuries as they approach termination.
- Some activities will continue after the cleanup ends; examples include incident debriefing, bioremediation, NRDA studies, claims, and legal actions.
- Consider expressing gratitude to the community, police department, fire department, and emergency crews for their work during the response.

8.2 DEMOBILIZATION

The Company can reduce costs considerably by developing a Demobilization Plan (**SECTION 5.8**). Therefore, emphasis must be placed on establishing efficient demobilization procedures. A Demobilization Checklist is provided in **FIGURE 8.2-1**.

FIGURE 8.2-1 - DEMOBILIZATION CHECKLIST

DEMOBILIZATION CHECKLIST	INITIALS	DATE/TIME STARTED	DATE/TIME COMPLETED
Assign personnel to identify surplus resources and probable release times.			
Establish demobilization priorities.			
Develop decontamination procedures.			
Initiate equipment repair and maintenance.			
Develop a Disposal Plan.			
Identify shipping needs.			
Identify personnel travel needs.			
Develop impact assessment and statements.			
Obtain concurrence of Planning and Operations Group Leaders before release of			

personnel or equipment.			

8.3 POST-INCIDENT REVIEW

All Facility personnel involved in the incident shall be debriefed (by the Company) within two weeks after termination of operations. A Standard Incident Debriefing Form is provided in **FIGURE 8.3-1**. The primary purpose of the post-incident review is to identify actual or potential deficiencies in the Plan and determine the changes required to correct the deficiencies. The post-incident review also is intended to identify which response procedures, equipment, and techniques were effective and which were not and the reason(s) why. This type of information is very helpful in the development of a functional Plan by eliminating or modifying those response procedures that are less effective and emphasizing those that are highly effective. This process should also be used for evaluating training drills or exercises. Key agency personnel that were involved in the response will be invited to attend the post-incident review.

Debriefs with participating agencies and organizations may be appropriate if unified command has been established during a spill and are required when significant Plan updates are identified or significant lessons can be recorded and implemented.

FIGURE 8.3-1 - STANDARD INCIDENT DEBRIEFING FORM

Name of incident:
Date:
PERSONNEL DEBRIEFED
Name:
Normal duty:
Summary of duties performed during incident (list date, time, and location):
Positive aspects of the response:

Aspects of the response which could be improved:
Name:
Title:
Signature:

8.3.1 Final Spill Cleanup Report

A final, comprehensive report shall be prepared by the Incident Commander or designee and forwarded to the Administrator within 90 days after completion of spill cleanup activities for internal use. It should be written in the narrative form and include the information listed below (as appropriate):

- Name, address, and telephone number of the owner or operator.
- Name, address, and telephone number of the Facility.
- Time, location, and date of discharge.
- Type of material discharged.
- Quantity discharged (indicate volume, color, length and width of slick, and rate of release, if continuous).
- Source of spill (tank, flowline, etc.) in which the oil was originally contained, path of discharge, and impact area.
- Detailed description of what actually caused the discharge and actions taken to control or stop the discharge.
- Estimated quantity and disposition of recovered material that resulted from the incident.
- Description of actual or potential hazards to human health or the environment.
- Steps taken to clean up the spilled oil along with dates and times steps were taken.
- The equipment used to remove the spilled oil, dates, and number of hours equipment was used.

- The number of persons employed in the removal of oil from each location, including their identity, employer, and the number of hours worked at that location.
- The extent of injuries, if any.
- Actions by the Company or contractors to mitigate damage to the environment.
- Measures taken by the Company or contractors to prevent future spills.
- The federal and state agencies to which the Company or contractors reported the discharge; show the agency, its location, the date and time of notification, and the official contacted.
- Description of the effectiveness of equipment and cleanup techniques and recommendations for improvement.
- The names, addresses, and titles of people who played a major role in responding to the event.
- A section identifying problems and deficiencies noted during the response event; a follow-up section should include recommended procedure modifications to make a future response more effective and efficient.

8.3.1 Final Spill Cleanup Report, Continued

- All other relative information.
- A final signature as follows:

The above information is true to the best of my knowledge and belief:

Name:
Title:
Signature:
Date:

Portland Terminal

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APPENDICES

A. **TRAINING / EXERCISES**

B. **CONTRACTOR RESPONSE EQUIPMENT**

C. SPCC PLANS

D. **HAZARD EVALUATION AND RISK ANALYSIS**

E. **CROSS-REFERENCES**

F. **ACRONYMS AND DEFINITIONS**

G. **ADDITIONAL INFORMATION**

APPENDIX A Last Revised: December 2008

TRAINING / EXERCISES

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A.1 Drill/Exercise Requirements and Schedules

Figure A.1-1 - PREP Response Plan Core Components

Figure A.1-2 - Drill/Exercise Requirements

Figure A.1-3 - Spill / Drill / Exercise Documentation Form

Figure A.1-4 - EPA Required Response Equipment Testing and Deployment Drill/Exercise Log

Figure A.1-5 - Form 2203 - QI Notification Exercise Form

Figure A.1-6 - Spill Management Team Tabletop

A.2 Training Program

Figure A.2-1 - Training Requirements

Figure A.2-2 - PREP Training Program Matrix

Figure A.2-3 - Personnel Response Training Log

A.3 Additional Programs

A.3.1 Alcohol and Drug Program

A.1 DRILL/EXERCISE REQUIREMENTS AND SCHEDULES

- The Company participates in the National Preparedness for Response Exercise Program (PREP).
- During each triennial cycle, all components of the Plan (**FIGURE A.1-1**) must be drilled/exercised at least once.
- The HSE Managers or designee, is responsible for the following aspects:
    - Scheduling,
    - Maintaining records,
    - Implementing,
    - Evaluation of the Company's training and drill/exercise program, and
    - Post-drill/exercise evaluation improvements.
- FIGURE A.1-2 provides descriptions of drill/exercise requirements, FIGURE A.1-3 provides a Spill/Drill/Exercise Documentation form or a corresponding Company form may be used, and **FIGURE A.1-4** provides a log for response equipment testing and deployment drill/exercise.

FIGURE A.1-1 - PREP RESPONSE PLAN CORE COMPONENTS

CORE COMPONENTS	DESCRIPTION
1. Notifications	Test the notifications procedures identified in the Area Contingency Plan (ACP) and the Spill Response Plan.
2. Staff mobilization	Demonstrate the ability to assemble the spill response organization identified in the ACP and the Spill Response Plan.
3. Ability to operate within the response management system described in the Plan: • Unified Command • Response management system	Demonstrate the ability of the spill response organization to work within a unified command. Demonstrate the ability of the response organization to operate within the framework of the response management system identified in their respective plans.
4. Source control	Demonstrate the ability of the spill response organization to control and stop the discharge at the source.
5. Assessment	Demonstrate the ability of the spill response organization to provide initial assessment of the discharge and provide continuing assessments of the effectiveness of the tactical operations.

6. Containment	Demonstrate the ability of the spill response organization to contain the discharge at the source or in various locations for recovery operations.
7. Recovery	Demonstrate the ability of the spill response organization to recover, mitigate, and remove the discharged product includes mitigation and removal activities.
8. Protection	Demonstrate the ability of the spill response organization to protect the environmentally and economically sensitive areas identified in the NWACP and the respective industry response plan.
9. Disposal	Demonstrate the ability of the spill response organization to dispose of the recovered material and contaminated debris in compliance with guidance found in the NWACP.
10. Communications	Demonstrate the ability to establish an effective communications system throughout the scope of the Plan for the spill response organization.
11. Transportation	Demonstrate the ability to establish effective multi-mode transportation both for execution of the discharge and support functions.
12. Personnel support	Demonstrate the ability to provide the necessary logistical support of all personnel associated with response.
13. Equipment maintenance and support	Demonstrate the ability to maintain and support all equipment associated with the response.
14. Procurement	Demonstrate the ability to establish an effective procurement system.
15. Documentation	Demonstrate the ability of the spill response organization to document all operational and support aspects of the response and provide detailed records of decisions and actions taken.

FIGURE A.1-2 - DRILL/EXERCISE REQUIREMENTS

DRILL/EXERCISE TYPE	DRILL/EXERCISE CHARACTERISTICS
Internal phone number verification	• Company will test and document internal call out procedures at least once every 90 calendar days.
Facility / QI notification	• Conducted quarterly. • The HSE Department initiates mock spill notification to QI. • The HSE Department documents time/date of notification, name, and phone number of individual contacted. • Document in accordance with electronic Training / Drill / Exercise Tool.
Equipment deployment	• Conducted semiannually.

	Response contractors listed in the plan must participate in annual deployment drill/exercise. • A drill/exercise where response equipment is deployed to a specific site and operated in its normal operating medium. • Document in accordance with form in **FIGURE A.1-3**.
EMT tabletop	• Conducted annually. • Tests EMTâ€™s response activities/responsibilities. • Documents Planâ€™s effectiveness. • Must drill/exercise worst case discharge scenario once every three years. • Must test all Plan components at least once every three years • Document in accordance with form in **FIGURE A.1-3**.
Unannounced	• Company will either participate in unannounced tabletop drill/exercise or equipment deployment drill/exercise on an annual basis, if selected. • Company may take credit for participation in government-initiated unannounced drill/exercise in lieu of drill required by PREP guidelines. • Plan holders who have participated in a PREP government-initiated unannounced drill/exercise will not be required to participate in another one for at least 36 months from the date of the drill/exercise.
Area	• An industry plan holder that participates in an Area Drill/Exercise would not be required to participate in another Area Drill/Exercise for a minimum of six years.
OTHER DRILL/EXERCISE CONSIDERATIONS	
Drill program evaluation procedures	• Company conducts post-drill/exercise meetings to discuss positive items, areas for improvement, and to develop action item checklist to be implemented later.
Records of drills/exercises	• Company will maintain drill/exercise records for five years following completion of each drill/exercise. • Records will be maintained at the terminal via company electronic documentation system. • Company will verify appropriate records are kept for each spill response contractor listed in Plan as required by PREP guidelines (annual equipment deployment drill/exercise, triennial unannounced drill/exercise, etc.).
Oregon Department of Environmental Quality notification	• Company will send post drill/exercise reports for all tabletop exercises or deployment drills/exercises to the Oregon Department of Environmental Quality no later than 60 days after the completion of the drill or exercise. The executive summary from a National Preparedness for Response Exercise Program (N-PREP)

	report may be submitted to meet this requirement when the drill/exercise has been designed by the N-PREP staff. • Company will notify the Department of drills and exercises, at least 60 days before full deployment and tabletop drills/exercises, and 10 days prior to equipment drills/exercises. • Prior notice to the Department is not required before notification drills and internal phone number verification drills/exercises.

FIGURE A.1-3 - SPILL / DRILL / EXERCISE DOCUMENTATION FORM

Retain this form for a minimum of five years (Other versions of this form may be used).

1. Date(s) performed:					
2. ☐ Drill/Exercise ☐ Actual spill					
If drill/exercise: ☐ Announced ☐ Unannounced ☐ Deployment ☐ Notification ☐ Tabletop					
If drill/exercise, frequency: ☐ Quarter ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ Annual					
3. Location of drill/exercise/spill:					
4. Time started:					
5. Description of scenario or spill including volume and content (crude oil, condensate, etc.):					
6. Describe how the following objectives were exercised:					
Team's knowledge of the Oil Spill Response Plan:					
	Yes	**No**			
Was briefing meeting conducted:	☐	☐			
Established field Command Post:	☐	☐			

Confirmed source was stopped:	☐	☐
Developed Site Safety and Health Plan:	☐	☐
Prepared ICS 201:	☐	☐
Established work zones and perimeter security:	☐	☐
Developed short range tactical plan:	☐	☐
Developed long range tactical plan:	☐	☐
Proper Notifications:		
Qualified Individual (or designee):	☐	☐
Terminal Manager:	☐	☐
Release/Spill Report Form completed:	☐	☐
Notification to agencies completed (attach log):	☐	☐
Transportation/Communication System:		
Established primary/secondary communication system:	☐	☐
Primary: ☐ cellular phone ☐ two way radio ☐ land telephone line		
Secondary: ☐ cellular phone ☐ two way radio ☐ land telephone line		
☐ Other		

FIGURE A.1-3 - SPILL / DRILL / EXERCISE DOCUMENTATION FORM, CONTINUED

Transportation/Communication System, Continued:		
	Yes	**No**
Motor vessel deployed:	☐	☐
Provider name:		
Helicopter/Sea plane deployed:	☐	☐
Call sign:		
Describe function (i.e., transportation, surveillance, dispersant application):		

Ability to access contracted Oil Spill Removal Organizations (OSROs):		
Who contacted - (name of individual and OSRO):		
When contacted:		
Response time projection for deployment:		
Type and amount of containment used:		
Spill material recovered:	☐	☐
Spilled material disposed:	☐	☐
Where?		
Ability to coordinate spill response with on-scene coordinator, state, and applicable agencies:		
Was regulatory on-scene coordinator(s) contacted:	☐	☐
List person and agency represented:		
Ability to access sensitive site and resource information in the Area Contingency Plan (ACP):		
Was pre-impact assessment conducted:	☐	☐
Were pre-impact samples taken:	☐	☐
Were pre-impact photographs taken:	☐	☐
Were NRDA specialists mobilized:	☐	☐
Were deficiencies identified:	☐	☐
If yes, changes implemented:	☐	☐
If no, why were changes not implemented:		

LESSONS LEARNED	PERSON RESPONSIBLE FOR FOLLOW-UP OF CORRECTIVE MEASURES

Name:
Position:
Certifying Signature:

FIGURE A.1-4 - EPA REQUIRED RESPONSE EQUIPMENT TESTING AND DEPLOYMENT DRILL/EXERCISE LOG

(Other versions of this form may be used)

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

Item:	Date of Last Update:

ACTIVITY	INFORMATION
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

FIGURE A.1-5 - FORM 2203 - QI NOTIFICATION EXERCISE FORM

QUARTERLY NOTIFICATION EXERCISE - INTERNAL USE

1. **DATE PERFORMED: _____**

2. **EXERCISE OR ACTUAL RESPONSE? _____**

3. **FACILITY OR PIPELINE EXERCISE: _____**

4. **EMERGENCY SCENARIO (or Description of Exercise):**
   _____
   _____
   _____

5. **NAME OF PERSON NOTIFIED: _____**

   IS THIS PERSON IDENTIFIED AS THE QUALIFIED INDIVIDUAL OR DESIGNEE?
   _____

6. **TIME INITIATED: _____**

   TIME WHICH QUALIFIED INDIVIDUAL OR DESIGNEE RESPONDED_____

7. **METHOD USED TO CONTACT:**

   ☐ **TELEPHONE**
   ☐ **PAGER**
   ☐ **RADIO**
   ☐ **OTHER: _____**

8. **DESCRIPTION OF NOTIFICATION PROCEDURE:**

9. **IDENTIFY WHICH OF THE 15 CORE COMPONENTS OF YOUR RESPONSE PLAN WERE EXERCISED DURING THIS PARTICULAR EXERCISE: _____**

10. EVALUATION:

_____
_____
_____

11. CHANGES TO BE IMPLEMENTED:

_____
_____
_____

12. TIME TABLE FOR IMPLEMENTATION:

_____

CERTIFYING SIGNATURE:

_____

RETAIN THIS FORM FOR A MINIMUM OF 3 YEARS (USCG/RSPA/MMS) OR 5 YEARS (EPA).

IF ADDITIONAL SPACE REQUIRED, USE SEPARATE SHEET.

40 CFR 112 Appendix F Section 1.8.2.1
National Preparedness for Response Exercise Program (PREP) Guidelines

Original: 10/20/2003
Revised: 2/18/2004, 7/17/2006, 3/5/07, 6/18/2007, 7/24/2007, 10/19/2007, 02/11/08, 12/17/12

FIGURE A.1-5 - FORM 2203 - QI NOTIFICATION EXERCISE FORM, CONTINUED

15 RESPONSE PLAN CORE COMPONENTS

During each triennial cycle, all components of a plan holderâ€™s response plan must be exercised at least once. The purpose of this requirement is to ensure that all plan components function adequately for response to an oil spill.

CHECK EACH CORE COMPONENT USED IN EXERCISE.

1. ____ **NOTIFICATIONS:** Test the notifications procedures identified in the Facility Response Plan.

2. ____ **Staff Mobilization:** Demonstrate the ability to assemble the spill response organization identified in the Facility Response Plan.

3. ____ **Ability to operate within the Response Management System described in the plan: (INCIDENT COMMAND SYSTEM).**

4. ____ **Discharge Control:** Demonstrate the ability of the spill response organization to control and stop the discharge at the source.

5. ____ **Assessment:** Demonstrate the ability of the spill response organization to provide an initial assessment of the discharge and provide continuing assessments of the effectiveness of the tactical operations.

6. ____ **Containment:** Demonstrate the ability of the response organization to contain the discharge at the source or in various locations for recovery operations.

7. ____ **Recovery:** Demonstrate the ability of the spill response organization to recover the discharged product.

8. ____ **Protection:** Demonstrate the ability of the spill response organization to protect the environmentally and economically sensitive areas identified in the Area Contingency Plan and the respective industry response plan.

9. ____ **Disposal:** Demonstrate the ability of the spill response organization to dispose of the recovered material and contaminated debris.

10. ____ **Communications:** Demonstrate the ability to establish an effective communications system for the spill response organization.

11. ____ **Transportation:** Demonstrate the ability to provide effective multi-mode transportation both for execution of the discharge and support functions.

12. ____ **Personnel Support:** Demonstrate the ability to provide the necessary support of all personnel associated with the response.

13. ____ **Equipment Maintenance and Support:** Demonstrate the ability to maintain and support all equipment associated with the response.

14. ____ **Procurement:** Demonstrate the ability to establish an effective procurement system.

15. ____ **Documentation:** Demonstrate the ability of the spill response organization to document all operational and support aspects of the response and provide detailed records of decisions and actions taken.

DATE: _____ CERTIFYING SIGNATURE:
_____

Original: 10/20/2003
Revised: 2/18/2004, 7/17/2006, 3/5/07, 6/18/2007, 7/24/2007, 10/19/2007, 02/11/08, 12/17/12

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP

Fulfills Training and Exercise Requirements for:
EPA - 40 CFR §112.21 & Appendix F 1.8.2.2
USCG - 33 CFR §154.1055
DOT - 49 CFR §194.107

Name (PRINTED)**:** _____ **Date:** _____

Participant's Facility Location:
_____

Location of Tabletop:
_____

Exercise Initiated By:
_____

INTRODUCTION / OBJECTIVES / GROUND RULES

INTRODUCTION

You will be participating in a tabletop exercise that will allow you to consider NuStar Energy L.P. and their response organizations' abilities to prevent and respond to oil spills.

OBJECTIVES

Overall objectives of this exercise include:

- Enhance the ability to utilize the Integrated Contingency Plan (ICP) to respond and coordinate emergency management.
- Make timely internal and external notifications.
- Learn how to better respond to oil spills.

In addition to the overall objectives, some of the fifteen (15) core components listed in the PREP Guidelines will be addressed to some extent in this tabletop exercise.

The fifteen (15) core components, as listed in the PREP Guidelines, are as follows:

1. Notifications	6. Containment	11. Transportation
2. Staff Mobilization	7. Recovery	12. Personnel Support
3. Ability to Operate Within the Response Management System Described in the Plan	8. Protection	13. Equipment Maintenance and Support
4. Discharge Control	9. Disposal	14. Procurement
5. Assessment	10. Communications	15. Documentation

GROUND RULES AND TIPS FOR PARTICIPANTS

Treat these situations as real and participate. Asking questions and sharing thoughts is strongly encouraged. Issues and procedures arising will be thoroughly discussed.

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

SPILL SCENARIO

DATE: _____ **TIME:** _____

QI: _____

WEATHER CONDITIONS:

- ☐ Clear
- ☐ Overcast
- ☐ Light Rain
- ☐ Heavy Rain
- ☐ Thunder Storm
- ☐ Snow
- ☐ Blizzard
- ☐ Fog

Wind Speed: _____

Wind Direction: _____

Humidity: _____

Air Temperature: _____

LOCATION:

_____

_____

PRODUCT AND QUANTITY:

☐ Gasoline	_____ gal./bbl.	☐ Asphalt	_____ gal./bbl.
☐ #2 Fuel Oil	_____ gal./bbl.	☐ Crude Oil	_____ gal./bbl.
☐ Jet Fuel Kerosene	_____ gal./bbl.	☐ Propane	_____ gal./bbl.
☐ Diesel	_____ gal./bbl.	☐ Ammonia	_____ gal./bbl.
☐ #6 Fuel Oil	_____ gal./bbl.	☐ Other	_____ gal./bbl.

EMERGENCY SCENARIO:

_____

_____

_____

_____

_____

_____

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

INCIDENT BRIEFING (ICS 201)

1. Incident Name	2. Incident Number	3. Date/Time Initiated Date: Time:
4. Map/Sketch (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depecting situational status and resource assignment):		
5. Situation Summary and Health and Safety Briefing (for briefings or transfer of command): Recognize potential incident Health and safety Hazards and develop necessary measures (remove hazards, provide protective equipment, warm people of the hazard) to protect responders from those hazards.		
6. Prepared By: Name: _____ Position/Title: _____ Signature:		

ICS 201, Page 1	Date/Time:

REV. 17JAN13 **PAGE 3**

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: Time:
7. Current and Planned Objectives:		

8. Current and Planned Actions, strategies, and Tactics:	
Time:	Actions:

6. Prepared By: Name: _____ Position/Title: _____ Signature:	
ICS 201, Page 2	Date/Time:

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FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: Time:
9. Current Organization (fill in additional organization as appropriate):		

6. Prepared By: Name: _____ Position/Title: _____ Signature:
ICS 201, Page 3 | Date/Time:

INCIDENT BRIEFING (ICS 201)

REV. 17JAN13 **PAGE 5**

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: Time:

10. Resources Summary:

Resource	Resource Identifier	Date/Time Ordered	ETA	Arrived	Notes: (location/assignment/status)
				☐	
				☐	
				☐	
				☐	
				☐	
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				☐	
				☐	
				☐	
				☐	
				☐	
				☐	

6. Prepared By: Name: _____ Position/Title: _____ Signature:

ICS 201, Page 4	Date/Time:

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FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

TABLETOP DRILL DISCUSSION QUESTIONS

1. **NOTIFICATIONS**
   a. Who is responsible for making notifications?
   b. What internal notifications should be made?
   c. What external notifications should be made?
   d. What information should you have to make external notifications?

2. **INITIAL RESPONSE**
   a. Who is on scene first?
   b. Who is the Incident Commander?
   c. What initial actions should be taken and by who?
   d. Who estimates the size of the spill? How?
   e. Which facility employees are on duty?
   f. What are your primary concerns and objectives?
   g. Where do you log this information?
   h. How will the facility work with the Incident Command?
   i. How quickly can the spill management team respond to the incident?
   j. How quickly can other members of the spill management team respond?

3. **INCIDENT COMMAND SYSTEM**
   a. Where should the Incident Command Post be located?
   b. Fill out the form ICS 201 and the organizational chart.
   c. Who are the Federal and State On-Scene Coordinators?
   d. What are the spill management team's priorities and objectives? How will you meet your priorities and objectives? Develop ICS Form 202.
   e. What is the facilityâ€™s role in managing this incident? What roles do the federal, state, and local governments play?

4. **ENVIRONMENTAL SENSITIVITIES**
   a. What environmentally sensitive areas will this spill affect?

b. How will these areas be protected?
c. Are there any threatened or endangered species in the area?
d. If the material flows into water, are there downstream water concerns?
e. Are there economic, cultural, or other resources in the path of the spill?

5. **RESOURCES**
   a. Who is responsible for getting resources to the site?
   b. Where can these resources be obtained?
   c. How will the spill management team track these resources?
   d. How will responders be protected?
   e. What are the telecommunications needs?

6. **PLANNING**
   a. How will recovered product be stored, treated, and disposed? How will debris from the cleanup be handled?
   b. What are the public relations and media concerns?
   c. How should the SMT plan for an extended clean-up? Are 24-hour operations necessary?
   d. How will claims be handled?

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

TABLETOP EXERCISE DEBRIEF FORM

DON'T FEEL LIMITED IN YOUR RESPONSES. IF SOME AREA IS HANDLED PARTICULARLY WELL, IT'S GOOD TO GIVE YOUR TEAM CREDIT! ON THE OTHER HAND, IF SOMETHING OBVIOUSLY COULD BE IMPROVED UPON, YOUR TEAM WILL BENEFIT FROM THE LESSONS LEARNED.

LESSONS LEARNED

Step 1. List the Top three (3) Things That Went Well:

1) _____

_____

2) _____

_____

3) _____

_____

Step 2. List the Top THREE (3) Things That Need Improvement:

Needs Improvement/ Corrective Measure	Person Responsible for Ensuring Completion of	Time Table for Improvement

		Corrective Measures	Initiation
1)			
2)			
3)			

FIGURE A.1-6 - SPILL MANAGEMENT TEAM TABLETOP, CONTINUED

INTERNAL EXERCISE EVALUATION FORM

1. Date(s) performed:

2. Drill Type: ☐ Exercise ☐ Announced ☐ Unannounced
   ☐ Actual Event

3. Location of exercise:

4. Time started: Time completed:

5. Time started:

☐ Average Most Probable Discharge ☐ Maximum Most Probable Discharge ☐ Worst Case Discharge

Size of (simulated) spill _____ Bbls./gals.

6. Describe how the following objectives were exercised:

   a. Response Team's knowledge of oil spill response plan:
   _____
   _____

   b. Proper notifications:
   _____
   _____

   c. Communications System
   _____
   _____

   d. Response Team's ability to access contracted OSRO:
   _____
   _____

   e. Response Team's ability to coordinate spill response with OSC, state and applicable agencies:

_____

_____

f. Response Team's ability to access sensitive site information in Area Contingency Plan:

_____

_____

7. Identify which of the 15 core components of your response plan were exercised:

_____

8. Attach description of lesson(s) learned.

Name (PRINTED): _____

Certifying Signature: _____ Date: _____

Retain this form for a minimum of 3 years (for USCG/PHMSA/MMS) or 5 years (for EPA).

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A.2 TRAINING PROGRAM

FIGURE A.2-1 provides training requirements for spill responders. **FIGURE A.2-2** provides the program matrix. **FIGURE A.2-3** provides a personnel response training log.

FIGURE A.2-1 - TRAINING REQUIREMENTS

TRAINING TYPE	TRAINING CHARACTERISTICS
Training in use of spill response plan	• All field personnel will be trained to properly report/monitor spills. • Plan will be reviewed annually with employees. • The Personnel Response Training Log is located in **FIGURE A.2-3**.
OSHA training requirements	• All Company responders designated in Plan must have 24 hours of initial spill response training. • Laborers having potential for minimal exposure must have 24 hours of initial oil spill response instruction and eight hours of actual field experience. • Responders having potential exposure to hazardous substances at levels exceeding permissible exposure limits must have 40 hours of initial training offsite and 24 hours of actual field experience. • On-site management/supervisors required to receive same training as equipment operators/general laborers plus eight hours of specialized hazardous waste management training. • Managers/employees require eight hours of annual refresher training.
Spill management team	• See recommended PREP Training Matrix (FIGURE

personnel training	A.2-2).
Training for casual laborers or volunteers	• Company will not use casual laborers/volunteers for operations requiring HAZWOPER training.
Wildlife	• Only trained personnel approved by USFWS and appropriate state agency will be used to treat oiled wildlife.
Training documentation and record maintenance	• Training activity records will be retained for five years for all personnel following completion of training. • Company will retain training records indefinitely for individuals assigned specific duties in the Plan. • Training records will be maintained at the Corporate Headquarters.

FIGURE A.2-2 - PREP TRAINING PROGRAM MATRIX

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	EMERGENCY MANAGEMENT TEAM (EMT)	FACILITY PERSONNEL
Captain of the Port (COTP) Zones or Environmental Protection Agency (EPA) Regions in which the facility is located	x	x	x
Notification procedures and requirements for facility owners or operators, internal response organizations, federal and state agencies, and contracted oil spill removal organizations (OSROs) and the information required for those organizations	x	x	x
Communication system used for the notifications	x	x	x
Information on the products stored, used, or transferred by the facility, including familiarity with the material safety data sheets (MSDS), special handling procedures, health and safety hazards, spill and fire fighting procedures	x	x	x
Procedures the facility personnel may use to mitigate or prevent any discharge or a substantial threat of a discharge of oil resulting from facility operational activities associated with internal or external cargo transfers, storage, or use	x		
Facility personnel responsibilities and	x	x	x

procedures for use of facility equipment which may be available to mitigate or prevent an oil discharge			
Operational capabilities of the contracted OSROs to respond small, medium, and large discharges	x	x	x
Responsibilities and authority of the Qualified Individual (QI) as described in the Spill Response Plan and Company response organization	x	x	x
The organization structure that will be used to manage the response actions including: • Command and control • Public information • Safety • Liaison with government agencies • Spill response operations • Planning • Logistics support • Finance	x	x	x
The responsibilities and duties of each Emergency Management Team (EMT) within the organization structure	x	x	
The drill and exercise program to meet federal and state regulations as required under Oil Pollution Act of 1990 (OPA 90)	x	x	x
The role of the QI in the post discharge review of the Plan to evaluate and validate its effectiveness	x		
The Area Contingency Plan (ACP) for the area in which the facility is located	x	x	x
The National Contingency Plan (NCP)	x	x	x
Roles and responsibilities of federal and state agencies in pollution response	x	x	x

FIGURE A.2-2 - PREP TRAINING PROGRAM MATRIX, CONTINUED

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	EMERGENCY MANAGEMENT TEAM (EMT)	FACILITY PERSONNEL
Available response resources identified in the Plan	x	x	

Contracting and ordering procedures to acquire OSRO resources identified in the Plan	x	x	
OSHA requirements for worker health and safety (29 CFR 1910.120)	x	x	x
Incident Command System/Unified Command System	x	x	
Public affairs	x	x	
Crisis management	x	x	
Procedures for obtaining approval for dispersant use or in-situ burning of the spill	x		
Oil spill trajectory analyses	x		
Sensitive biological areas	x	x	
This training procedure as described in the Plan for members of the EMT		x	
Procedures for the post discharge review of the plan to evaluate and validate its effectiveness		x	
Basic information on spill operations and oil spill cleanup technology including: • Oil containment • Oil recovery methods and devices • Equipment limitations and uses • Shoreline cleanup and protection • Spill trajectory analysis • Use of dispersants, in-situ burning, bioremediation • Waste storage and disposal considerations		x	
Hazard recognition and evaluation		x	
Site safety and security procedures		x	
Personnel management, as applicable to designated job responsibilities		x	
Procedures for directing the deployment and use of spill response equipment, as applicable to designated job responsibilities		x	x
Specific procedures to shut down effected operations			x
Procedures to follow in the event of discharge, potential discharge, or emergency involving the following equipment or scenarios: • Tank overfill • Tank rupture			x

• Piping or pipeline rupture • Piping or pipeline leak, both under pressure or not under pressure, if applicable • Explosion or fire • Equipment failure • Failure of secondary containment system			
QI's name and how to contact him or her			x

FIGURE A.2-3 - PERSONNEL RESPONSE TRAINING LOG

Training records are maintained at the terminal office (Other versions of this form may be used).

NAME	RESPONSE TRAINING/DATE AND NUMBER OF HOURS	PREVENTION TRAINING/DATE AND NUMBER OF HOURS
Jerome Jackson Area Manager **Qualified Individual**	9/18/13 to 9/19/13	
Joe Hufman Area Manager Terminal, Pipeline and Distributionn **Qualified Individual**	9/18/13 to 9/19/13	

*Qualified Individual

A.3 ADDITIONAL PROGRAMS

A.3.1 Alcohol and Drug Program

The Company has developed and implemented an Alcohol and Drug Program that provides for the random testing of all DOT governed NuStar employees. Contractors are included in a separate consortium that provides their random testing. These programs both also offer rehabilitation, treatment and follow-up testing for workers who seek assistance or who are found to be out of compliance. The program is run under complete confidentiality and is aimed at providing a drug-free workplace.

APPENDIX B Last Revised: February 2012

CONTRACTOR RESPONSE EQUIPMENT

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B.1 Cooperatives and Contractors

B.1.1 OSRO Classification

Figure B.1-1 - Evidence of Contracts and Equipment Lists

B.1 COOPERATIVES AND CONTRACTORS

The Company has contracted with additional Oil Spill Removal Organizations (OSROs) to provide personnel and equipment in the event of a spill. The classification, response capabilities, and equipment are described below.

B.1.1 OSRO Classification

The OSRO classification process was developed by the U.S. Coast Guard (USCG) to provide guidelines to enable USCG and plan preparers to evaluate an OSROâ€™s potential to respond to oil spills. Plan holders that utilize USCG classified OSRO services are not required to list response resources in their plans.

The following is a listing of the USCG classified OSROs that may respond to incidents for areas listed in this Plan. For a detailed listing of USCG classified OSROs and other contractors by terminal, refer to **FIGURE 3.1-6** and **FIGURE 7.1-1**.

<table>
<tr><th>COMPANY / CONTRACTOR / TERM</th><th>APPLICABLE COTP ZONE (S)</th><th>USCG CLASSIFICATIONS</th><th>RESPONSE TIME</th></tr>
<tr><td>Clean Rivers Cooperative, Inc (Portland Terminal)
200 S. W. Market #190
Portland
OR
97201
Term of contract:
To</td><td>Portland</td><td>
<table>
<tr><th></th><th colspan="4">Facilities</th><th colspan="4">Vessels</th></tr>
<tr><th></th><th>MM</th><th>W1</th><th>W2</th><th>W3</th><th>MM</th><th>W1</th><th>W2</th><th>W3</th></tr>
<tr><td>River/Canal</td><td>✓</td><td></td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Inland</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Open Ocean</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Offshore</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Nearshore</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Great Lakes</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td><td>1 hours</td></tr>
</table>

The following contractors are retained by the Company, but are not USCG classified OSROs within this Area:

FIGURE 7.1-1 provides both OSRO and non-OSRO summarized equipment lists and response times.

FIGURE B.1-1 provides evidence of contracts with OSROs and equipment lists for contractors without USCG classification.

FIGURE B.1-1 - EVIDENCE OF CONTRACTS AND EQUIPMENT LISTS

Clean Rivers Cooperative, Inc (Portland Terminal), Portland ,OR

APPENDIX C
SPCC PLANS

Last Revised: April 2014

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Figure C-1 - Professional Engineer Certification

Figure C-2 - Management Approval and Review

Figure C-3 - Record of Reviews

Figure C-4 - SPCC Plan

Figure C-5 - Tank Tables

Figure C-6 - Addendum

Figure C-7 - Drainage Diagram

Figure C-8 - Evacuation Diagram

Figure C-9 - Piping Diagram

Figure C-10 - Containment Calculation

Figure C-11 - Discharge Prevention Meeting Log

Figure C-12 - Inspection Procedures

Figure C-13 - Annual Inspection Record

Figure C-14 - Secondary Containment Drainage Log

Figure C-15 - Reportable Spill History

Figure C-16 - Containment and Drainage Planning

FIGURE C-1 - PROFESSIONAL ENGINEER CERTIFICATION

40 CFR, Part 112.3(d) Professional Engineer Certification
Being familiar with the provisions of 40 CFR, Part 112, I attest to the following:

- I am familiar with the requirements of this part.
- I or my agent has visited and examined the Facility.
- The Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part.
- Procedures for required inspections and testing have been established.
- The Plan is adequate for the Facility.

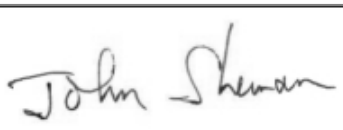
Printed Name of Registered Professional Engineer:	Daniel J. Shea
Signature of Registered Professional Engineer:	
Date:	5/27/2012
Registration No.:	61084

Seal:



FIGURE C-2 - MANAGEMENT APPROVAL AND REVIEW

I hereby approve the contents of the Facility's Spill Prevention, Control, and Countermeasure Plan (SPCC Plan) and have the authority to commit the necessary resources to implement the SPCC Plan, as set forth in this document, in accordance with the federal requirements of 40 CFR Part 112.

Name:	Bill Stowell	**Signature:**	
Title:	Terminal Manager	**Date:**	1/27/2012
Name:	John Sherman	**Signature:**	

Title:	Terminal Manager	**Date:**	3/7/2012
Name:	Steven Kober	**Signature:**	
Title:	Terminal Manager	**Date:**	6/4/2013

FIGURE C-3 - RECORD OF REVIEWS

RECORD OF REVIEWS					
Date of Review[1]		**Will Plan Need Amendment?[2]**	**Reviewer's Name[3]**	**Reason for Amendment[4]**	**Date of Amendment (or N/A)**
Full	**Partial**	**Yes / No**			
7/15/2011		Yes	Stpehan Rosen / Michael Poirier	Update personnel / content of SPCC per EPA inspection	7/13/2011
3/16/2012		Yes	Buddy Stubblefield (BillSenner WGR)	Per New 1200Z Permit Requirements and Compliance with new DEQ order.	3/14/2012

[1] A full review of the plan must be performed at least once every five years.

[2] The SPCC plan must be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge. Examples include, but are not limited to: commissioning or decommissioning containers; replacement, reconstruction, or movement of containers; reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures. An amendment made must be prepared within six months of the change, and implemented as soon as possible, but not later than six months following preparation of the amendment.

[3] Reviewer's name indicates that he/she has completed review and evaluation of the SPCC plan for Portland Terminal on the date indicated and will or will not amend the plan as a result, as indicated.

[4] Briefly describe reasons for plan amendment. These may include one or more of the reasons in footnote 2, above, administrative changes such as updates to names or phone numbers, regulatory changes, or changes in Company policies.

FIGURE C-3 - RECORD OF REVIEWS

RECORD OF REVIEWS					
Date of Review[1]		**Will Plan Need Amendment?[2]**	**Reviewer's Name[3]**	**Reason for Amendment[4]**	**Date of Amendment (or N/A)**
Full	**Partial**	**Yes / No**			

1/11/2011		No	Buddy Stubblefield, Richy Hudiburgh, Bill Dungan,Mike Poirier		
8/10/2010		No	Mike Poirier		

[1] A full review of the plan must be performed at least once every five years.

[2] The SPCC plan must be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge. Examples include, but are not limited to: commissioning or decommissioning containers; replacement, reconstruction, or movement of containers; reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures. An amendment made must be prepared within six months of the change, and implemented as soon as possible, but not later than six months following preparation of the amendment.

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Date of Review[1]		**Will Plan Need Amendment?[2]**	**Reviewer's Name[3]**	**Reason for Amendment[4]**	**Date of Amendment (or N/A)**
Full	**Partial**	**Yes / No**			
12/14/2007		No	Buddy Stubblefield, Ricky Hudiburgh, Bill Dungan, Mike Poirier		
	6/4/2012	Yes		Revision efforts Nustar has performed, per New 1200Z Permit & City Of Portland Waterboard requests.	6/11/2012

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Date of Review[1]		**Will Plan Need Amendment?[2]**	**Reviewer's Name[3]**	**Reason for Amendment[4]**	**Date of Amendment (or N/A)**
Full	**Partial**	**Yes / No**			
6/11/2012		Yes	Buddy Stubblefield, John Sherman, Bill Senner (WGR)	Revision efforts Nustar has performed, per New 1200Z Permit & City Of Portland Waterboard requests.	6/19/2012
5/2/2013		Yes	Chris Chan and Steve Kober	Request from City of Portland; annual review and update; personnel and facility update	5/2/2013

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FIGURE C-3 - RECORD OF REVIEWS

RECORD OF REVIEWS				

Date of Review[1]		Will Plan Need Amendment?[2]	Reviewer's Name[3]	Reason for Amendment[4]	Date of Amendment (or N/A)
Full	Partial	Yes / No			
9/23/2013		Yes	Steve Kober	Update tank content in Figure C-5 -Tank Tables	9/23/2013
	10/8/2013	Yes	Chris Chan	Update Personnel Information in SWPPP	10/8/13

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FIGURE C-4 - SPCC PLAN

FACILITY INFORMATION			
Name of Facility:	Portland Terminal	**Type of Facility:**	Onshore/Non-Production
Location of Facility:	9420 N.W. St. Helens Road Portland, OR 97231	**Name & Address of Owner or Operator:**	Shore Terminals LLC 19003 IH-10 West San Antonio, TX 78257
Latitude/ Longitude:	(b) (7)(F) [redacted]	**Designated Personnel Accountable for Oil Spill Prevention at the Facility:**	SteveKober
Personnel Accountable for Training at the Facility:	Steve Kober		
General Facility Description:	This site is a petroleum bulk tank farm and marine terminal consisting of aboveground storage tanks ranging in size from 120 to 110,000 barrels. The facility is used for bulk storage and distribution of petroleum hydrocarbons. The facility receives and ships product by pipeline, tank truck, and waterborne vessels. Products transferred through this facility are non-persistent oils consisting of gasoline, gasoline additives, ethanol,		

	and distillates.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.7	
(a) GENERAL REQUIREMENTS	
(1) Include a discussion of your facilities conformance with the requirements listed in this part	
	• The specific requirements are detailed in bulleted responses below.
(2) Comply with all applicable requirement listed in this part. Your Plan may deviate from some requirements if you provide additional protection or explanation	
	• All requirements are addressed below. Where deviations may occur, an equivalent environmental protection is described in detail.
(3) Describe in your Plan the physical layout of the facility and include a facility diagram. You must also address in your plan:	
	• The facility is an Onshore/Non-Production facility; refer to FIGURE C-7 for the facility diagram.
i.The type of oil in each container and its storage capacity	
	• Refer to FIGURE C-5 for the Tank Table.
ii.Discharge prevention measures	
	• Entire plan.
iii.Discharge or drainage controls	
	• Refer to APPENDIX C 40 CFR 112.8 (b).
iv.Countermeasures for discharge	
	• Refer to SECTION 2.
v.Methods of disposal	
	• Refer to FIGURE 7.4 Waste Management.
vi.Contact list and phone numbers	
	• Refer to FIGURE 3.1-5 and FIGURE 3.1-6.
(4) Unless you have submitted a response plan, provide information and procedures to report a discharge	
	• A Facility Response Plan (FRP) has been submitted to the regional administrator.
(5) Unless you have submitted a response plan, describe procedures you will use when a discharge occurs	
	• A Facility Response Plan (FRP) has been submitted to the regional administrator.
(b) PREDICTION OF THE DIRECTION, RATE OF FLOW, AND TOTAL QUANTITY OF OIL WHICH COULD BE DISCHARGED FROM THE FACILITY AS A RESULT OF EACH TYPE OF MAJOR EQUIPMENT FAILURE	
	• Refer to Tank Table, FIGURE C-5, and 40 CFR 112.8(d).
	• Tank Overfill: If tank 8006 were to be overfilled, which is unlikely due to overfill alarms, it would be at a rate of 7,000 gallons per minute (gpm). Material would flow into Berm # 3; unrestricted flow would be Northeast. Flow time until isolation is estimated at 3 minutes; total volume estimated at 21,000 gallons.
	• Rail Offloading Spill: If a spill were to occur during railcar unloading it would be at a rate of 400 gallons per minute (gpm). Material would flow into drip pans; unrestricted flow would be Northeast. Flow time until isolation is estimated at 1 minute; total volume estimated at 400 gallons.
	• Truck Loading Spill: If a spill were to occur during truck loading it would be at a rate of 500 gallons per minute (gpm). Material would flow into the truck rack; unrestricted flow would be Northeast. Flow time until isolation is estimated at 1 minute; total volume estimated at 500 gallons.

(c) PROVIDE APPROPRIATE CONTAINMENT	
	• Refer to Tank Table, FIGURE C-5, and 40 CFR 112.8 (c).
	• Tank Overfill: Spilled oil (21,000 gallons estimated) from an overflow of tank 8006 would be contained within the combined berms # 3 and # 4, which provide 6,125,168 gallons of secondary containment.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.7	
(c) PROVIDE APPROPRIATE CONTAINMENT	
	• Rail Offloading Spill: Spilled oil (400 gallons estimated) from rail offloading operations would initially flow into the drip pans beneath the railcars, from there it would enter the terminal drainage system which leads to a large concrete oil water separator which provides in excess of 67,000 gallons of containment.
	• Truck Loading Spill: Spilled oil (500 gallons estimated) from truck loading operations would flow into the truck rack containment system, which provides 16,159 gallons of containment.
(d) CONTINGENCY PLANNING	
(1) An oil spill contingency plan following the provisions of part 109 of this chapter	
	• This is not applicable because a response plan under 112.20 has been submitted for this facility.
(e) INSPECTIONS, TESTS, AND RECORDS	
	• Monthly inspections are performed which include checklist items covering storage tanks, pumps, pipelines, valves, fittings, fence perimeter and general security.
	• Product handling equipment is inspected for signs of leakage or potential leakage. Spill containment impoundments are inspected to verify for the presence of oil.
	• Terminal personnel perform regular inspections of facility equipment, operations and spill containment areas. Inspections are performed in accordance with written procedures detailed on each inspection sheet.
	• The Company has developed a tank inspection program for all storage tanks in accordance with the API 653 Standard. As tanks become available, clean and gas free, the Company will contract with a certified API 653 inspector to perform a complete thorough inspection of the large tanks.
	• An API 653 inspection includes performing non-destructive testing of the tank steel to verify corrosion conditions. The API 653 inspection reports are maintained at the main office of the terminal manager.
	• When measurements or tank conditions are found to be out of API 653 specifications, the necessary repair work will be completed prior to returning the tank to operational service.
	• Inspection and testing records are made part of this plan, but kept at the main office of the terminal manager. All inspection records associated with this SPCC plan will be maintained for a period of three years.
	• The facility manager or his designee will sign the inspections required by this SPCC Plan. Examples of these inspections can be found in this plan.
	• Liquid level gauging devices are regularly tested to ensure proper operation. Maintenance records are kept at the facility.
	• Integrity testing will follow the guidelines listed above and examples of these records documenting the testing can be found in the appendices to this plan.
(f) PERSONNEL TRAINING AND DISCHARGE PREVENTION PROCEDURES	
(1) PERSONNEL TRAINING	
	• Annually the Company will provide update training in the form of on-site meetings with

all employees. Employee training will include review and instruction in each of the following categories:
• The Company has developed an employee-training program that addresses proper operation and maintenance of equipment to prevent the release of oil into navigable waters.
• The Company provides initial awareness training to all employees prior to the employee commencing operational duties. The employees are informed of the SPCC Plan, the purpose of the plan, and proper pollution prevention practices.
• The overall purpose of this training program is ensuring that employees are kept informed of current operational procedures, and applicable spill prevention methods.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.7
(f) PERSONNEL TRAINING AND DISCHARGE PREVENTION PROCEDURES
(1) PERSONNEL TRAINING
• Review of the Terminal's SPCC Plan, new revised regulations / laws / instructions, safe handling of hazardous materials, review of product storage and transfer operations, and recognize and identify pollution prevention opportunities.
(2) DESIGNATED PERSON
• Refer to Facility Information above for the â€œDesignated Personnel Accountable for Oil Spill Prevention at the Facilityâ€
(3) SPILL PREVENTION BRIEFINGS
• In addition to the regular employee training, the Company will schedule annual briefings to assure that employees have current knowledge of spill prevention techniques and associated equipment.
• The record of these briefings will be documented using the form included with this SPCC Plan.
• Employees are instructed in applicable pollution control laws, rules, and regulations.
(g)Â SECURITY
(b) (7)(F) [redacted]

(b) (7)(F)



(h)Â FACILITY TANK CAR AND TANK TRUCK LOADING/UNLOADING RACK
(1) TRANSFER AREA DRAINAGE
• The transfer areas are protected by a collection system, which is connected to the oil/water separator system in place. The deliveries by marine come in at both docks with collection drains at each dock. The pipeline manifolds are in areas that are curbed or graveled and they ultimately drain to basins, which are connected to the oil/water separator.
• Deliveries by truck consist of additives, ethanol, and biodiesel, which are placed into tanks within containment areas. The truck rack is a covered area and provides 16,159 gallons of secondary containment, which exceeds the 9,000 gallon maximum truck tanker capacity.
• There is no rail rack at this facility. There is a rail offloading area, which is graded to run any potential spills into the terminal storm-water collection system.
(2) INTERLOCKED WARNING LIGHT OR PHYSICAL BARRIER
• There is an automatic foam fire suppression system on the truck loading rack (Main Terminal).
• There is an emergency shutdown system (ESD) at the loading rack, which can be activated automatically by fire detectors or manually by push buttons.
• Warning signs are visible at the loading rack to remind drivers to unhook the hose prior to departure.
• Drivers do not receive permission to load until the overfill protection system is connected to the truck and operating properly.
• The drivers must pass training standards for loading at the facility.
(3) TRUCK DRAIN / OUTLET EXAMINATION
• The lowermost drain and all outlets are inspected for discharges prior to filling and departure of all trucks and, if necessary, they are tightened, adjusted, or replaced to prevent liquid discharges while in transit.
(i) BRITTLE FRACTURE EVALUATION REQUIREMENTS
• The storage containers at this Facility are currently in light liquid service, there have been no major tank repairs or modifications that might affect the structural integrity of the steel.

• Facility management is aware that in the event modifications are made to storage containers, an evaluation must occur to determine if the structural integrity of the container is sufficient to safely manage the material to be stored and prevent brittle fracture or catastrophic failure.
• The Facility follows a program to inspect all storage tanks according to API 653 standards. The API 653 inspections will include structural steel evaluation.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.7
(j) STATE DISCHARGE PREVENTION REQUIREMENTS
• Certain facilities with a total storage capacity of 10,000 gallons or more must submit an extensive contingency plan to DEQ.
(k) QUALIFIED OIL-FILLED OPERATIONAL EQUIPMENT
• Not Applicable
(1) Qualification Criteriaâ€”Reportable Discharge History
• Not Applicable
(2) Alternative Requirements to General Secondary Containment
• Not Applicable
(i) Establish and document the facility procedures for inspections or a monitoring program to detect equipment failure and/or a discharge; and
• Not Applicable
(ii) Unless you have submitted a response plan under Â§112.20, provide in your Plan the following:
• Not Applicable
(A) An oil spill contingency plan following the provisions of part 109 of this chapter.
• Not Applicable
(B) A written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful.
• Not Applicable

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.8
(a)GENERAL REQUIREMENTS
• The specific requirements are detailed in bulleted responses below.
(b)Â FACILITY DRAINAGE
(1) DRAINAGE FROM DIKED AREAS
• All drain valves associated with containment systems will remain closed except when discharging. Drainage of containment areas will be performed manually.
• Prior to discharge, Terminal personnel will inspect accumulated storm water, and verify that water is clear and free of oil sheen. If sheen is observed, proceed to treat water using sorbents and/or diverting to oil/water separator.
• Company personnel are directed to not discharge storm water if contamination is found.
• Drainage from each diked area flows to the lower portion of the dike area and is controlled by valving, which diverts the flow to the on-site API oil/water separator. Tank area 1 through 3 flow to the main oil/water separator. Tank area 4 flows to the other separator. Tank Area 5 flows to small separator to river.

• The truck loading rack containment flows to an underground sump at the rack, which is then connected by underground piping to the main API oil/water separator
(2) DRAIN VALVES
• The drain valves are constructed of steel, and are manually operated rising-stem gate valves.
• These valves are maintained in a closed position, requiring a â€œTee-handleâ€ to be operated, except when discharging.
• All diked areas are visually inspected prior to opening the drain valves.
(3) FACILITY DRAINAGE SYSTEM FROM UNDIKED AREAS
• This terminal was designed in accordance with 112.8(b)(3). Storm-water drainage is captured with surface drains throughout the Terminal, from there routed by piping to the large concrete oil/water separator. The site was graded to direct surface flow into the drains. Site discharge is downstream of the separator and in accordance with the Terminal NPDES Permit.
(4) DIVERSION SYSTEM
• This Terminal was designed in accordance with 112.8(b)(3).
(5) TREATED DRAINAGE WATERS
• Not Applicable
(c) BULK STORAGE CONTAINERS
(1) CONTAINER CONSTRUCTION AND MATERIALS
• All bulk storage tanks are constructed of welded or riveted steel to meet API standards (relating to oil storage tank construction).
• Each aboveground container covered by the SPCC rule is inspected on a regular schedule, and whenever material repairs are made, in accordance with the following industry standards: -American Petroleum Institute (API) Standard 653 for atmospheric storage tanks with a capacity of 50,000 gallons or more. -Steel Tank Institute (STI) Standard SP001 for atmospheric storage tanks with a capacity of less than 50,000 gallons. -API Standard 510 for pressurized storage vessels. An inspection schedule has been established (no later than November 10, 2011) for each above ground storage container identified in the SPCC plan based on the intervals prescribed in the applicable industry standard. For containers not previously inspected per an above industry standard, an inspection must be performed within 5 years of the SPCC rule revision effective date of November 10, 2011 (per EPA document â€œEPA Guidance for Regional Inspectors, Chapter 7â€). The container inspection schedule is maintained by the Regional Tank Integrity Manager.
• Welded steel tanks are considered industry standard for storage of petroleum products.
• These tanks are operated following API 650 or 653 standards for tanks that store petroleum products at 1.0 specific gravity, ambient or heated temperature, and ambient pressure.
• Marine Fuel Oil tanks (# 2511, 2512 and 3605) are heated to 135-140Â°F. The biodiesel tank (# 2113) is heated to 70-80Â°F.
(2) SECONDARY CONTAINMENT
• Based on soil hydraulic conductivity data generated in the 9-21-11, â€œAsh Creek Associatesâ€™ Infiltration Testing Servicesâ€ report, Berm # 3 may not be sufficiently impervious (See Discrepancy Figure C-6 Addendum to this Plan).
• These dikes are constructed to contain the volume of the largest tank + highest NOAA listed 24-hour rainfall in the last 25 years.
• All bulk storage tanks are provided with secondary containment in the form of sufficiently impervious dikes of compacted clay floors with concrete walls, with the exception of one compacted earthen wall with erosion prevention material on its surface. Berm 5 has an impervious liner.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.8

(c) BULK STORAGE CONTAINERS
(3) RAINWATER DRAINAGE
• If storm water is verified as uncontaminated, unlock and open discharge valve. Begin discharge of storm water.
• All drain valves will remain closed except when discharging.
• The Secondary Containment Drainage Log, FIGURE C-14, is used to record all dike draining events.
• Upon completion of the drainage, close and lock drain valve and record the securing of the drain valve on the Company Drainage Log.
• Inspect accumulated storm water. Verify that water is clear and free of oil sheen. If sheen is observed, proceed to treat water using sorbents and/or diverting to oil/water separator. Do not discharge storm water if contaminated.
• Storm water is collected within the secondary containment dikes then directed to the API oil water separators once valve is opened. The Company maintains a permit from the state of Oregon, to discharge uncontaminated storm water.
(4) BURIED METALLIC STORAGE TANKS
• The tank at the operatorâ€™s office is in use. It is a 1,000 gallon tank, it is not covered by UST regulations. This tank has a protective coating, suitable for underground service, and it is regularly leak tested.
(5) PARTIALLY BURIED METALLIC STORAGE TANKS
• There are no partially buried tanks at this facility.
(6) ABOVEGROUND CONTAINERS
• All tanks are visually inspected monthly to determine their integrity. A monthly terminal inspection is performed to verify the condition of the terminal.
• The Company has developed a tank inspection program for all storage tanks in accordance with the API 653 Standard.
• The aboveground boiler fuel tank located just northeast of tank #2512, and outside of the secondary containment area, is out of service. It has never been used. However, it is connected by piping to the boiler. It has its own concrete secondary containment.
(7) INTERNAL HEATING COILS
• Tanks 2113, 2511, 2512, and 3605 are equipped with internal heating coils to heat Marine Fuel Oil in storage. Leakage control is achieved by regular monitoring (by observation of discharge at the steam outlet valve) as part of the process to ensure their integrity and sound operations.
(8) FAIL SAFE ENGINEERING
• To prevent overfilling of bulk storage tanks, Company personnel will monitor all filling operations using direct â€œside-readingâ€ level gauges, manual gauging techniques, and automated tank inventory system (TIS)
• Tanks are equipped with side reading automatic gauges and high level alarms.
• These gauges are utilized to directly verify product level in the tank without the requirement to handle the tank from the top.
• The side gauges and high level alarms are regularly inspected to verify their operational integrity.
(9) FACILITY EFFLUENTS
•
• Prior to the discharge of storm water from the dike field areas, Company personnel visually inspect the effluent.
• Storm water is not discharged if there is a visible sheen. The Company will treat the storm water to remove the oil sheen before discharging.
• The API oil/water seperator is monitored each shift (part of AVOs performed), Box #1 of the API oil/water seperator is skimmed as necessary; outfalls are observed daily; and the API oil/water seperator is cleaned and maintained annually.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.8
(c) BULK STORAGE CONTAINERS
(10) VISIBLE OIL LEAKS
• All containment dikes are inspected on a monthly basis and prior to actual discharging to prevent the release of oil into navigable waters.
• Operators will inspect the product transfer as well as bulk storage container areas daily, and promptly correct any operations or facilities that show leakage.
• Facility equipment including storage tanks shall be inspected daily to verify the integrity of each item.
(11)Â MOBILE/PORTABLE STORAGE CONTAINERS
• One tote of red dye is located within the tank truck loading rack containment. One tote of Lubricity additive is located in the truck loading rack containment area. All have adequate secondary containment volumes.
(d) FACILITY TRANSFER OPERATIONS, PUMPING, AND FACILITY PROCESSES
(1) BURIED PIPING INSTALLATIONS
• In the event that buried pipe is exposed for maintenance, it will be carefully inspected to identify any corrosion.
• Any corrosion of buried pipe shall require the affected area to be replaced and pressure tested prior to returning the pipe to service.
• All underground piping is equipped with a protective coating, and protected with Cathodic Protection as the lines were constructed prior to August 16, 2002. All buried piping installed or replaced on or after August 16, 2002, shall be properly wrapped and coated. It also will be cathodically protected, or the determination made by a qualified corrosion technician that the soil is not conducive to the corrosion of a buried metallic pipeline. It then must meet the requirements of 40 CFR 112.280.
• Integrity and leak testing of buried piping shall be performed at the time of installation, modification, construction, relocation, or replacement.
(2) PIPELINE OUT OF SERVICE
• Any piping considered to be out of service will be disconnected from product transfer equipment and fitted with caps and/or blind flanges.
(3) PIPING SUPPORTS
• Pipelines are nested on pipe supports to prevent un-necessary movement that might allow the pipe to fall from the support.
• All piping is configured to allow for expansion, while minimizing abrasion that might cause deterioration of the steel.
• Pipe supports and associated piping are protected against corrosion by exterior coatings.
• Pipelines and supports are inspected monthly to determine conditions.
• All pipe supports have been designed and installed using applicable engineering techniques.
(4) ABOVEGROUND VALVES AND PIPELINES
• All buried piping installed or replaced on or after August 16, 2002, shall be properly wrapped and coated. It also will be cathodically protected, or the determination made by a qualified corrosion technician that the soil is not conducive to the corrosion of a buried metallic pipeline. It then must meet the requirements of 40 CFR 112.280.
• Operators will inspect the product transfer areas daily, and correct any operations that show leakage.
• All Facility equipment, including pipelines and valves, shall be inspected monthly to verify the integrity of each item.
• Aboveground valve and pipeline inspections shall involve assessment of the general condition of items, including flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces.
• In the event underground pipeline inspections identify excessive corrosion and/or actual leaks, the Company will pressure test these pipelines to verify their integrity.

• If a pipeline fails the integrity testing, the Company shall repair or replace the pipe prior to returning the pipeline to service.

FIGURE C-4 - SITE SPECIFIC SPCC PLAN, CONTINUED

40 CFR, 112.8
(d) FACILITY TRANSFER OPERATIONS, PUMPING, AND FACILITY PROCESSES
(5) VEHICULAR TRAFFIC
• All drivers are instructed to observe caution where overhead piping may interfere with the movement of tank trucks.
• The Company has developed a processs for certifying that new truck drivers are trained on the use of the loading rack and associated equipment, prior to issuing a driver card.
• Signs have been posted at facilities warning drivers of the presence of aboveground piping.
• Loading racks and the driveways that lead to and from the loading racks have been designed to allow the unobstructed movement of tank trucks through the facility.
• Traffic in the truck loading rack area is one-way to minimize obstructions.

FIGURE C-5 - TANK TABLES

Container/ Source	Failure/Cause	(b) (7)(F)	(b) (7)(F)	Tank Type	Year Constructed Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored	Inspection Protocol
(b) (7)(F)									
703	Overfill / Rupture / Leakage			IFR	1938		Northeast / Instantaneous	Cutter	None
1009	Overfill / Rupture / Leakage			IFR	1981		Northeast / Instantaneous	Gasoline/Diesel	None
1010	Overfill / Rupture / Leakage			IFR	1980		Northeast / Instantaneous	Gasoline/Diesel	None
1011	Overfill / Rupture / Leakage			IFR	1980		Northeast / Instantaneous	Ethanol / Gasoline	None
2020	Overfill / Rupture / Leakage			IFR	1935		Northeast / Instantaneous	Gasoline	None
2021	Overfill / Rupture / Leakage			IFR	1935		Northeast / Instantaneous	Gasoline	None

2022	Overfill / Rupture / Leakage	[redacted]	IFR	1935	[redacted]	Northeast / Instantaneous	Gasoline	None
2113	Overfill / Rupture / Leakage		IFR	1938		Northeast / Instantaneous	Bio Diesel	None
2511	Overfill / Rupture / Leakage		Cone	1925		Northeast / Instantaneous	MFO	None
2512	Overfill / Rupture / Leakage		Cone	1925		Northeast / Instantaneous	MFO	None
2705	Overfill / Rupture / Leakage		Cone	1980		Northeast / Instantaneous	Diesel	None
2706	Overfill / Rupture / Leakage		IFR	1980		Northeast / Instantaneous	Gasoline/Diesel	None
3201	Overfill / Rupture / Leakage		IFR	1979		Northeast / Instantaneous	Ethanol	None
3203	Overfill / Rupture / Leakage		IFR	1979		Northeast / Instantaneous	Gasoline/Diesel	None
3204	Overfill / Rupture / Leakage		IFR	1979		Northeast / Instantaneous	Gasoline/Diesel	None

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, 8=Concrete Berm and Earthen, 9=Asphalt, Soil, and Concrete walls and Earthen Floor * Not in Containment Area, ** Curbing and containment system

FIGURE C-5 - TANK TABLES , CONTINUED

Container/ Source	Failure/Cause	[redacted]	Tank Type	Year Constructed/ Installed	[redacted]	Direction of Flow/Rate (See Plot Plan)	Product Stored	Inspection Protocol
[redacted]			4					
3510	Overfill / Rupture / Leakage		IFR	1937		Northeast / Instantaneous	Ethanol	None

3605	Overfill / Rupture / Leakage	(b) (7)(F)	Cone	1936	(b) (7)(F)	Northeast / nstantaneous	MFO	None
3614	Overfill / Rupture / Leakage		IFR	1958		Northeast / nstantaneous	Gasoline/Diesel	None
4402	Overfill / Rupture / Leakage		IFR	1979		Northeast / nstantaneous	Gasoline/Diesel	None
4507	Overfill / Rupture / Leakage		IFR	1980		Northeast / nstantaneous	Out of Service	API-653
5209	Overfill / Rupture / Leakage		IFR	1971		Northeast / nstantaneous	Gasoline/Diesel	None
5618	Overfill / Rupture / Leakage		IFR	1958		Northeast / nstantaneous	Gasoline	None
5901	Overfill / Rupture / Leakage		IFR	1929		Northeast / nstantaneous	Gasoline	None
5902	Overfill / Rupture / Leakage		IFR	1929		Northeast / nstantaneous	Diesel	None
5919	Overfill / Rupture / Leakage		Cone	1935		Northeast / nstantaneous	Diesel	None
6408	Overfill / Rupture / Leakage		IFR	1981		Northeast / nstantaneous	Gasoline/Diesel	None
8006	Overfill / Rupture / Leakage		IFR	1953		Northeast / nstantaneous	Gasoline/Diesel	None
8007	Overfill / Rupture / Leakage		IFR	1953		Northeast / nstantaneous	Gasoline	None
8308	Overfill / Rupture / Leakage		IFR	1969		Northeast / nstantaneous	Gasoline/Diesel	None
1015	Overfill / Rupture / Leakage		Cone	1938		Northeast / nstantaneous	Out of Service	None

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal

Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, 8=Concrete Berm and Earthen, 9=Asphalt, Soil, and Concrete walls and Earthen Floor * Not in Containment Area, ** Curbing and containment system

FIGURE C-5 - TANK TABLES , CONTINUED

Container/ Source	Failure/Cause	(b) (7)(F)	Tank Type	Year Constructed/ Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored	Inspection Protocol
ABOVEGROUND CONT			**4**					
1016	Overfill / Rupture / Leakage		Cone	1938		Northeast / Instantaneous	Out of Service	None
181	Overfill / Rupture / Leakage		Cone			Northeast / Instantaneous	Gasoline / Diesel Additive	None
23	Overfill / Rupture / Leakage		Cone			Northeast / Instantaneous	Gasoline / Diesel Additive	None
212	N/A		-			Northeast / Instantaneous	N/A	None
195	N/A		-			Northeast / Instantaneous	N/A	None
30	N/A		-			Northeast / Instantaneous	N/A	None
24	Overfill / Rupture / Leakage		rizontal			Northeast / Instantaneous	Bio Diesel Additive	None
100026	Overfill / Rupture / Leakage		IF	2007		Northeast / Instantaneous	Gasoline/Diesel	None
100027	Overfill / Rupture / Leakage		IF	2007		Northeast / Instantaneous	Gasoline/Diesel	None
Tank 4 (Dryer Storage Tank)	-		-			-	Out of Service	API-653
Tank 24 (Empty Rack Additive Tank)	-		-			-	-	None
Tank 01 (Oil Water Separator Tank)	-		-			-	-	None
Tank 17	-		-			-	-	None
Tank 1104	-		-			-	-	None
MISCELLANEOUS - To								
Tote - Red	Overfill /		Tote			Northeast /	Red Dye	None

Dye	Rupture / Leakage						Instantaneous		

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, 8=Concrete Berm and Earthen, 9=Asphalt, Soil, and Concrete walls and Earthen Floor * Not in Containment Area, ** Curbing and containment system

FIGURE C-5 - TANK TABLES , CONTINUED

Container/ Source	Failure/Cause	(b) (7)(F)	Tank Type	Year Constructed/ Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored	Inspection Protocol
MISCELLANEOUS - Tota								
Tote - Lubricity Additive	Overfill / Rupture / Leakage		Tote			Northeast / Instantaneous	Lubricity Additive	None
Truck Rack	Hose rupture, overfill		-			Northeast / Instantaneous	Petroleum Products	None
Loading Arm	Hose rupture, overfill		-			Northeast / Instantaneous	Petroleum Products	None
(b) (7)(F)								
Transformers (2 ea.)	Leak/ Rupture		-			Northeast / Instantaneous	Lube Oil	None
UNDERGROUND CONT								
Heating Oil Fuel Tank	Leak/ Rupture		Horizontal			Northeast / Instantaneous	Heating Oil	API-653
Out of Service Heating Oil Tank	N/A		Horizontal			N/A	Out of Service	None
(b) (7)(F)								

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, 8=Concrete Berm and Earthen, 9=Asphalt, Soil, and Concrete walls and Earthen Floor * Not in Containment Area, ** Curbing and containment system

FIGURE C-6 - ADDENDUM

Certification of this Spill Prevention, Control, and Countermeasure Plan is contingent upon correction of all discrepancies listed in this Addendum. The discrepancies for this facility are:

REGULATION	DISCREPANCY	PLAN OF ACTION	ESTIMATED TIME TO COMPLETE	DATE COMPLETED
40 CFR 112.8(c)(2)	Berm 3 may not be sufficiently impervious. Based on soil	Installed fabric	Completed 12/2013	Completed 12/2013

	sampling Berm # 3 has a hydraulic conductivity (Ksat value) of 3 inches/hour. Factoring in that gasoline is less viscous than water: [1/0.4 = 7.5 inches/hour] 7.5 in./hr. would be the approximate flow rate for gasoline. If a tank ruptured, leak was discovered and all gasoline could be completely removed within 24 hours, the gasoline is estimated to travel 180 inches (15 feet) in this time. This could travel through the dike wall, which is adjacent to the river.	covering the dike wall		

FIGURE C-7 - DRAINAGE DIAGRAM

(Click here for Drainage Diagram)

FIGURE C-8 - EVACUATION DIAGRAM

(Click here for Evacuation Diagram)

FIGURE C-9 - PIPING DIAGRAM

(Click here for Piping Diagram)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-10 - CONTAINMENT CALCULATION

(Click here for Containment Calculation)

FIGURE C-11 - DISCHARGE PREVENTION MEETING LOG

Spill Prevention Briefing

- Company personnel are kept knowledgeable of equipment, safety factors, and operating conditions.
- Annual training sessions are conducted by the Area Supervisor to assure oil handling personnel understand the SPCC Plan for the facility. These documented sessions keep personnel informed of their obligation to prevent pollution incidents and to improve spill control and response techniques.

Note: This form is a sample.

DATE	ATTENDEES

Subject/Issue Identified	Required Action	Implementation Date

FIGURE C-12 - INSPECTION PROCEDURES

INSPECTION PROCEDURE	DATE
A. ROUTINE VISUAL INSPECTION	
• Check tank connections for leaks and localized dead vegetation	
• Inspect drains for accumulation of oil	
• Check tanks for gaps between tank and foundation and damage caused by vegetation roots	
• Check valves and packing for leaks	
• Check drains and sumps for accumulation of oil and proper operation of level controls and pumps	
• Check tank seams for leaks, including drips, puddles, discolored area or localized dead vegetation	
• Check all tank and piping surfaces for signs of external corrosion	
• Check base of tanks for evidence of settling, leaks, including drips, puddles or discolored areas	
• Check piping for bowing between supports, leaks, including drips, puddles, discolored area, or localized dead vegetation	
• Check vent system outlets to ensure that they are not obstructed	
• Check secondary containment for discoloration and cracks or holes. Special attention should be given to seams and locations where piping goes through the deck, curbing or dikes. Ensure dike valves are closed and sealed	
• Check secondary containment for permeability, debris, erosion, location/status of pipes, inlets, drainage beneath tanks, and level of precipitation in dike vs. available capacity	
• Check secondary containment for presence of water in diked area. Follow appropriate Company procedures after visual inspection of the water to determine if sheen is present on the water	

• Check all gates to ensure that only the entrances/exits currently in use by authorized personnel are open and unlocked	
B. ANNUAL INSPECTIONS	
• Check facility lighting to ensure all are functioning	
• Check facility fencing for damages that would allow unauthorized entry	
• Inspect sumps for the accumulation of oil	
• Inspect diked/curbed areas for the accumulation of oil	
• Inspect drip pans on lift stations for the accumulation of oil	
• Inspect all tanks for proper operation including gauges, sight glasses, level controls and pressure controls	
• Inspect valves and valve glands for proper operation and ensure complete valve closure (leak proof)	
• Inspect sump for proper operation. Manually gauge sump and pump out if level is high	
• Examine the outside of the tank for signs of corrosion, damaged paint surfaces and signs of leaking	
• Inspect pipelines for signs of leaking or damage	
• Inspect flanges for signs of leaking or damage	
• Inspect joints for signs of leaking or damage	

FIGURE C-12 - INSPECTION PROCEDURES

INSPECTION PROCEDURE	DATE
C. RECORD KEEPING	
• All inspections, except routine, are to be documented on the forms provided in the Appendix and retained at the Facility. Records shall be maintained for a period of five (5) years. The following is a list of documentation forms available in the Appendix:	
• Annual Inspection Record (FIGURE C-13)	

Note: More stringent inspections, as required by Company procedures and documented on other forms, may be used to supplement or replace SPCC inspection records. These documents must be retained for five (5) years.

FIGURE C-13 - ANNUAL INSPECTION RECORD

(Other versions of this form may be used)

YEAR	MONTH	DATE	INITIALS	COMMENTS

FIGURE C-14 - SECONDARY CONTAINMENT DRAINAGE LOG

(Other versions of this form may be used)

DATE	TIME STARTED	TIME ENDED	OPERATOR NAME	SIGNATURE	COMMENTS

SECONDARY CONTAINMENT DRAINAGE PROCEDURES

1. Inspect water inside containment for sheen. Indicate sheen/no sheen in comments.
2. Open valve or start pump.
3. Monitor drainage.
4. Close valve and secure with seal or lock/secure pump.

5. Fill out drainage log and sign.

FIGURE C-15 - REPORTABLE SPILL HISTORY*

Date of Discharge(s):	Unknown
List of Discharge Causes:	Broken Supply Line in the Lube Oil Tank Farm.
Material(s) Discharged:	Unknown
Amount of Discharges in Gallons:	> 25 (bbls)
Amount That Reached Navigable Waters (if applicable):	> 25 (bbls)
Effectiveness and Capacity of Secondary Containment:	N/A
Cleanup Actions Taken:	N/A
Steps Taken to Reduce Possibility of Reoccurrence:	Built concrete wall reinforced with metal traffic barriers.
Total Oil Storage Capacity of Tank(s) or Impoundment(s) From Which Material Discharged:	N/A
Enforcement Actions:	None
Effectiveness of Monitoring Equipment:	Not applicable
Spill Detection:	Visual observation

*Reportable spill, as defined in 40 CFR Part 110, is a discharge of oil that violates applicable water quality standards or cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

FIGURE C-16 - CONTAINMENT AND DRAINAGE PLANNING

FACTORS
Available Volume of Containment
Refer to FIGURE C-5.
Route(s) of Drainage
Refer to FIGURE C-7.
Construction Materials Used in Drainage Troughs
Believed to be steel and cast pipe of unknown size
Type and Number of Valves Separators
(9) 4-inch gate valves
Sump Pump Capacities
None

Containment Capacity of Weirs and Booms
2 electric sump pumps of approx. 10 to 15 gpm. 1 electric sump pump in yard 5 approx. 100 gpm (manually controlled)
Other Clean Up Materials
Refer to SECTION 7.1.1 and APPENDIX B.

APPENDIX D Last Revised: May 2014

HAZARD EVALUATION AND RISK ANALYSIS

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D.1 Facility Hazard Evaluation

D.2 Vulnerability Analysis

D.2.1 Analysis of the Potential for a Spill

D.2.2 Site Risk Analysis

D.3 **Inspection and Spill Detection**

Figure D.3-1 - Response Equipment Inspection

D.4 Planning Distance Calculations

Figure D.4-1 - Planning Distance Calculations

D.5 Discharge Scenarios

D.5.1 Small and Medium Discharge Scenarios

D.5.2 Worst Case Discharge (WCD) Scenario Discussion

D.5.3 Description of Factors Affecting Response Efforts

D.6 Planning Volume Calculations

D.7 Spill Volume Calculations

D.7.1 USCG Portion of Facility

D.7.2 EPA Portion of the Facility

Figure D.7-1 - Worst Case Discharge (WCD) Calculations (in BBLS)

D.7.3 DOT / PHMSA Portion of Pipeline / Facility

D.7.4 Oregon Spill Calculation

D.8 Product Characteristics and Hazards

Figure D.8-1 - Summary of Commodity Characteristics

D.1 FACILITY HAZARD EVALUATION

A list of potential spill sources is identified in **FIGURE C-5**. This figure describes type and volumes of secondary containment areas along with tank manufacturer dates. All liquid storage tanks are visually inspected on a monthly basis. A description of facility operations is included in **FIGURE 1-2**.

D.2 VULNERABILITY ANALYSIS

A vulnerability analysis was performed to address the potential effects of an oil spill within the planning distance of this facility. Refer to **SECTION 6.6** for a detailed list of vulnerabilities. The following features may be impacted by a spill:

Water Intakes	Schools	Medical Facilities	Residential Areas	Businesses	Wetlands or other Sensitive Environments	Fish and Wildlife	Lakes and Streams	Endangered Flora and Fauna	Recreational Areas	Transportation Routes (air, land, water)	Utilities	Other Applicable Areas
x			x		x	x	x	x	x	x	x	x

D.2.1 Analysis of the Potential for a Spill

The probability of a spill occurring at this facility is minimal for the following reasons:

- Tanks are constructed in accordance with applicable engineering standards.
- Tank age is reviewed as a potential factor (refer to **FIGURE C-5**).
- Truck loading facilities are equipped with concrete pads with a spill collection drain system which returns spills to the recovery system.
- All trucks are monitored during tank unloading procedures.
- Non-SCADA product transfers are monitored and only conducted when facilities are manned.
- SCADA product transfers are monitored via pipeline Control Center SCADA (if applicable).
- Facilities are inspected frequently for evidence of corrosion and leaks according to applicable API standards.
- Personnel are trained in procedures to prevent pollution.
- The horizontal range of a spill is dependent upon the topography and distance to the nearest water body described in more detail in **FIGURE D.4-1**.
- Natural disasters are not likely at these facilities; however, these facilities may experience flooding, tornadoes, earthquake or a lightning strike.
- Company personnel prepare for natural disasters by monitoring weather reports and warnings and taking appropriate safety precautions.
- The potential for a natural disaster is acknowledged, as appropriate, during drills and exercises.

D.2.2 Site Risk Analysis

A detailed and comprehensive site risk analysis was performed for all transfer, production, storage, spill minimization, and containment systems at this Facility. The following risks were identified in addition to proposed measures that provide best achievable protection to address each spill risk.

SITE RISK ANALYSIS		
SYSTEM	RISK / PROBLEM*	PROPOSED PREVENTION / PROTECTION MEASURES

*Evaluation of the construction, age, corrosion, inspection and maintenance, operation, and oil spill risk for each system. This takes into consideration tank and pipeline materials and design; drainage retention, treatment, and discharge systems; and spill detection / minimization systems, measures, and procedures.

Record of professional engineer certification is maintained on-site. See **APPENDIX C** for inspections, tests, and records. See **FIGURE C-5** for tank table information.

D.3 INSPECTION AND SPILL DETECTION

Note: This table contains database content, therefore references within this table are not active hyperlinks.

D.3 Inspection and Spill Detection
Inspection
In accordance with 40 CFR 112.7 (e)(8), each Facility includes written procedures and records of inspection. The inspection shall include tanks, secondary containment, and response equipment at the Facility. Â Facility self-inspection requires two steps: • Checklist of items to inspect. • Method of recording the actual inspection and its findings; records must be maintained for five years. Facility-specific procedures for transfer and secondary containment inspections are provided in **APPENDIX C**. Response equipment inspection information is provided in **SECTION 7.1.2**. **FIGURE D.3-1** may be used to record equipment inspection information.
Detection
Detection of a discharge from the Company facility or pipeline may occur in a number of ways including: • Automated detection by the Supervisory Control and Data Acquisition (SCADA) system (if applicable). • Local alarm notification. • Visual detection by Company personnel. • Visual detection by the public.

Automated detection
The pipelines are equipped with pressure and flow monitors, which may exercise local control or transmit data to Operations Control.Â These systems are set to alarm or shut down on preset deviations of pressure flow.Â In case of an alarm, Operations Control Center personnel will take the appropriate actions in accordance with operating procedures.Â A summary of the operating procedures is provided below. Trained personnel in Operations Control Center will monitor the SCADA system for the following parameters (if applicable): • Flow rates • Pressure • Valve positions The automated detection system depends on properly functioning field equipment, all field sensors and equipment are inspected.
Operating procedures for the automated system

Note: This table contains database content, therefore references within this table are not active hyperlinks.

D.3 Inspection and Spill Detection, Continued
Operating procedures for the automated system
SCADA System (if applicable)
(b) (7)(F) [redacted]

Note: This table contains database content, therefore references within this table are not active hyperlinks.

D.3 Inspection and Spill Detection, Continued
(b) (7)(F) [redacted]
Training
All operators are required to take training modules including emergency responses.
Visual detection by Company personnel

Note: This table contains database content, therefore references within this table are not active hyperlinks.

D.3 Inspection and Spill Detection, Continued
Visual detection by Company personnel
Aerial patrol flights will be made on a regular basis for pipelines subject to 49 CFR 194 and 195.Â The intent of the patrol is to observe the area directly over the pipeline right-of-way for leaks, exposed pipes, washes, missing markers and other unusual conditions.Â Construction on either side of the pipeline right-of-way is also monitored. Discharges to the land or surface waters may also be detected by Company personnel during regular operations and inspections. If a leak is detected, the appropriate actions are taken, including, but not limited to: • Notifications as per **SECTION 3**. • A preliminary assessment of the incident area. • If appropriate, initiate initial response actions per **SECTION 2**. **FIGURE 2.1-1** provides a checklist for initial response actions.
Visual detection by the public
Right-of-way marker signs are installed and maintained at road crossing and other noticeable

points and provide an Operations Control 24-hour number for reporting emergency situations. Also, Facility signs are installed and maintained on perimeter fencing. The Company also participates in the â€œcall before you digâ€ or â€œOne Callâ€ utility notification services which can be contacted to report a leak and determine the owner/operator of the pipeline.Â If the notification is made to a local office or pump station, the Company representative receiving the call generally will implement the following actions:

- Notify the Operations Control Center and regional/designated office (as applicable).
- Dispatch Company field personnel to the site to confirm discharge and conduct preliminary assessment.
- Notify their immediate area supervisor and provide assessment results.

FIGURE D.3-1 - RESPONSE EQUIPMENT INSPECTION

(Other versions of this form may be used.)

ITEM	QUANTITY	LOCATION	TIME TO ACCESS/RESPOND	CONDITION	DATE USED/TESTED	SHELF LIFE	INSPECTION DATE

Inspector's Signature

D.4 PLANNING DISTANCE CALCULATIONS

To evaluate the potential risk to sensitive resources in the area, should a spill occur, a planning distance was calculated based on the following characteristics of this Facility and vicinity according to 40 CFR 112, Attachment C-III. Factors utilized include distance to the nearest body of moving water/storm sewer/drainage ditch or swale, geology, and topography of the area.

FIGURE D.4-1 provides the planning distance calculation worksheets for this Facility.

FIGURE D.4-1 - PLANNING DISTANCE CALCULATIONS

Intermediate Calculations

∝ = elevation (in feet) = [stream elevation @ facility] - [stream elevation @ receptor (or 20 mile point)]

ß = horizontal distance from facility to receptor (or 20 mile point) in miles

s = average steam slope = ∝/ ß / 5280

r = hydraulic radius (in feet) = average mid channel depth x 0.667

n = Manning's roughness coefficient from Table B

To calculate stream velocity (in ft./sec.), use: $v = 1.5/n \times r^{2/3} \times s^{1/2}$

Calculation of **PLANNING DISTANCE**

d = calculated planning distance (miles)

v = Chezy-Manning based stream velocity (ft./Sec.)

t = spill response time interval (from Table A)

c = 0.68 (sec-mile/hr-ft conversion factor)

d = v x t x c = planning distance equation

Table A	
Substantial Harm Planning Time (hours) Port Areas as Identified in 40 CFR § 112	
Boston, MA	15
New York, NY	15
Delaware Bay and River to Philadelphia	15
St. Croix, VI	15
Pascagoula, MS	15
Mississippi River from Southwest Pass, LA to Baton Rouge, LA	15
Louisiana Offshore Oil Port (LOOP)	15
Lake Charles, LA	15
Sabine-Natchez River, TX	16
Galveston Bay and Houston Ship Channel	16
Corpus Christi, TX	16
Los Angeles/Long Beach Harbor, CA	16
San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay to Antioch, CA	16
Straits of Juan de Fuca from Port Angeles, WA to and including Puget Sound	16
Prince William Sound, AK	16
Others are specified by RA for EPA Region	16
Allow other lakes, rivers canals inland and near shore areas	27

Table B	
Manning's Roughness Coefficient for Various Natural Stream Types (n)	
Minor Streams (Top width < 100 ft.)	
Clean:	
Straight	.03
Winding	.04
Sluggish (woody, deep pools):	
No trees/brush	.06
Trees and/or brush	.10
Major Streams (Top width > 100 ft.)	
Regular section:	
No boulders/brush	.036
Irregular section:	
Brush	.06

FIGURE D.4-1 - PLANNING DISTANCE CALCULATIONS, CONTINUED

Site Investigation

The following information is utilized to calculate the planning distance for each facility.

From USGS Quad/Topo Sheets

- Delineate watershed and downgradient receptor streams for runoff/release.
- Determine whether navigable water is within 0.5 miles of the facility (or would be in worst case discharge scenario).

From Facility

- Identify alternate drainage pathways to navigable waters; namely storm drainage system/piping.
- Establish list of soil or other factors effecting transport of oil over land.

From maps, local/state authorities or investigation

- Identify fish/wildlife sensitivities and habitats in downgradient areas along with public drinking water intake locations.
- Determine stream pool elevations at facility and at receptor points or at 20 miles downstream (maximum) for more distant receptors.
- Characterize stream properties for accurate determination of roughness coefficient (n) and average mid-channel depth or hydraulic radius (r).

The total planning distance equals d.

	Portland Terminal - Williamette River
First receptor	n/a
First receptor location (miles)	n/a
∝ (feet)	n/a
ß (miles)	n/a
s (feet/mile)	.0000473
Avg. mid-channel depth (feet)	30
r (feet)	20
n	0.035
v (feet/second)	2.17
t (hours)	27
c (seconds per mile/hours per foot)	0.68
d (total planning distance)	39.9 miles

FIGURE D.4-1 - PLANNING DISTANCE CALCULATIONS, CONTINUED

If Tidally Influenced

Planning distance calculations are based on the following factors and guidelines in accordance with 40 CFR Part 112 Attachment C-III, 4.2:

- The horizontal range of a potential oil spill is influenced by the wind direction and tidal stage; however, it is expected to spread quickly.
- Tidally influenced waters.
- Persistent and non-persistent product.
- Resulting planning distance is 15 miles persistent oils or 5 miles for non-persistent oils from each Facility down current during ebb tide and to the point of maximum tidal influence or 15 miles persistent oils or 5 miles for non-persistent oils, whichever is less, during flood tide.

D.5 DISCHARGE SCENARIOS

The equipment and personnel to respond to a spill are available from several sources and are provided with the equipment and contractors in **SECTION 7.1.1** and **APPENDIX B.1.1**. The following sections are discussions of these scenarios.

D.5.1 Small and Medium Discharge Scenarios

- The purpose of this section is to identify the sources and sizes of small and medium discharges as defined by OPA 90 regulations.
- Potential spill scenarios may include tank overflow, valve failure, tank failure, pipe failure, hose failure, or pump seal failure; these spills would likely be in contained areas and would be unlikely to travel off-site.
- The Company would respond to these types of incidents in the same manner as a worst case discharge, but at a level appropriate to the incident size; differences in response are described in the worst case scenario discussion described in this Appendix. The Company's response in such an event would in no way obviate the liability of any other responsible parties.
- Resources are identified in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.
- All resources shall be capable of arriving at the Facility within the applicable response tier requirements (Tier 1 = 12 hours; Tier 2 = 36 hours; Tier 3 = 60 hours).

The following table lists various facility operations and corresponding components which might be the source of a small, medium, and worst case discharge:

FACILITY OPERATIONS AND COMPONENTS	SMALL DISCHARGE (up to 2,100 gallons)	MEDIUM DISCHARGE (2,100 to 36,000 gallons)	WORST CASE DISCHARGE (volume largest tank)
Oil transfer operations	Hose failure	Hose failure	Not applicable

Facility maintenance operations	Leak from periodic maintenance, line not completely drained when opened	Seal failure Overfill	Not applicable
Facility piping	Flange, gasket, threaded connection	Seal failure Overfill	Not applicable
Pumps and sumps	Seal failure Overfill	Seal failure Overfill	Not applicable
Oil storage tanks	Overfill	Overfill	Catastrophic failure of largest tank
Vehicle refueling	Not applicable	Not applicable	Not applicable
Age and condition of facility and components	Flange, gasket, threaded connector	Pipeline failure Seal failure	Catastrophic failure of largest tank

D.5.1 Small and Medium Discharge Scenarios, Continued

The following table describes the Facility-specific small discharge scenario.

SMALL DISCHARGE SCENARIOS
Hour 0 During barge loading operation, loading diesel at approximately 1,800 barrels/hr., a loading hose fails and releases nearly the full flow of the stream into the water adjacent to the vessel. The failure is detected almost immediately. The dock operator shuts down the operation and alerts the supervisor and the vessel. By the time the pumps are shut down and the line secured, an estimated 50 barrels of diesel has been released.

Note: Equipment and manpower resources are detailed in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.

D.5.1 Small and Medium Discharge Scenarios, Continued

The following table describes the Facility-specific small discharge response resource.

SMALL DISCHARGE RESPONSE RESOURCE
A fifty (50) barrel discharge typically will not escape the containment of the Facility. Severe rain and associated flooding would increase the chances. Surface drainage is towards the river (north).l If a fifty (50) barrel discharge escaped the Facility or occurred as the result of a marine transfer operation, response operations would be implemented immediately upon discovery. Oil containment and recovery devices can be secured from contract resources (with a minimum effective daily recovery capacity of fifty (50) barrels) and can be implemented at the Facility, as the situation demands.

A minimum of 100 barrels of oil storage capacity for recovered oily material can be secured from contractor resources or made available within the Facilityâ€™s storage facilities, as the situation demands. Additional recovery and storage equipment may be secured from other Company and contract resources, as the situation demands.

Note: Equipment and manpower resources are detailed in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.

D.5.1 Small and Medium Discharge Scenarios, Continued

The following table describes the Facility-specific medium discharge scenario.

Medium Discharge Scenario
A medium discharge (up to 36,000 gallons) could result from the failure of an entire tank truck, from a tank overfill inside the dike area, or from a pipeline failure in the storage area.

Note: Equipment and manpower resources are detailed in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.

D.5.1 Small and Medium Discharge Scenarios, Continued

The following table describes the Facility-specific medium discharge response resource.

Medium Discharge RESPONSE RESOURCE
A tank truck spill would be handled in the same way as a small discharge. Similarly, a tank overfill would rely on the oil spill response contractor for the vacuum trucks and earthmoving equipment and excavating equipment necessary to remove the spilled product. The secondary containment system would prevent off-site movement of the spill. The majority of the recovered spill would be collected with vacuum trucks. Recovered product may be returned to storage. In the event the fuel became too contaminated for reuse, it would be taken off-site for treatment and blending with other fuels. The oil spill response contractor would provide the appropriate number of emergency response personnel for this response.

Note: Equipment and manpower resources are detailed in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.

D.5.2 Worst Case Discharge (WCD) Scenario Discussion

APPENDIX D.7 provides worst case discharge calculations. Discussion of this scenario is as follows:

Upon discovery of a spill, the following procedures would be followed:

1. The First Responder would notify Supervisory Personnel and notifications would be initiated in accordance with **FIGURE 2.1-1**.

2. The Facility Manager would assume the role of Incident Commander until relieved and would initiate response actions and notifications in accordance with **SECTION 2**. If this were a small spill, the local/company personnel may handle all aspects of the response. Among those actions would be to:

    - Conduct safety assessment in accordance with **FIGURE 2.1-1** and evacuate personnel as needed in accordance with **SECTION 2.2**.
    - Direct Facility responders to shut down ignition sources.
    - Direct responders to position resources in accordance with **SECTION 6.9**.
    - Complete spill report form in accordance with **FIGURE 3.1-2**.
    - Ensure regulatory agencies are notified (**FIGURE 3.1-6**).

3. If this were a small or medium spill, the Qualified Individual/Incident Commander may elect for the First Responder to remain the Incident Commander or to activate selected portions of the Emergency Management Team. However, for a large spill, the Qualified Individual would assume the role of Incident Commander and would activate the entire Emergency Management Team in accordance with activation procedures described in **SECTION 4.2**.

4. The Incident Commander would then initiate spill assessment procedures including surveillance operations, trajectory calculations, and spill volume estimating in accordance with **SECTION 2.1.3**. The QI would implement the terminalâ€™s safety and health plan developed under 29 CFR 1910.120 and designed to identify, evaluate, and control safety and health hazards during emergency response operations.

5. The Incident Commander would then utilize checklists in **SECTION 4.6** as a reminder of ICS position responsibilities. The primary focus would be to establish incident priorities and objectives and to brief staff accordingly.

6. The Emergency Management Team would develop the following plans, as appropriate (some of these plans may not be required during a small or medium spill):

    - Site Safety and Health (**SECTION 5.4**)
    - Site Security (**SECTION 5.7**)
    - Incident Action (**SECTION 5.2.6**)
    - Decontamination (**SECTION 5.5**)
    - Disposal (**SECTION 5.6**)
    - Demobilization (**SECTION 5.8**)

7. The response would continue until an appropriate level of cleanup is obtained.

D.5.2 Worst Case Discharge (WCD) Scenario Discussion, Continued

The following table describes the Facility-specific worst case discharge scenario.

WORST CASE Discharge Scenario
A weld failure occurs in the shell at the bottom chime of (b) (7)(F) [redacted]. The entire tank contents are released into the secondary containment. The secondary containment wall fails and the entire tank contents escapes and eventually enters the river.

Note: Equipment and manpower resources are detailed in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.

D.5.2 Worst Case Discharge (WCD) Scenario Discussion, Continued

The following table describes the Facility-specific worst case discharge response resource.

WORST CASE Discharge RESPONSE RESOURCE
The Facility will respond to a Worst Case Discharge (WCD) initially with a similar response as identified for a Small/Average Most Probable or Medium/Maximum Most Probable Discharge. Additional OSRO(s) will be activated as the situation demands. The response resources will be capable of arriving within the required response tiers and will include: Oil recovery devices with an effective daily recovery capacity equal to the lesser of 50% of the WCD or the response caps will be secured from the OSRO(s) and other Company resources. Any amount in excess of the required caps will be contracted for and responded to as part of the same response effort. Temporary storage capacity equal to twice the daily recovery capacity will be secured from OSRO(s), other ST Services resources, or made available within the Facilityâ€™s storage facilities. At least 20% of the on-water response equipment secured from the OSRO(s) and other ST Services resources will be capable of operating in water of 6 feet or less depth. Containment boom for oil collection and containment and for protection of fish and wildlife and sensitive environments and socio-economic sensitivities will be secured from the OSRO(s) and other ST Services resources. Resources capable of responding to a shoreline clean-up operation involving the calculated volume of oil and emulsified oil that might impact the shoreline will be secured from the OSRO(s) and other ST Services resources.Overall response operations will be conducted under the Incident Command System with adequate Facility and Contract Response personnel to continue operations for a minimum of seven (7) days. In the unlikely event of a spill leaving the property, it would probably enter navigable water at the Williamette River.

Note: Equipment and manpower resources are detailed in **FIGURE 3.1-6**, **SECTION 7.1.1**, and **APPENDIX B.1.1**.

D.5.2 Worst Case Discharge (WCD) Scenario Discussion, Continued

WORST CASE Discharge RESPONSE RESOURCE, CONTINUED
HOUR 0-4 The initial response to this spill would be identical to that for the spills described above. Additional activity that would occur during this initial period would include the following: Immediate press awareness and involvement would occur, being alerted by the immediate communications between Shore and the agencies. This would require the IC or a qualified designate to be responsive to press inquiries until public relations assistance from Shore arrived on scene. Site security would be critical. Exclusion zones would have to be set up and maintained by local police to prevent unauthorized access to the response area. The large volume of product along the shore could result in some potential impact south of the facility in spite of the wind magnitude and direction. This would require additional Foss resources at the spill site. The large volume of product moving down river would require maximum use of Foss equipment from Portland and at all pre-staged locations downstream from the facility. Shore would contact other local response contractors to be prepared to assist as additional assistance is required. HOUR 4-16 Unified Command is fully functioning, with Shore, USCG. DEQ, and DOE participation. The Unified Command agrees that the first priority of containment and control has been accomplished. They now proceed to implement the applicable response strategies outlined in the Lower Columbia River Geographic Response Plan. Because of many factors, they agree that the use of chemical dispersants is not a viable alternative. In-situ burning, although felt not to be highly successful, is further evaluated and work is started on the approval process. (It was later concluded that in the areas where burning might have been approved, the spill concentrations were inadequate to sustain effective burn results). Additional resources are brought into action by Foss as well as by CRC. The Planning staff confirms to the Unified Command that the total recovery capacity of resources m place exceeds the Recovery Capacity requirements as identified in the response calculations on page G-9. Shore has also made available at the Terminal 25,000 barrels of storage, with another 40,000 barrels that can be freed up for use on short notice. The Scientific Support, Coordinator from NOAA arrives to assist in spill trajectory determinations. Aerial surveillance (completed at hour 11, just before dark) confirms that the leading edge of the slick is in the Columbia opposite Scapoose, with some shoreline impact on the Washington side near Campbell Lake and some close to shore on Sauvie Island at Willow Bar.

Foss is in the process of placing diversion boom from St. Helens to prevent the slick from entering the Batchelor Island Slough. It can be in place before dark and maintained overnight barring extreme adverse weather.

Willow Grove Park at Longview is selected as a major staging area to facilitate response in the lower Columbia area. Projections place the leading edge to be beyond Rainier/Longview by daylight of day 2.

Diversion/exclusion booming to minimize shoreline impacts is being readied for deployment at first light of day 2 in accordance with the GRP.

Baker Tanks are mobilized to the Longview staging area for additional temporary storage if needed. End dumps are also staged at several locations to receive any solid waste-
A solid waste disposal plan is readied for approval by Unified Command.

At dusk all on-water operations, except for boom tending, are suspended. Shoreline operations arc limited to skimming inside the containment boom, where terminal lights provide adequate working light for safe night operations. Security is maintained.

D.5.2 Worst Case Discharge (WCD) Scenario Discussion, Continued

WORST CASE Discharge RESPONSE RESOURCE, CONTINUED
DAY 2

A Unified Command meeting if conducted at first light, with reports from key personnel on the response status.

A statement is released to the media, prepared by Shore and approved by the FOSC and SOSCs.

Tracking of spill migration by helicopter continues. NOAA projections indicate the loading edge of the slick would reach the Columbia bar by hour 60 (the afternoon of day 3). Ocean beaches would begin to be impacted by hour 72 (the morning of day 4) Oregon beaches south to Seaside could be impacted and Washington Beaches to north of Ilwaco could be impacted depending on the set of ocean tides.

Current flow in the Columbia and ocean tidal action will cause the slick to impact beaches and inlets on both sides of the Columbia near the mouth. Unified Command determines that the most effective activity throughout the Lower Columbia beyond Svensen will be beach clean-up with hand crews. Several crews, consisting of a total of 220 Hazwoper trained personnel arc organized to begin these operations by day 3. Beach clean-up activity will lie based on the Shoreline Countermeasure Matrix, developed by NOAA, and made a part of the Shore FRP.

Bird and marine mammal rescue operations are initiated jointly by the Oregon Department of Fish and Wildlife and the Washington Department of Wildlife. Rescue stations are established where birds are collected for cleaning and then transported to the Central Bird Rescue Facility under the direction of the two agencies.

Diversion, containment, and recovery operations continue on water where skimming arid sweeps with absorbent booms can be effective.

Twelve-hour shifts are established with only boom tending operations during the night shift. Response operations will continue until cleanup is judged satisfactory by USCG, DEQ and DOE.

DAY 3 and Beyond

Briefing meetings involving the Unified Command are held daily to update ongoing response plans and evaluate cleanup options.

Aerial surveillance continues as needed to direct on-water and shoreline crews. Cleanup activities continue until all product which can reasonably be recovered is recovered, Depending on environmental conditions, beach cleanup would last for another 2 to 3 weeks.

As recovery and onshore cleanup is completed, recovered oil and oily waste is transported to recycling or energy recovery facilities or an approved waste disposal site.

It is estimated that 12,000 barrels of product was recovered throughout the on-water recovery operations, most from within the initial containment boom near the dock. An estimated 4,000 barrels of product was recovered during shoreline clean-up efforts and was handled as a part of the solid waste disposal process. The balance of product was lost through evaporation and dissipation.

D.5.3 Description of Factors Affecting Response Efforts

There are many factors which may affect the ability to respond to an incident. These factors are described in the following table:

FACTORS	CONSIDERATIONS AFFECTING RESPONSE EFFORTS
Size of spill	• Location of spill in relation to identified sensitivities and/or sensitive areas. • Spread and spill movement.
Proximity to down gradient water intakes	• Refer to **SECTION 6.7** for maps showing proximity to down gradient water intakes.
Proximity to fish and wildlife and sensitive environments	• A release could impact fish, wildlife and sensitive environments as described in **SECTION 6.4** and **SECTION 6.5**.
Likelihood that discharge will travel offsite	• A small spill is unlikely to travel off-site. • A medium spill has the potential to travel off-site via adjacent waterways. • A worst case discharge has the greatest potential to travel off-site if secondary containment is breached.

Location of material spilled	• See facility information and drainage located in **FIGURE 1-2** and **FIGURE C-7**. Facility tankage, piping, and transfer areas are displayed on drawings provided in **FIGURE C-7** and **FIGURE C-9**.
Material discharged	• Typically Gasoline, Ethanol , Lube Oil, MFO, Biodiesel. • Product is considered non-persistent but not volatile.
Weather or aquatic conditions	• The areas have the potential to be affected by tornadoes, flooding, hurricanes, and lightning strikes.
Available remediation equipment	• The Company may have response equipment available. Refer to **SECTION 7.1.1** for applicability. • Resources are available through oil spill response contractors in quantities sufficient to meet applicable planning standards.
Probability of a chain reaction or failures	• Potential for a chain reaction or failure is remotely possible but not anticipated; secondary containment, response contractors and trained personnel minimize the potential of such events.
Direction of spill pathway	• Refer to sensitivity maps in the **SECTION 6.10**. • Wind direction and speed combined with currents, will determine spill trajectory.

D.6 PLANNING VOLUME CALCULATIONS

Once the worst case discharge volume has been calculated, response resources must be identified to meet the requirements of 40 CFR 112.20(h). Calculations to determine sufficient amount of response equipment necessary to respond to a worst case discharge is described below. A demonstration of the planning volume calculations is provided below.

D.7 SPILL VOLUME CALCULATIONS

D.7.1 USCG Portion of Facility

The Worst Case Discharge was formulated assuming a release from the Marine Transportation Related portion of the Facility, as directed by 33 CFR 154.1029.

The Worst Case Discharge is based on a catastrophic failure of all piping carrying oil between the marine transfer manifold(s) and the non-transportation related portion(s) of the Facility. For the Portland Terminal, this volume is calculated as noted below. Actual Worst Case Discharge volumes for all facilities are provided in **FIGURE D.7-1**. Oil spill response equipment available to respond to this spill is included in **SECTION 7.1.1**, and **APPENDIX B.1.1**.

- **Worst Case Discharge (WCD)** = [(maximum time to discover + maximum time to shutdown flow) x maximum flow rate] + piping capacity = (b) (7)(F)

(b) (7)(F)

- **Average Most Probable Discharge**

  The Average Most Probable Discharge (AMPD) is defined by 33 CFR 154 as the lesser of 50 barrels or 1% of the Worst Case Discharge. One percent of the Worst Case Discharge is approximately (b) (7)(F), therefore, the average most probable discharge is 50 **barrels**.

- **Maximum Most Probable Discharge**

  The Maximum Most Probable Discharge (MMPD) is defined by 33 CFR 154 as the discharge of the lesser of 1,200 barrels or 10% of the volume of the Worst Case Discharge. Ten percent of the Worst Case Discharge is approximately (b) (7)(F) therefore, the maximum most probable discharge is (b) (7)(F)

D.7.2 EPA Portion of the Facility (non-transportation related)

The WCD for the EPA portion of the facility, as defined in 40 CFR 112, Appendix D, Part A, is calculated as:

- For multiple tank facilities with adequate secondary containment, the WCD is calculated as the capacity of the largest single aboveground oil storage tank within an adequate secondary containment area or the combined capacity of a group of aboveground oil storage tanks permanently manifolded together, whichever is greater.

TYPE	(b) (7)(F)	PRODUCT	(b) (7)(F)
Multiple tanks with secondary containment		Gasoline/Diesel	

Because the discharge for the EPA portion of the facility is greater than the USCG definition for a worst case discharge, response resources are planned for the greater of the two volumes.

FIGURE D.7-1 - WORST CASE DISCHARGE (WCD) CALCULATIONS (IN BBLS)

(b) (7)(F)	USCG	(b) (7)(F)	(b) (7)(F)
	Avg. Most Probable		
	50		

EPA PLANNING VOLUME DATA

STEP	PARAMETER	Portland Terminal
(A)	WCD (bbls)	(b) (7) (F)
(B)	Oil group	I
(C)	*Geographic area	Nearshore/Inland
(D1)	Percent lost to natural dissipation	80
(D2)	Percent recovered floating oil	20
(D3)	Percent oil onshore	10
(E1)	On water recovery (bbls)	(b) (7) (F)
(E2)	Shoreline recovery (bbls)	(b) (7) (F)
(F)	Emulsification Factor	1.0
(G)	On water recovery resource mobilization factor	
(G1)	Tier I	0.15
(G2)	Tier II	0.25
(G3)	Tier III	0.40
Part II	On water recovery capacity (bbls/day)	
	Tier I	3,000
	Tier II	5,000
	Tier III	8,000
Part III	Shoreline cleanup volume (bbls/day)	10,000
Part IV	On water response capacity by operating area (bbls/day)	
(J1)	Tier I	12,500
(J2)	Tier II	25,000
(J3)	Tier III	50,000
Part V	On water amount needed to be identified, but not contracted for in advance	
	Tier I	0
	Tier II	0
	Tier III	0

* R = Rivers and canals
N = Nearshore/Inland

EPA PLANNING VOLUME DATA

STEP	PARAMETER	Portland Terminal

(A)	WCD (bbls)	(b) (7) (F)
(B)	Oil group	II
(C)	*Geographic area	Nearshore/Inland
(D1)	Percent lost to natural dissipation	50
(D2)	Percent recovered floating oil	50
(D3)	Percent oil onshore	30
(E1)	On water recovery (bbls)	(b) (7) (F)
(E2)	Shoreline recovery (bbls)	(b) (7) (F)
(F)	Emulsification Factor	1.8
(G)	On water recovery resource mobilization factor	
(G1)	Tier I	0.15
(G2)	Tier II	0.25
(G3)	Tier III	0.40
Part II	On water recovery capacity (bbls/day)	
	Tier I	13,500
	Tier II	22,500
	Tier III	36,000
Part III	Shoreline cleanup volume (bbls/day)	54,000
Part IV	On water response capacity by operating area (bbls/day)	
(J1)	Tier I	12,500
(J2)	Tier II	25,000
(J3)	Tier III	50,000
Part V	On water amount needed to be identified, but not contracted for in advance	
	Tier I	(b) (7)(F)
	Tier II	0
	Tier III	0

* R = Rivers and canals
N = Nearshore/Inland

D.7.3 DOT/PHMSA Portion of Pipeline/Facility

The worst case discharge (WCD) for the DOT portion of the pipeline and/or facility, as defined in 49 CFR 194.105(b), as the largest volume of the following:

1. The pipeline's maximum shut-down response time in hours (based on historic discharge

data or in the absence of such data, the operators best estimate), multiplied by the maximum flow rate expressed in barrels per hour (based on the maximum daily capacity of the pipeline), plus the largest drainage volume after shutdown of the line section(s) in the response zone expressed in barrels; or

2. The largest foreseeable discharge for the line section(s) within a response zone, expressed in barrels (cubic meters), based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective or preventative action taken; or

3. If the response zone contains one or more breakout tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels.

Under PHMSA's current policy, operators are allowed to reduce the worst case discharge volume derived from 49 CFR 194.105(b)(3) by no more than 75% if an operator is taking certain spill prevention measures for their breakout tanks and presents supporting information in the response plan. An operator can reduce the worst case discharge volume based on breakout tanks in the response zones as follows:

SPILL PREVENTION MEASURES	PERCENT REDUCTION ALLOWED
Secondary containment capacity greater than 100% capacity of tank and designed according to NFPA 30	50%
Tank built, rebuilt, and repaired according to API Std 620/650/653	10%
Automatic high-level alarms/shutdowns designed according to NFPA/API RP 2350	5%
Testing/cathodic protection designed according to API Std 650/651/653	5%
Tertiary containment/drainage/treatment per NFPA 30	5%*
Maximum allowable credit or reduction	75%

* Note: The facilities do not have tertiary containment.

The worst case discharge for each response zone was based on the largest volume of the three criteria given above.

The line sections with the highest throughput and largest drainage volume between block valves on pump stations were chosen to calculate the pipeline worst case discharge. Although the entire discharge volume of each line was used for the worst case discharge, in an actual spill event, it would take days to drain the line completely. The line would be sealed early in the response effort.

All of the breakout tanks in the pipeline system are within adequate secondary containment, therefore, the discharge volumes for the largest tank was determined by adjusting the total tank volume downward by 50% per the company guidelines.

Considering the volume of release from a line break compared to that of historic discharge in each zone and to the volumes released from a tank failure, the tank failure was found to

represent the worst case scenario.

The maximum historic discharge is not applicable for WCD covered by this plan. Given below are the tank and pipeline WCD calculations for this plan.

These tank volumes are as follows:

LOCATION	VOLUME (BBLS)
(b) (7)(F)	

The worst case tank volume is calculated as follows:

Largest tank x Credit for containment tank standards = Tank standards credit

The Company has only implemented secondary containment from the options listed on the previous page. Therefore, the percent reduction allowed for credit equals 50% and the worst case discharge volume is 50% of the total volume.

(b) (7)(F)

The worst case discharge for the pipeline segment is calculated at the OLY Pump Station to ST-2 (Line 1).

WCD = [(DT + ST) x MF] + DD

Where:

WCD = worst case discharge (bbl)

DT + ST = maximum detection time + maximum shut down time in adverse weather (generally five minutes except where noted)

MF = maximum flow rate (bph) (using bph)

DD = drain down volume (bbl) (internal diameter)

(b) (7)(F)

Since there have been no historical discharges the DOT/PHMSA WCD volume for this plan is:
(b) (7)(F)

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D.7.4

Note: This table contains database content, therefore references within this table are not active hyperlinks.

D.7.4 Oregon Spill Calculation

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D.8 PRODUCT CHARACTERISTICS AND HAZARDS

This Facility may store various types of commodities including but not limited to:

- Biodiesel
- Ethanol
- Gasoline
- Lube Oil
- MFO

The key chemical and physical characteristics of each of these oils and/or other small quantity products/
chemicals are identified in MSDS. MSDS can be obtained by the Facility via the Company intranet.

FIGURE D.8-1 describes primary oils handled.

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FIGURE D.8-1 - SUMMARY OF COMMODITY CHARACTERISTICS

COMMON NAME	MSDS NAME	HEALTH HAZARD	FLASH POINT	SPECIAL HAZARD	REACTIVITY	HEALTH HAZARD WARNING STATEMENT
Biodiesel	Appropriate Product Name	1	0	OX	0	Moderate skin irritant.
Ethanol	Appropriate product name	1	4	C	0	Overexposure to this material can result in severe skin, eye and respiratory irritation.
	Appropriate					Long term, repeated exposure may cause cancer,

Gasoline	Product Name	1	3		0	blood, kidney and nervous system damage, and contains benzene.
Lube Oil	Appropriate Product Name	1	1	C	0	Causes skin irritation. Contains material which causes damage to respiratory tract, skin, eyes, lens, or cornea. Long term, repeated exposure may cause cancer.
MFO	Appropriate Product Name	1	2	C, H2S, OX	0	Can cause serious or fatal complications if swallowed. Can cause eye and skin irritation. Inhalation can cause anesthetic effect leading to death in poorly ventilated areas.

Health Hazard	**4 = Extremely Hazardous** **3 = Hazardous** **2 = Warning** **1 = Slightly Hazardous** **0 = No Unusual Hazard**	**Fire Hazard (Flash Point)**	**4 = Below 73Â°F, 22Â°C** **3 = Below 100Â°F, 37Â°C** **2 = Below 200Â°F, 93Â°C** **1 = Above 200Â°F, 93Â°C** **0 = Will not burn**
Special Hazard	**A = Asphyxiant** **C = Contains Carcinogen** **W = Reacts with Water** **Y = Radiation Hazard** **COR = Corrosive** **OX = Oxidizer** **H_2S = Hydrogen Sulfide** **P = Contents under Pressure** **T = Hot Material**	**Reactivity Hazard**	**4 = May Detonate at Room Temperature** **3 = May Detonate with Heat or Shock** **2 = Violent Chemical Change with High Temperature and Pressure** **1 = Not Stable if Heated** **0 = Stable**

APPENDIX E Last Revised: April 2014

CROSS-REFERENCES

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Figure E-1 - EPA / FRP Cross-Reference

Figure E-2 - EPA / SPCC Cross-Reference

Figure E-3 - USCG / FRP Cross-Reference

Figure E-4 - DOT / PHMSA Cross-Reference

Figure E-5 - EPA / RCRA Cross-Reference

Figure E-6 - Oregon Cross-Reference

Figure E-7 - OSHA Cross-Reference

Figure E-8 - EPA Response Plan Cover Sheet

FIGURE E-1 - EPA / FRP CROSS-REFERENCE

EPA FRP REQUIREMENTS	LOCATION
Response Plan Cover Sheet (sec. 2.0)	
General Information (sec. 2.1)	
Facility Name	Figure E-8
Facility Address	Figure E-8
Facility Telephone	Figure E-8
Mailing Address (if different from Facility Address)	Figure E-8
Facility Owner/operator	Figure E-8
Facility Owner & Operator Address (recommended)	Figure E-8
Facility Owner Telephone (recommended)	Figure E-8
Dun and Bradstreet Number	Figure E-8
Longitude (degrees, minutes, seconds)	Figure E-8
Latitude (degrees, minutes, seconds)	Figure E-8
North American Industrial Classification System (NAICS) Code	Figure E-8
Facility Start Up Date (recommended)	Figure E-8
Facility Acres (recommended)	Figure E-8
Name of Protected Waterway or Environmentally Sensitive Area	Figure E-8
Distance to Navigable Water	Figure E-8
Worst Case Discharge Amount	Figure E-8
Maximum Oil Storage Capacity	Figure E-8
Largest AST Capacity (gallons)	Figure E-8
Total Number of ASTs	Figure E-8
Total Number of USTs	Figure E-8
Total UST Storage	Figure E-8
Total Storage of Drums & Transformers that contain Oil	Figure E-8
Number of Surface Impoundments and Total Storage of Surface Impoundments	Figure E-8
Applicability of Substantial Harm Criteria (sec. 2.2)	Figure E-8
Certification (sec. 2.3)	Figure E-8
Model Facility-Specific Response Plan (sec. 1.0)	
Emergency Response Action Plan (ERAP) (sec. 1.1)	
Separate Section of FRP	ERAP
Qualified Individual (QI) Information (sec. 1.2) partial	ERAP - Figure 3-4
Emergency Notification Phone List (sec. 1.3.1) partial	ERAP - Figure 3-4, Figure 3-5
Spill Response Notification Form (sec. 1.3.1) partial	ERAP - Figure 3-1,

	Figure 3-2, Figure 3-3
Response Equipment List and Location (sec. 1.3.2) complete	ERAP - Figure 4-2, Figure 4-3

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Emergency Response Action Plan (ERAP) (sec. 1.1), Continued	
Response Equipment Testing and Deployment (sec. 1.3.3) complete	ERAP - Figure 4-4
Facility Response Team List (sec. 1.3.4) partial	ERAP - Figure 3-4
Evacuation Plan (sec. 1.3.5) condensed	ERAP - Section 2.2
Immediate Actions (sec. 1.7.1) complete	ERAP - Section 2.0
Facility Diagrams (sec. 1.9) complete	ERAP - Section 5.0
Facility Information (sec. 1.2)	
Facility Name (sec. 1.2.1)	Figure 1-2
Street Address	Figure 1-2
City, State, Zip Code	Figure 1-2
County	Figure 1-2
Phone Number	Figure 1-2
Latitude and Longitude (sec. 1.2.2)	Figure 1-2
Wellhead Protection Area (sec. 1.2.3)	Figure 1-2
Owner/Operator (both names included, if different (sec. 1.2.4)	Figure 1-2
Qualified Individual Information (sec. 1.2.5) (name, position, home and work street addresses, phone numbers) and description of specific response training experience	Figure 1-2, Figure A.2-2, Figure A.2-3
Date of Oil Storage Start-up (sec. 1.2.6)	Figure 1-2
Current Operation (sec. 1.2.7)	Figure 1-2
Date and Types of Substantial Expansion (sec. 1.2.8)	Figure 1-2, Figure C-5
SIC and NAICS Codes	Figure 1-2, Figure E-8
Emergency Response Information (sec. 1.3)	
Notification (sec. 1.3.1)	
National Response Center (NRC) phone number	Figure 3.1-6
Qualified Individual (day and evening) phone numbers	Figure 1-2, Figure 3.1-5
Company Response Team (day and evening) phone numbers	Figure 3.1-5
Federal On-Scene Coordinator (FOSC) and/ or Regional Response Center (day and evening) phone numbers	Figure 3.1-6
Local Response Team phone numbers (Fire	Figure 3.1-6

Department/Cooperatives)	
Fire Marshal (day and evening) phone numbers	Figure 3.1-6
State Emergency Response Commission (SERC) (day and evening) phone number	Figure 3.1-6
State Police phone number	Figure 3.1-6
Local Emergency Planning Committee (LEPC) phone number	Figure 3.1-6

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Notification (sec. 1.3.1), Continued	
Local Water Supply System (day and evening) phone numbers	Figure 3.1-6
Weather Report phone number	Figure 3.1-6
Local Television/Radio Station phone number(s) for Evacuation Notification	Figure 3.1-6
Spill Response Contractor(s)	Figure 3.1-6
Hospital phone number	Figure 3.1-6
Wastewater Treatment Facility(s) name and phone number (recommended)	Section 6.11 (ISS)
Factories/Utilities with Water Intakes (recommended)	Section 6.11 (ISS)
Trustees of Sensitive Areas (recommended)	Section 6.11 (ISS)
Spill Response Notification Form	
• Reporter's Name, Position, Phone Number	Figure 3.1-4
• Company Information	Figure 3.1-4
• Were Materials Discharged	Figure 3.1-4
• Meeting Federal Obligations to Report	Figure 3.1-4
• Calling for Responsible Party	Figure 3.1-4
• Time Called	Figure 3.1-4
• Incident Description (source/cause)	Figure 3.1-4
• Date/Time of Incident	Figure 3.1-4
• Incident Address/Location	Figure 3.1-4
• Nearest City/State/County/Zip	Figure 3.1-4

• Distance from City/Units of Measure/Direction from City, Section, Township, Range, Borough	Figure 3.1-4
• Container Type/Tank Oil Storage Capacity/Units of Measure	Figure 3.1-4
• Facility Oil Storage Capacity/Units of Measure	Figure 3.1-4
• Facility Longitude and Latitude	Figure 3.1-4
Response Equipment List (Identify if Facility, OSRO, CO-OP owned by letters O, F, or C) (sec. 1.3.2)	
Skimmers/Pumps (Operational Status, Type/Model/Year, Number or Quantity, Capacity, Daily Effective Recovery Rate, Storage Location)	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Boom (Containment Boom: Operational Status, Year, Number, Skirt Size. Sorbent Boom: Operational Status, Type/Model/Year, Number, Size (Length))	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Chemical Countermeasures Agents Stored	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Sorbents (Type, Year Purchased, Amount, Storage Location)	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Response Equipment List (Identify if Facility, OSRO, CO-OP owned by letters O, F, or C) (sec. 1.3.2), Continued	
Hand Tools (Type, Quantity, Storage Location)	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Communications Equipment (Operational Status, Type, Operational Frequency, Quantity)	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Fire Fighting and Personnel Protective Equipment	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Other (e.g., Heavy Equipment, Cranes, Dozers, etc.) (Operational Status, Type, and Year, Quantity, Storage Location)	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Equipment Location	Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1

Amount of oil that emergency response equipment can handle and limitations (e.g., launching sites) must be described.	Section 6.11, Section 7.1.1, Figure 7.1-1, Appendix B.1.1, Figure B.1-1
Response Equipment Testing/ Deployment (sec. 1.3.3)	
Last inspection or equipment test date	Figure A.1-4
Inspection frequency	Figure A.1-4
Last deployment drill date	Figure A.1-4
Deployment frequency	Figure A.1-4
OSRO certification (if applicable)	Figure A.1-4
Response Personnel (sec. 1.3.4)	
Emergency Response Personnel Information (Personnel whose duties involve responding to emergencies, including oil discharges, even when they are not present at the site)	Figure 3.1-5
• Name	Figure 3.1-5
• Phone Numbers (work/home, other)	Figure 3.1-5
• Response Time	Figure 3.1-5
• Responsibility	Figure 3.1-5
• Type and Date of Response Training	Figure 3.1-5, Figure A.2-3
Emergency Response Contractor Information	Figure 3.1-5, Figure 3.1-6, Figure 7.1-1, Appendix B
• Name	Figure 3.1-5, Figure 3.1-6, Figure 7.1-1, Appendix B
• Phone Numbers	Figure 3.1-5, Figure 3.1-6
• Response Time	Figure 3.1-5, Appendix B
• Evidence of Contractual Arrangements	Figure B.1-1

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Response Personnel (sec. 1.3.4), Continued	
Facility Response Team Information (Composed of Emergency	Figure 3.1-5

Response Personnel and Emergency Response that will respond immediately)	
• Name	Figure 3.1-5
• Job Function of Emergency Response Personnel	Figure 3.1-5
• Response Time	Figure 3.1-5
• Phone/Pager	Figure 3.1-5
• Name of Emergency Response Contractor (Contractors providing facility response team services may be different than contractors providing oil spill response services)	Figure 3.1-5
• Response Time	Figure 3.1-5
• Phone/Pager	Figure 3.1-5
Evacuation Plans (sec. 1.3.5)	
Facility Evacuation Plan (sec. 1.3.5.1)	Section 2.2
• Location of stored materials	Section 2.2
• Hazard imposed by spilled materials	Section 2.2
• Spill flow direction	Section 2.2
• Prevailing wind directions and speed	Section 2.2
• Water currents, tides, or wave conditions (if applicable)	Section 2.2
• Arrival route of emergency response personnel and response equipment	Section 2.2
• Evacuation routes	Section 2.2
• Alternative routes of evacuation	Section 2.2
• Transportation of injured personnel to nearest medical facility	Section 2.2
• Location of alarm/notification systems	Section 2.2
• Centralized check-in area for roll call	Section 2.2
• Mitigation command center location	Section 2.2

• Location of shelter at facility	Section 2.2
Community Evacuation Plans referenced (sec. 1.3.5.3)	Section 2.2
Evacuation routes shown on diagram	Figure C-8
Qualified Individual's Duties (sec. 1.3.6)	
Description of duties	Section 4.5
• Activate internal alarms and hazard communications systems	Section 4.5
• Notify Response Personnel	Section 4.5
• Identify character, exact source, amount and extent of the release	Section 4.5

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Qualified Individual's Duties (sec. 1.3.6), Continued	
• Notify and provide information to appropriate Federal, State and local authorities	Section 4.5
• Assess interaction of spilled substance with water and/or other substances stored at facility and notify on-scene personnel of assessment	Section 4.5
• Assess possible hazards to human health and environment	Section 4.5
• Assess and implement prompt removal actions	Section 4.5
• Coordinate rescue and response actions	Section 4.5
• Access company funding to initiate cleanup activities	Section 4.5
• Direct cleanup activities	Section 4.5
Consistent with requirements	Section 4.5
Qualified Individual identified with the Facility Information	Figure 1-2
Hazard Evaluation (sec. 1.4)	
Hazard Identification (sec. 1.4.1)	
Tank Above Ground and Below Ground:	Figure C-7
• Tank number(s)	Figure C-7

Substance(s) Stored	Figure C-7
• Quantity(s) Stored	Figure C-7
• Tank Type(s)/Year(s) of Construction	Figure C-7
• Maximum Capacity(s)	Figure C-7
• Failure(s)/Cause(s)	Figure C-7
Surface Impoundments (SI):	Figure C-7
• SI Number(s)	Figure C-7
• Substance(s) Stored	Figure C-7
• Quantity(s) Stored	Figure C-7
• Surface Area(s)/Year(s) of Construction	Figure C-7
• Maximum Capacity(s)	Figure C-7
• Failure(s)/Cause(s)	Figure C-7
Labeled schematic drawing	Figure C-7
Description of transfers (loading and unloading) and volume of material	Figure 1-2
Description of daily operations	Figure 1-2
Secondary containment volumes	Figure 1-2, Figure C-5
Normal daily throughput of the facility	Figure 1-2

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Vulnerability Analysis (sec. 1.4.2)	
Analysis of the potential effects of an oil spill on vulnerable areas. **(Attachment C-III to Appendix C of this part provides a method that owners or operators shall use to determine appropriate distances from the facility to fish and wildlife and sensitive environments. Owners or operators can use a comparable formula that is considered acceptable by the RA. If a comparable formula is used, documentation of the reliability and analytical soundness of the formula must be attached to the Response Plan Cover Sheet).**	Figure D.4-1

Water intakes	Section 6.7, Section 6.11
• Schools	Section 6.7, Section 6.11
• Medical facilities	Section 6.7, Section 6.11
• Residential areas	Section 6.7, Section 6.11
• Business	Section 6.7, Section 6.11
• Wetlands or other environmentally sensitive areas	Section 6.7, Section 6.11
• Fish and wildlife	Section 6.7, Section 6.11
• Lakes and streams	Section 6.7, Section 6.11
• Endangered flora and fauna	Section 6.7, Section 6.11
• Recreational areas	Section 6.7, Section 6.11
• Transportation routes (air, land, and water)	Section 6.7, Section 6.11
• Utilities	Section 6.7, Section 6.11
• Other applicable areas (List below)	Section 6.7, Section 6.11
• Other areas:	Section 6.7, Section 6.11
Analysis of Potential for a Spill (sec. 1.4.3)	
Description of likelihood of release occurring	Appendix D.2.1
• Oil spill history for the life of the facility	Appendix D.2.1, Figure C-15
• Horizontal range of potential spill	Appendix D.2.1, Figure D.4-1
• Vulnerability to natural disaster	Appendix D.2.1
• Other factors, such as tank age	Appendix D.2.1, Figure C-5< td>
• Other factors (e.g., unstable soils, earthquake zones, Karst topography, etc.)	Appendix D.2.1
Facility Reportable Oil Spill History Description (sec. 1.4.4)	
Date of discharge(s)	Figure C-15
List of discharge causes	Figure C-15
Material(s) discharged	Figure C-15

Amount of discharge(s) in gallons	Figure C-15
Amount of discharge that reached navigable waters (if applicable)	Figure C-15
Effectiveness and capacity of secondary containment	Figure C-15

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Facility Reportable Oil Spill History Description (sec. 1.4.4), Continued	
Clean-up actions taken	Figure C-15
Steps taken to reduce possibility of reoccurrence	Figure C-15
Total oil storage capacity of tank(s) or impoundment(s) from which material discharged	Figure C-15
Enforcement actions	Figure C-15
Effectiveness of monitoring equipment	Figure C-15
Description(s) of how each spill was detected	Figure C-15
Discharge Scenarios (sec. 1.5)	
Small and Medium Volume Discharges (sec. 1.5.1)	
Small Volume Discharges (sec. 1.5.1) (Description of small discharges addressing facility operations and components including but not limited to: (sec. 1.5.1.1)	
Loading and unloading operations	Appendix D.5.1
Facility maintenance operation	Appendix D.5.1
Facility piping	Appendix D.5.1
Pumping stations and sumps	Appendix D.5.1
Oil storage tanks	Appendix D.5.1
Vehicle refueling operations	Appendix D.5.1
Age and condition of facility components	Appendix D.5.1
Small volume discharge calculation for a facility	Appendix D.5.1
Facility-specific spill potential analysis	Appendix D.5.1
Average most probable discharge for "complexes"	Appendix D.5.1, Appendix D.7
1,000 feet of boom (1 hour deployment time)	Section 7.1.1, Figure 7.1-1, Appendix B, Appendix D.5.1
Correct amount of boom for complexes	Appendix D.5.1
Oil recovery devices equal to small discharge (2 hour recovery time)	Section 7.1.1, Figure 7.1-1, Appendix B, Appendix D.5.1
Oil storage capacity for recovered material	Section 7.1.1, Figure 7.1-1, Appendix B,

	Appendix D.5.1
Scenarios Affected by the Response Efforts (sec. 1.5.1.2)	
Size of the discharge	Appendix D.5.1, Appendix D.5.3
Proximity to downgradient wells, waterways and drinking water intakes	Appendix D.5.1, Appendix D.5.3, Section 6.7, Section 6.11
Proximity to fish and wildlife and sensitive environments	Appendix D.5.1, Appendix D.5.3, Section 6.7, Section 6.11

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Scenarios Affected by the Response Efforts (sec. 1.5.1.2), Continued	
Likelihood that the discharge will travel off-site (i.e., topography, drainage)	Appendix D.5.1, Appendix D.5.3
Location of the material discharged (i.e., on a concrete pad or directly on the soil)	Appendix D.5.1, Appendix D.5.3
Material discharged	Appendix D.5.1, Appendix D.5.3
Weather or aquatic conditions (i.e., river flow)	Appendix D.5.1, Appendix D.5.3
Available remediation equipment	Appendix D.5.1, Appendix D.5.3
Probability of a chain reaction of failures	Appendix D.5.1, Appendix D.5.3
Direction of discharge pathway	Appendix D.5.1, Appendix D.5.3
Medium Discharges (sec. 1.5.1) (Description of medium discharges scenarios addressing facility operations and components including but not limited to: (sec. 1.5.1.1)	
Loading and unloading operations	Appendix D.5.1
Facility maintenance operation	Appendix D.5.1
Facility piping	Appendix D.5.1
Pumping stations and sumps	Appendix D.5.1
Oil storage location	Appendix D.5.1
Vehicle refueling operations	Appendix D.5.1
Age and condition of facility components	Appendix D.5.1
Medium volume discharge calculation for a facility	Appendix D.5.1
Facility-specific spill potential analysis	Appendix D.5.1

Maximum most probable discharge for complexes	Appendix D.5.1
Oil recovery devices equal to medium discharge	Section 7.1.1, Figure 7.1-1, Appendix B, Appendix D.5.1
Availability of sufficient quantity of boom	Section 7.1.1, Figure 7.1-1, Appendix B, Appendix D.5.1
Oil storage capacity for recovered material	Section 7.1.1, Figure 7.1-1, Appendix B, Appendix D.5.1
Scenarios Affected by the Response Efforts (sec. 1.5.1.2)	
Size of the discharge	Appendix D.5.1, Appendix D.5.3
Proximity to downgradient wells, waterways and drinking water intakes	Appendix D.5.1, Appendix D.5.3, Section 6.7, Section 6.11

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Scenarios Affected by the Response Efforts (sec. 1.5.1.2), Continued	
Proximity to fish and wildlife and sensitive environments	Appendix D.5.1, Appendix D.5.3, Section 6.7, Section 6.11
Likelihood that the discharge will travel off-site (i.e., topography, drainage)	Appendix D.5.1, Appendix D.5.3
Location of the material discharged (i.e., on a concrete pad or directly on the soil)	Appendix D.5.1, Appendix D.5.3
Material discharged	Appendix D.5.1, Appendix D.5.3
Available remediation equipment	Appendix D.5.1, Appendix D.5.3
Probability of a chain reaction of failures	Appendix D.5.1, Appendix D.5.3
Direction of discharge pathway	Appendix D.5.1, Appendix D.5.3
Worst Case Discharge (WCD) (sec. 1.5.2) (see Appendix A) (When planning for the worst case discharge response all of the factors listed in the small and medium discharge section of the response plan shall be addressed)	
Facility Specific Worst Case Discharge Scenario	Appendix D.5.2
Description of worst case discharges scenarios addressing facility operations and components including but not limited to: (sec.	Appendix D.5.2

1.5.1.1)	
• Loading and unloading operations	Appendix D.5.2
• Facility maintenance operation	Appendix D.5.2
• Facility piping	Appendix D.5.2
• Pumping stations and sumps	Appendix D.5.2
• Oil storage location	Appendix D.5.2
• Vehicle refueling operations	Appendix D.5.2
• Age and condition of facility components	Appendix D.5.2
• Correct Worst Case Discharge (WCD) calculation for specific type of facility (Appendix D)	Appendix D.7, Appendix D.5.2
• Correct Worst Case Discharge calculation for complexes	Appendix D.5.2
• Sufficient response resources for WCD (Appendix E)	Figure 3.1-6, Figure 7.1-1, Appendix B, Appendix D.7
• Sources and quantity of equipment for response to WCD	Figure 7.1-1, Appendix B, Appendix D.7
• Oil storage capacity for recovered material	Section 7.1.1, Figure 7.1-1, Section7.4, Figure 7.4-3, Appendix B, Appendix D.7

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Scenarios Affected by the Response Efforts (sec. 1.5.1.2)	
Size of the discharge	Appendix D.5.2, Appendix D.5.3
Proximity to downgradient wells, waterways and drinking water intakes	Appendix D.5.2, Appendix D.5.3, Section 6.7, Section 6.11
Proximity to fish and wildlife and sensitive environments	Appendix D.5.2, Appendix D.5.3, Section 6.7, Section 6.11
Likelihood that the discharge will travel off-site (i.e., topography, drainage)	Appendix D.5.2, Appendix D.5.3

Location of the material discharged (i.e., on a concrete pad or directly on the soil)	Appendix D.5.2, Appendix D.5.3
Material discharged	Appendix D.5.2, Appendix D.5.3
Weather or aquatic conditions (i.e., river flow)	Appendix D.5.2, Appendix D.5.3
Available remediation equipment	Appendix D.5.2, Appendix D.5.3
Probability of a chain reaction of failures	Appendix D.5.2, Appendix D.5.3
Direction of discharge pathway	Appendix D.5.2 (Worst Case Discharge), Appendix D.5.3
Discharge Detection Systems (sec. 1.6)	
Discharge Detection by Personnel (sec. 1.6.1)	
Description of procedures and personnel for spill detection	Appendix D.3
Description of facility inspections	Figure C-11, Appendix D.3
Description of initial response actions	Figure 2-1
Emergency Response Information (referenced)	Figure 3.1-5
Automated Discharge Detection (sec. 1.6.2)	
Description of automatic spill detection equipment, including overfill alarms and secondary containment sensors	Appendix D.3
Description of alarm verification procedures and subsequent actions	Appendix D.3
Plan Implementation (sec. 1.7)	
Response Resources for Small, Medium and Worst Case Discharges (sec. 1.7.1)	
Demonstration of accessibility of proper response personnel and equipment	Appendix B
Description of response actions	Section 2, Appendix D.5.1, Appendix D.5.2
• Emergency plans for spill response	Section 2, Appendix D.5.1, Appendix D.5.2
• Additional response training	Appendix A.2

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Response Resources for Small, Medium and Worst Case Discharges (sec. 1.7.1), Continued	

• Additional contracted help	Appendix B
• Access to additional equipment/ experts	Appendix B
• Ability to implement plan, including training and practice drills	Appendix A
Recommended form detailing Immediate Actions for Small, Medium, and Worst Case spills (sec. 1.7.1.2A) (Stop the Product Flow, Warn Personnel, Shut Off Ignition Sources, Initiate Containment, Notify NRC, Notify OSC, Notify (as appropriate))	Figure 2-1, Appendix D.7
Disposal Plans (sec. 1.7.2)	
Description of procedures for recovering, reusing, decontaminating or disposing of materials	Section 5.6, Section 7.4, Figure 7.4-4
Materials addressed in Disposal Plan **(Recovered product, contaminated soil, contaminated equipment and materials (including drums, tank parts, valves and shovels), personnel protective equipment, decontamination solutions, absorbents, spent chemicals)**	Figure 7.4-4
Plan prepared in accordance with any Federal, State and/or local regulations	Section 5.6, Section 7.4
Plan addresses permits required to transport or dispose of recovered materials	Section 5.6, Figure 7.4-4
Containment and Drainage Planning (sec. 1.7.3)	
Containment and drainage plan available	Figure C-16
• Description of containing/controlling a spill through drainage	Figure C-16
• Containment volume	Figure C-16
• Drainage route from oil storage and transfer areas	Figure C-16
• Construction materials in drainage troughs	Figure C-16
• Type and number of valves separators in drainage system	Figure C-16
• Sump pump capacities	Figure C-16
• Containment capacity of weirs and booms and their location	Figure C-16
• Other clean up materials	Figure C-16

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Self-Inspection, Training, and Meeting Logs (sec. 1.8)	
Facility Self-Inspection (sec. 1.8.1)	
Records of tank inspections with dates (Tank Leaks, Tank Foundations, Tank Piping) contained or cross-referenced in plan or maintained electronically for five years (sec. 1.8.1.1)	Figure C-12
Records of secondary containment inspections with dates (Dike or Berm System, Secondary Containment, Retention and Drainage Ponds) contained or cross-referenced in plan or maintained electronically for five years (sec. 1.8.1.3)	Figure C-12
Response Equipment Inspection (sec. 1.8.1.2)	
Inventory (item and quantity)	Figure D.3-1
Storage location	Figure D.3-1
Accessibility (time to access and respond)	Figure D.3-1
Operational status/condition	Figure D.3-1
Actual use/testing (last test date and frequency of testing)	Maintain On-Site
Shelf life (present age, expected replacement date)	Figure D.3-1
Inspection date	Figure D.3-1
Inspector's signature	Figure D.3-1
Inspection records maintained for 5 years	Figure D.3-1
Response Equipment Inspection Log (Inspector, Date, Comments)	Figure D.3-1
Facility Drills/ Exercises (sec. 1.8.2)	
Description of drill/exercise program based on PREP guidelines or other comparable program	Appendix A.1, Figure A.1-2
• Qualified Individual Notification Drills	Figure A.1-2
• Spill Management Team Tabletop Exercises	Figure A.1-2
• Equipment deployment exercise	Figure A.1-2
• Unannounced exercise	Figure A.1-2
• Area exercise	Figure A.1-2
Description of evaluation procedures for drill program	Figure A.1-2
Qualified Individual Notification Drill Log (sec. 1.8.2.1) (date, company, qualified individual, other contacted, emergency scenario, evaluation)	Figure A.1-5
Spill Management Team Tabletop Drill Log (sec. 1.8.2.2) (date, company, qualified individual, participants, emergency scenario, evaluation, changes to be implemented, time table for implementation)	Figure A.1-6
Response Training (sec. 1.8.3)	

Description of response training program (including topics)	Figure A.2-2
Personnel Response Training Logs (name, response training date/ and number of hours, prevention training date/ and number of hours)	Figure A.2-3
Discharge Prevention Meeting Log (date, attendees)	Figure C-11

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Diagrams (sec. 1.9)	
Site Plan Diagram	
Entire facility to scale	Figure 1-5
Above and below-ground bulk storage tanks	Figure 1-5
Contents and capacities of bulk oil storage tanks	Figure 1-5
Contents and capacities of drum storage areas	Figure 1-5
Contents and capacities of surface impoundments	Figure 1-5
Process buildings	Figure 1-5
Transfer areas	Figure 1-5
Location and capacity of secondary containment systems	Figure 1-5
Location of hazardous materials (structures where hazardous materials are stored or handled, including materials stored and capacity of storage)	Figure 1-5
Location of communication and emergency response equipment	Figure 1-5
Location of electrical equipment that might contain oil	Figure 1-5
If the Facility is a Complex Facility, the interface between EPA and other regulating agencies	Figure 1-5
Site Drainage Plan Diagram	
Major sanitary and storm sewers, manholes, and drains	Figure C-7
Weirs and shut-off valves	Figure C-7
Surface water receiving streams	Figure C-7
Fire fighting water sources	Figure C-7
Other utilities	Figure C-7
Response personnel ingress and egress	Evacuation Diagram "Figure C-8"
Equipment transportation routes	Figure C-7, Evacuation Diagram "Figure C-8"
Direction of spill flow from release points	Figure C-7
Site Evacuation Diagram	

Site plan diagram with evacuation routes	Figure C-8
Location of evacuation regrouping areas	Figure C-8

FIGURE E-1 - EPA / FRP CROSS-REFERENCE, CONTINUED

EPA FRP REQUIREMENTS	LOCATION
Site Security (sec. 1.10)	
Emergency cut-off locations	Figure 7.3-2
Enclosure	Figure 7.3-2
Guards and their duties, day and night	Figure 7.3-2
Lighting	Figure 7.3-2
Valve and pump locks	Figure 7.3-2
Pipeline connection caps	Figure 7.3-2

FIGURE E-2 - EPA / SPCC CROSS-REFERENCE

EPA SPCC REQUIREMENTS (40 CFR 112.7 and 112.8)	LOCATION
112.7 General requirements for Spill Prevention, Control, and Countermeasure Plans	
a. General requirements	
1. Include a discussion of your facility's conformance with the requirements listed in this part	Appendix C
3. Describe in your Plan the physical layout of the facility and include a facility diagram	Figure 1-5, Figure C-7, Figure C-8
i. The type of oil in each container and its storage capacity	Figure C-5
ii. Discharge prevention measures	Section 2, Figure C-4
iii. Discharge or drainage controls	Figure C-4, Figure C-7
iv. Countermeasures for discharge	Section 2
v. Methods of disposal	Section 7.4
vi. Contact list and phone numbers	Figure 3.1-5, Figure 3.1-6
4. Unless you have submitted a response plan, provide	N/A

information and procedures to report a discharge	
5. Unless you have submitted a response plan, describe procedures you will use when a discharge occurs	N/A
b. Prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure	Figure C-5
c. Provide appropriate containment	Figure C-5
d. If you determine that the installation of any of the structures or pieces of equipment is not practicable, you must clearly explain in your Plan why such measures are not practicable; for bulk storage containers, conduct both periodic integrity testing of the containers and periodic integrity and leak testing of the valves and piping; and, unless you have submitted a response plan under § 112.20, provide in your Plan the following:	Appendix C
1. An oil spill contingency plan following the provisions of part 109 of this chapter	N/A
2. A written commitment of manpower, equipment, and materials	N/A
e. Inspections, tests, and records	Appendix C
f. Personnel, training, and discharge prevention procedures	Appendix C
1. Oil-handling personnel training	Figure C-4, Appendix A.2
2. Person accountable for discharge prevention	Figure C-4
3. Schedule and conduct discharge prevention briefings	Figure C-4, Figure C-11

FIGURE E-2 - EPA / SPCC CROSS-REFERENCE, CONTINUED

EPA SPCC REQUIREMENTS (40 CFR 112.7 and 112.8)	LOCATION
112.7 General requirements for Spill Prevention, Control, and Countermeasure Plans, continued	
g. Security (excluding oil production facilities)	Figure C-4
1. Facility fencing	Figure C-4

2. Master flow, drain valves, and other valves remain in closed position	Figure C-4
3. Lock the starter control on each oil pump in “off” position	Figure C-4
4. Securely cap or blank-flange the loading/ unloading connections	Figure C-4
5. Provide facility lighting	Figure C-4
i. Discovery of discharges occurring during hours of darkness	Figure C-4
ii. Prevention of discharges occurring through acts of vandalism	Figure C-4
h. Facility tank car and tank truck loading/ unloading rack (excluding offshore facilities)	Figure C-4
1. Catchment basin, treatment facility, or quick drainage system	Figure C-4
2. Provide vehicular disconnect warning system	Figure C-4
3. Inspect for discharges of the lower most drain	Figure C-4
i. Aboveground container brittle fracture evaluation	Figure C-4
j. Discussion of conformance with the applicable requirements	Figure C-4
k. Qualified Oil-filled Operational Equipment	Figure C-4
1. Qualification Criteria - Reportable Discharge History	Figure C-4
2. Alternative Requirements to General Secondary Containment	Figure C-4
i. Establish and document the facility procedures for inspections or a monitoring program to detect equipment failure and/or a discharge; and	Figure C-4
ii. Unless you have submitted a response plan under Â§112.20, provide in your Plan the following:	Figure C-4
A. An oil spill contingency plan following the provisions of part 109 of this chapter	Figure C-4

B. A written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful	Figure C-4
112.8 Spill Prevention, Control, and Countermeasure Plan requirements for onshore facilities (excluding production facilities)	
b. Facility drainage	Figure C-4
1. Restrain drainage from diked storage areas except where facility systems are designed to control such discharge	Figure C-4

FIGURE E-2 - EPA / SPCC CROSS-REFERENCE, CONTINUED

EPA SPCC REQUIREMENTS (40 CFR 112.7 and 112.8)	LOCATION
112.8 Spill Prevention, Control, and Countermeasure Plan requirements for onshore facilities (excluding production facilities), continued	
2. Use valves of manual, open-and-closed design, for the drainage of diked areas	Figure C-4
3. Design facility drainage systems from undiked areas with a potential for a discharge to flow into ponds, lagoons, or catchment basins designed to retain oil or return it to the facility	Figure C-4
4. Equip the final discharge of all ditches inside the facility with a diversion system that would, in the event of an uncontrolled discharge, retain oil in the facility	Figure C-4
5. Where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is needed, provide two "lift" pumps and permanently install at least one of the pumps	Figure C-4
c. Bulk storage containers	Figure C-4
1. Not use a container for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature	Figure C-4
2. Provide a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation	Figure C-4

3. Not allow drainage of uncontaminated rainwater from the diked area into a storm drain or discharge of an effluent into an open watercourse, lake, or pond, bypassing the facility treatment system unless you:	Figure C-4
i. Normally keep the bypass valve sealed closed	Figure C-4
ii. Inspect the retained rainwater to ensure that its presence will not cause a discharge as described in § 112.1(b)	Figure C-4
iii. Open the bypass valve and reseal it following drainage under responsible supervision; and	Figure C-4
iv. Keep adequate records of such events, for example, any records required under permits issued in accordance with §§ 122.41(j)(2) and 122.41(m)(3) of this chapter	Figure C-4
4. Protect completely buried metallic storage tanks from corrosion	Figure C-4
5. Protect partially buried and bunkered tanks from corrosion	Figure C-4
6. Test each aboveground container for integrity on a regular schedule	Figure C-4
7. Control leakage through defective internal heating coils	Figure C-4
8. Engineer or update each container installation in accordance with good engineering practice to avoid discharges. You must provide at least one of the following devices:	Figure C-4
i. High liquid level alarms with an audible or visual signal	Figure C-4
ii. High liquid level pump cutoff devices	Figure C-4

FIGURE E-2 - EPA / SPCC CROSS-REFERENCE, CONTINUED

EPA SPCC REQUIREMENTS (40 CFR 112.7 and 112.8)	LOCATION
112.8 Spill Prevention, Control, and Countermeasure Plan requirements for onshore facilities (excluding production facilities), continued	

iii. Direct audible or code signal communication between the container gauger and the pumping station	Figure C-4
iv. A fast response system	Figure C-4
v. Regularly test liquid level sensing devices to ensure proper operation	Figure C-4
9. Observe effluent treatment facilities frequently enough to detect possible system upsets that could cause a discharge as described in § 112.1(b)	Figure C-4
10. Promptly correct visible discharges which result in a loss of oil from the container	Figure C-4
11. Position or locate mobile or portable oil storage containers to prevent a discharge	Figure C-4
d. Facility transfer operations, pumping, and facility process	Figure C-4
1. Provide protection of buried piping that is installed or replaced on or after August 16, 2002	Figure C-4
2. Cap or blank-flange the terminal connection at the transfer point	Figure C-4
3. Properly design pipe supports to minimize abrasion and corrosion and allow for expansion and contraction	Figure C-4
4. Regularly inspect all aboveground valves, piping, and appurtenances	Figure C-4
5. Warn all vehicles entering the facility to be sure that no vehicle will endanger aboveground piping or other oil transfer operations	Figure C-4

FIGURE E-3 - USCG / FRP CROSS-REFERENCE

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN THIS PLAN
a) Introduction and Plan Content	
1. Facility Name and Location (address, city, county, state, zip, phone number, fax number).	Figure 1-2

2. Facility Directions (including but not limited to maps, landmarks and river mile that could aid a responder and reviewer).	Figure 1-2, Figure 1-3
3. Name, address and procedures for contacting the facility's owner or operator on a 24 hour basis.	Figure 1-2, Figure 3.1-4
4. Table of contents.	Table of Contents
5. Period when submitted plan does not have to conform to the subpart, a cross index, if appropriate.	Figure E-3
6. Record of change(s) to record information on plan updates.	After Table of Contents
b) Emergency Response Action Plan	
1. Notification procedures • Prioritized list of facility response personnel. • Federal, State or local agencies, as required • Spill response notification forms to Federal, State, local agencies. Form must state that initial notification must not be delayed by collection of data. • Notification of the National Response Center.	Section 3, Figure 3.1-3, Figure 3.1-5, Figure 3.1-6

2. Facility's spill mitigation procedures
• Describe volume and oil groups that would be involved in the following:
  • Average, maximum and worse discharge from the MTR facility.
• Where applicable, the worst case discharge from the non-transportation-related facility.
• Prioritized list of procedures and facility personnel (identified by job title). Procedures must address actions to be taken in the event of a discharge, potential discharge or emergency involving the following equipment and scenarios:
• Transfer equipment
  • Tank overfill or failure
  • Piping rupture, leak both under pressure and not under pressure
  • Explosion or fire
  • Equipment failure
• Listing of equipment and the responsibilities of facility personnel to mitigate an average most probable discharge
	Section 2.1.1, Figure 2.1-3, Appendix D

3. Facility's response activities	
i. Responsibilities of facility personnel to initiate a response and supervise response resources pending	Figure 2.1-2

arrival of qualified individuals.	
ii. Responsibilities and authority of the qualified individual and alternate as required in § 154.1026.	Section 4.5

FIGURE E-3 - USCG / FRP CROSS-REFERENCE, CONTINUED

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN THIS PLAN
iii. Apply the following organizational structure to manage response actions: • Command and control • Public information • Safety • Liaison with government agencies • Spill operations • Planning • Logistics support • Finance	Section 4.6, Figure 4.5-2
iv. Identify oil spill removal organizations and the spill management teams to be capable of providing the following response resources: • Equipment and supplies to meet § 154.1045, 154.1047, as appropriate • Trained personnel for response to be on hand for the first 7 days of the response • Job descriptions for each spill management team member within the organizational structure in a response action.	Section 4.6, Section 7.1, Appendix B
v. For mobile facilities in more than one COTP zone, oil spill removal organizations and the spill management teams must be identified from paragraph (3)(iv) and included in each COTP zone.	N/A
4. Fish and wildlife sensitive environments	
i. Identify areas of economic importance and environmental sensitivities as identified in the ACP, which are potentially impacted by a worst case discharge.	Section 6.7
ii. For a worst case discharge the plan must address the following:·	Appendix D.7

• List all sensitive elements identified in ACP that are potentially impacted by a discharge· • Describe all response actions anticipated to protect sensitive elements· • Contain map or chart that depicts each response action anticipated.	Section 6, Figure 6.3-1
iii. Identify appropriate equipment and personnel as described in § 154.1028 to protect sensitive elements by one of the following calculations: • Persistent oils and non-petroleum oils discharged into non-tidal waters, the distance from the facility reached in 48 hours at maximum current.	Section 7.1, Appendix B, Appendix D

FIGURE E-3 - USCG / FRP CROSS-REFERENCE, CONTINUED

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN THIS PLAN
• Persistent and non-petroleum oils discharged into tidal waters, 15 miles from the facility down current during ebb tide and to the point of maximum tidal influence or 15 miles, whichever is less, during flood tide. • Non-persistent oils discharged into non-tidal waters, the distance from the facility reached in 24 hours at maximum current. • Non-persistent oils discharged into tidal waters, 5 miles from the facility down current during ebb tide and to the point of maximum tidal influence or 5 miles, whichever is less, during flood tide. • Spill trajectory or model maybe substituted if acceptable to COTP. • Procedures contained in the Environmental Protection's Agency's regulations on oil pollution prevention may be substituted for non-tidal and tidal waters. • COTP may require additional sensitive elements to be protected depending on trajectory.	Section 7.1, Appendix B, Appendix D
5. Disposal plan Describe actions and procedures that adhere to Federal, state or local requirements.	Section 5.6, Section 7.4
c) Training and Exercises	

1. Training procedures of the facility owner or operator must meet requirements of § 154.1050.	Appendix A
2. Exercise procedures of the facility owner or operator must meet requirements of § 154.1055.	Appendix A
d) Plan Review and Update Procedures	
Plan review and update procedures of the facility owner or operator must meet requirements of §154.1065 and any post-discharge review of the plan to evaluate and validate its effectiveness.	Section 1.2
e) Appendices	
1. Facility-specific information - principal characteristics	
i. There must be a physical description of the facility including a plan of the facility showing the mooring areas, transfer locations, control stations, locations of safety equipment, and the location and capacities of all piping and storage tanks.	Figure C-7, Figure C-8
ii. Identify sizes, types and number of vessels the facility can transfer oil to or from simultaneously.	Figure 1-2
iii. Identify the first valve(s) on piping separating transportation-related and non-transportation-related areas. If piping serves tank vessels from a manifold it is considered the first valve.	Figure C-9

FIGURE E-3 - USCG / FRP CROSS-REFERENCE, CONTINUED

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN THIS PLAN
iv. The oil(s) and hazardous material handled, stored or transported in bulk must be documented and include the following: • Generic/chemical name • Description of appearance and odor • Hazards involved with handling or discharge • Firefighting procedures and extinguishing agents for oil/hazardous materials	Appendix D.8
2. List of contacts must include primary and alternate personnel, personnel from paragraph (b) (3) (iv), and Federal, state and local officials.	Figure 3.1-5, Figure 3.1-6

3. Equipment list and records must include the following: • List of equipment and facility personnel required to respond to an average most probable discharge, as defined by §154.1020 • List of equipment belonging to an oil spill removal organization as described in §154.1028; unless the organization has been classified by the Coast Guard to equal or exceed the response capability needed by the facility • When it is necessary for the appendix to contain a listing of response equipment, it shall include the following: skimmers; booms; dispersant application; in-situ burning; bioremediation equipment and supplies and other equipment used to apply other chemical agents on the NCP Product Schedule; communications, firefighting and beach cleaning equipment; boats and motors; and heavy equipment • This list must also include specifications for each piece of equipment as follows: 1. type, make, model and year of manufacture, 2. for oil recovery devices, the effective daily recovery rate, 3. for containment boom, the overall boom height and type of end connectors, 4. spill scenario in which the equipment will be used, 5. total daily capacity for storage and disposal of recovered daily oil 6. for communication equipment, the type and amount of equipment intended for use during response activities, 7. location of equipment, and 8. date of last inspection.	Section 7.1, Appendix B

FIGURE E-3 - USCG / FRP CROSS-REFERENCE, CONTINUED

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN THIS PLAN
4. Communications plan must describe the primary and alternate method of communication during discharges, including communications at the facility and at remote locations.	Section 7.1.6

5. Site specific safety and health plan must describe the safety and health plan to be implemente This appendix may reference another existing plan requiring under 29 CFR 1910.120	Section 5.4
6. List of acronyms and definitions must include all definitions that are critical to understanding the response plan.	Appendix F

FIGURE E-4 - DOT / PHMSA CROSS-REFERENCE

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
Information Summary	
• For the core plan:	
• Name and address of operator	Figure 1-2
• For each Response Zone which contains one or more line sections that meet the criteria for determining significant and substantial harm (§194.103), listing and description of Response Zones, including county(s) and state(s)	Figure 1-2
• For each Response Zone appendix:	
• Information summary for core plan	Figure 1-2
• QI names and telephone numbers, available on 24-hr basis	Figure 1-2, Figure 3.1-5
• Description of Response Zone, including county(s) and state(s) in which a worst case discharge could cause substantial harm to the environment	Figure 1-2
• List of line sections contained in Response Zone, identified by milepost or survey station or other operator designation	Figure 1-2
• Basis for operator's determination of significant and substantial harm	Figure 1-2
• The type of oil and volume of the worst case discharge	Appendix D.6, Appendix D.7
• Certification that the operator has obtained, through contract or other approved means, the necessary private personnel and	Section 1.4, Appendix B

equipment to respond, to the maximum extent practicable, to a worst case discharge or threat of such discharge	
Notification Procedures	
• Notification requirements that apply in each area of operation of pipelines covered by the plan, including applicable state or local requirements	Figure 3.1-6
• Checklist of notifications the operator or Qualified Individual is required to make under the response plan, listed in the order of priority	Figure 2.1-1, Figure 3.1-4
• Name of persons (individuals or organizations) to be notified of discharge, indicating whether notification is to be performed by operating personnel or other personnel	Figure 3.1-1, Figure 3.1-5
• Procedures for notifying Qualified Individuals	Figure 3.1-1, Section 4.2
• Primary and secondary communication methods by which notifications can be made	Section 7.1.6

FIGURE E-4 - DOT / **PHMSA** CROSS-REFERENCE, CONTINUED

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
• Information to be provided in the initial and each follow-up notification, including the following: • Name of pipeline • Time of discharge • Location of discharge • Name of oil recovered • Reason for discharge (e.g. material failure, excavation damage, corrosion) • Estimated volume of oil discharged • Weather conditions on scene • Actions taken or planned by persons on scene	Figure 3.1-2
Spill Detection and On-Scene Spill Mitigation Procedures	
• Methods of initial discharge detection	Appendix D.3
• Procedures, listed in order of priority, that personnel are required to follow in responding to a pipeline emergency to mitigate or prevent any discharge from the pipeline	Section 2
• List of equipment that may be needed in response activities based on land and navigable waters including:	Section 7.1.1, Section 7.4, Appendix B

• Transfer hoses and pumps • Portable pumps and ancillary equipment • Facilities available to transport and receive oil from a leaking pipeline	
• Identification of the availability, location, and contact phone numbers to obtain equipment for response activities on a 24-hour basis	Figure 3.1-5, Figure 3.1-6, Appendix B
• Identification of personnel and their location, telephone numbers, and responsibilities for use of equipment in response activities on a 24-hour basis	Figure 3.1-5, Section 7.1, Appendix B
Response Activities	
• Responsibilities of, and actions to be taken by, operating personnel to initiate and supervise response actions pending the arrival of the Qualified Individual or other response resources identified in the response plan	Section 2, Section 4.6, Appendix B
• Qualified Individual's responsibilities and authority, including notification of the response resources identified in the response plan	Section 4.5
• Procedures for coordinating the actions of the operator or Qualified Individual with the action of the OSC responsible for monitoring or directing those actions	Section 4.5, Section 4.6
• Oil spill response organizations (OSRO) available through contract or other approved means, to respond to a worst case discharge to the maximum extent practicable	Appendix B

FIGURE E-4 - DOT / **PHMSA** CROSS-REFERENCE, CONTINUED

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
Response Activities, Continued	
• For each organization identified under paragraph (d), a listing of: • Equipment and supplies available • Trained personnel necessary to continue operation of the equipment and staff the oil spill removal organization for the first seven days of the response	Appendix B
List of Contacts	
• List of persons the Plan requires the operator to contact	Figure 3.1-1

• Qualified individuals for the operator's areas of operation	Figure 1-2, Figure 3.1-5
• Applicable insurance representatives or surveyors for the operator's areas of operation	Figure 3.1-5, Figure 3.1-6
• Persons or organizations to notify for activation of response resources	Figure 3.1-1, Figure 3.1-5, Figure 3.1-6
Training Procedures	
• Description of training procedures and programs of the operations	Appendix A.2
Drill Procedures	
• Announced and unannounced drills	Appendix A.1

• Types of drills and their frequencies; for example:
  • Manned pipeline emergency procedures and qualified individual notification drills conducted quarterly
  • Drills involving emergency actions by assigned operating or maintenance personnel and notification of qualified individual on pipeline facilities which are normally unmanned, conducted quarterly
  • Shore-based spill management team (SMT) tabletop drills conducted yearly
  • Oil spill removal organization field equipment deployment drills conducted yearly
  • A drill that exercises entire response plan for each Response Zone, would be conducted at least once every three years
	Appendix A.1

Response Plan review and update procedures	
• Procedures to meet §194.121	Section 1.2
• Procedures to review plan after a worst case discharge and to evaluate and record the plan's effectiveness	Section 1.2, Section 8
Response zone appendices	
Each response zone appendix would provide the following information:	
• Name and telephone number of the qualified individual	Figure 1-2, Figure 3.1-5
• Notification procedures	Section 3

FIGURE E-4 - DOT / **PHMSA** CROSS-REFERENCE, CONTINUED

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
• Spill detection and mitigation procedures	Section 2.1.1, Appendix D.3
• Name, address, and telephone number of oil spill response organization	Figure 3.1-4, Appendix B

• Response activities and response resources including:
  • Equipment and supplies necessary to meet §194.115
  • Trained personnel necessary to sustain operation of the equipment and to staff the oil spill response organization and spill management team for the first seven days of the response
	Appendix A, Appendix B

• Names and telephone numbers of federal, state, and local agencies which the operator expects to assume pollution response responsibilities	Figure 3.1-6
• Worst case discharge volume	Appendix D
• Method used to determine the worst case discharge volume, with calculations	Appendix D.6, Appendix D.7

• A map that clearly shows:
  • Location of worst case discharge
  • Distance between each line section in the Response Zone:
  • Each potentially affected public drinking water intake, lake, river, and stream within a radius of five miles of the line section
  • Each potentially affected environmentally sensitive area within a radius of one mile of the line section
	Figure 1-3, Figure 1-5, Section 6.7, Section 6.11

• Piping diagram and plan-profile drawing of each line section; may be kept separate from the response plan if the location is identified	Figure 1-2

• For every oil transported by each pipeline in the response zone, emergency response data that:
  • Include name, description, physical and chemical characteristics, health and safety hazards, and initial spill-handling and firefighting methods
  • Meet 29 CFR 1910.1200 or 49 CFR 172.602
	Section 2.1, Section 2.7, Figure D.8-1

FIGURE E-5 - EPA / RCRA CROSS-REFERENCE

EPA / RCRA REQUIREMENTS (40 CFR PART 265.50 - 265.56)		LOCATION
§ 265.50	**Applicability**	
	The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as 265.1 provides otherwise.	Section 1.1
§ 265.51	Purpose and Implementation of Contingency Plan	
a	Each owner or operator must have a contingency plan for his facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.	Section 1.1
b	The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.	Section 1.1
§ 265.52	Content of Contingency Plan	
a	The contingency plan must describe the actions facility personnel must take to comply with 265.51 and 265.56 in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.	Section 2
b	If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasure (SPCC) Plan in accordance with Part 112 of this chapter, or Part 1510 of Chapter V, or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this part.	Section 7.4
c	The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to 265.37.	Section 3.1, Figure 3.1-6
d	The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see 265.55), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates.	Figure 1-2, Figure 3.1-5

e	The plan must include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	Section 2.2, Section 7.1

FIGURE E-5 - EPA / RCRA CROSS-REFERENCE, CONTINUED

EPA / RCRA REQUIREMENTS (40 CFR PART 265.50 - 265.56)		LOCATION
§ 265.52	Content of Contingency Plan, Continued	
f	The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).	Section 2.2, Section 5, Figure C-8
§ 265.53	Copies of Contingency Plan	
	A copy of the contingency plan and all revisions to the plan must be:	-----
a	Maintained at the facility, and	Figure 1-1, Section 1.2, Section 1.3
b	Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.	Figure 1-1, Section 1.2, Section 1.3, Section 3.1
§ 265.54	Amendment of Contingency Plan	
	The contingency plan must be reviewed, and immediately amended, if necessary, whenever:	-----
a	Applicable regulations are revised;	Section 1.2
b	The plan fails in an emergency;	Section 1.2
c	The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;	Section 1.2
d	The list of emergency coordinators changes; or	Section 1.2
e	The list of emergency equipment changes.	Section 1.2
§ 265.55	Emergency Coordinator	
	At all times, there must be at least one employee either	Figure 1-2, Section

	on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan. *[Comment: The emergency coordinator's responsibilities are more fully spelled out in 265.56. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of waste(s) handled by the facility, and type and complexity of the facility].*	1.4, Figure 3.1-5, Section 4.5, Appendix A, Figure C-2

FIGURE E-5 - EPA / RCRA CROSS-REFERENCE, CONTINUED

EPA / RCRA REQUIREMENTS (40 CFR PART 265.50 - 265.56)		LOCATION
§ 265.56	Emergency Procedures	
a	Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately:	Section 4.5
a(1)	Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and	Section 4.5
a(2)	Notify appropriate State or local agencies with designated response roles if their help is needed.	Section 4.5
b	Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and a real extent of any released materials. He may do this by observation or review of facility records or manifests and, if necessary, by chemical analysis.	Section 4.5
c	Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-offs from water or chemical agents used to control fire and heat-induced explosions).	Section 4.5
d	If the emergency coordinator determines that the facility	Section 4.5

	has had a release, fire, or explosion which could threaten human health, or the environment, outside of the facility, he must report his findings as follows:	
d(1)	**If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and**	Section 4.5
d(2)	He must immediately notify either the government official designated as the on-scene coordinator for that geographical area (in the applicable regional contingency plan under Part 1510 of this Title), or the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include:	Section 4.5; Figure 3.1-6
d(2)(i)	Name and telephone number of reporter:	Figure 3.1-4
d(2)(ii)	Name and address of facility;	Figure 3.1-4
d(2)(iii)	Time and type of incident (e.g., release, fire);	Figure 3.1-4
d(2)(iv)	Name and quantity of material(s) involved, to the extent known;	Figure 3.1-4
d(2)(v)	The extent of injuries, if any; and	Figure 3.1-4
d(2)(vi)	The possible hazards to human health, or the environment, outside the facility.	Figure 3.1-4

FIGURE E-5 - EPA / RCRA CROSS-REFERENCE, CONTINUED

EPA / RCRA REQUIREMENTS (40 CFR PART 265.50 - 265.56)		LOCATION
§ 265.56	**Emergency Procedures (Cont'd)**	
e	During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.	Section 2, Figure 2.1-2
f	If the facility stops operations in response to a fire, explosion or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes or other equipment, wherever this is appropriate.	Section 2, Figure 2.1-2
g	Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or	Section 7.4,, Section 5.6

	surface water, or any other material that results from a release, fire, or explosion at the facility. *[Comment: Unless the owner or operator can demonstrate, in accordance with § 261.3(c) or (d) of this chapter, that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262, 263, and 265 of this chapter].*	
h	The emergency coordinator must ensure that, in the affected areas(s) of the facility:	-----
h(1)	No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and	Section 7.4, Section 5.6
h(2)	All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.	Section 5.5
i	The owner or operator must notify the Regional Administrator, and appropriate State and local authorities, that the facility is in compliance with paragraph (h) of this section before operations are resumed in the affected area(s) of the facility.	Figure 3.1-6
j	The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the Regional Administrator. The report must include:	Section 8.3
j(1)	Name, address, and telephone number of the owner or operator;	Section 8.3
j(2)	Name, address, and telephone number of the facility;	Section 8.3
j(3)	Date, time, and type of incident (e.g., fire, explosion);	Section 8.3

FIGURE E-5 - EPA / RCRA CROSS-REFERENCE, CONTINUED

EPA / RCRA REQUIREMENTS (40 CFR PART 265.50 - 265.56)		LOCATION
§ 265.56	**Emergency Procedures (Cont'd)**	
j(4)	Name and quantity of material(s) involved;	Section 8.3
j(5)	The extent of injuries, if any;	Section 8.3
j(6)	An assessment of actual or potential hazards to human health or the environment, where this is applicable; and	Section 8.3
j(7)	Estimated quantity and disposition of recovered material that resulted from the incident.	Section 8.3

FIGURE E-6 - OREGON CROSS-REFERENCE

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140)	LOCATION
Plan Content Requirements	
(1) Submittal Agreement. Each plan must contain a submittal agreement that:	
(a) Includes the name, address and phone number of the submitting party;	Figure 1-2
(b) Verifies acceptance of the plan, including any incorporated contingency plans, by the owner or operator of the facility or covered vessel by either signature of the owner or operator or a person with authority to bind the corporation that owns or operates the facility or covered vessel;	Section 1.4
(c) Commits to execution of the plan, including any incorporated contingency plans, by the owner or operator of the facility or covered vessel, and verifies authority for the plan holder to make appropriate expenditures in order to execute plan provisions; and	Section 1.4
(d) Includes:	
(A) In the case of a facility, the name, location including latitude, longitude and river mile, and address of the facility, type of facility, starting date of operations, types of oils (see definition of oil) handled, volume of oil stored and maximum volume of oil capable of being stored.	Figure 1-2
(B) In the case of a covered vessel, the vessel's name, the name, location and address of the owner or operator, official identification code or call sign, country of registry, common ports of call in Oregon, type of oils (see definition of oil) handled, volume of oil transported as fuel and expected period of operation in state waters.	N/A
(C) In the case of a covered vessel enrolled in a cooperative or maritime association plan, the vessel may provide evidence of coverage in lieu of paragraph (B) of this subsection.	N/A
(2) Amendments. Each plan must include a log sheet to record amendments to the plan. The log sheet must be placed at the front of the plan. The log sheet must provide for a record of the section amended, the date that the old section was replaced with the amended section, verification that the Department was notified of the amendment pursuant to OAR 340-141-0220(3) and the initials of the individual making the change. A description of the amendment and its purpose must also be included in the log sheet, or filed in the form of an amendment letter immediately after the log sheet.	After Table of Contents
(3) Table of Contents. Each plan must include a detailed table of contents based on chapter, section, appendix numbers and titles and tables and figures. If the plan is an integrated plan used to also satisfy USCG and USEPA requirements, a cross reference must be included.	Table of Contents

(4) Purpose and Scope. Each plan must describe the purpose and scope of that plan, including:	Section 1.1
(a) The region of operation covered by the plan;	Figure 1-2
(b) The onshore facility, offshore facility or covered vessel operations covered by the plan; and	Section 1
(c) The size and type of the average most probable spill and the worst case spill from the facility or covered vessel.	Appendix D.5

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(5) Updates. Each plan must describe the events or time periods that will trigger updates of the plan.	Section 1.2
(6) Implementation Strategy. Each plan must present a strategy for ensuring use of the plan for spill response and cleanup operations as required by OAR 340-141-0210.	Figure 1-1; Figure 1-2; Section 1.4; Emergency Response Action Plan
(7) Spill Response System. Each plan must describe the organization of the spill response system, including all task assignments anticipated by the end of the first full operational period, or necessary to manage the resources required by the 12 hour planning standard, given a response to an Average Most Probable Discharge. Plans must use a National Incident Management System (NIMS) incident management system, as described in the Northwest Area Contingency Plan (NWACP).	Section 4; Section 2.1; Section 5.3.5
(8) Contractor Identification. Each plan must identify the primary response contractor and subcontractors (except equipment rentals or supply vendors) whose services are bound to the plan by a contract or other approved means:	Figure 3.1-5; Appendix B
(a) If a plan holder is a member of an oil spill response cooperative and relies on that cooperative to perform or supplement its response operations within the regions of operations covered by the plan, the plan must state the cooperative's name, address, phone number and response capability. The plan must also include proof of cooperative membership; or	Appendix B; Figure 3.1-5
(b) If a plan holder is not a member of an oil spill response cooperative, for each contractor, the plan must state that contractor's name, address, phone number or other means of contact at any time of the day, and response capability (e.g., land spills only). For each contractor, the plan must include a letter of intent signed by the contractor which indicates the contractor's commitment to respond within the specified time period, with personnel and equipment listed in (12) and (13) of this section. Copies of written contracts or agreements with contractors must be available for inspection, if requested by the Department.	Appendix B; Figure 3.1-5
(9) Relationship to Other Plans. Each plan must briefly describe its relation to all applicable local, state, regional and federal government spill response plans.	Section 1.5

The plan must describe how the plan holder's response organization will be integrated into the Northwest Area Contingency Plan.	
(10) Spill Detection. Each plan must list procedures that will be used to detect and document the presence and size of a spill, including methods which are effective during low visibility conditions. The plan must also describe the use of mechanical or electronic monitoring or alarm systems (including threshold sensitivities) used to detect oil discharges into adjacent land or water from tanks, pipes, manifolds and other transfer or storage equipment.	Section 2.1; Appendix D.3
(11) Notifications. Each plan must describe procedures that will be taken to immediately notify appropriate parties that a spill has occurred.	Section 3; Figure 2.1-2
(a) The plan holder must maintain a notification call out list that must be available for inspection upon the request of the Department, and that:	Figure 3.1-5; Figure 3.1-6

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(A) Provides a contact at any time of the day for all spill response personnel identified under section (7) of this rule, including the contact's name, position title, phone number or other means of contact for any time of the day, and an alternate contact in the event the individual is unavailable;	Figure 1-2, Figure 3.1-5
(B) Lists the name and phone number of all government agencies that must be notified in the event of an oil spill pursuant to requirements under ORS 466.635; and	Figure 3.1-6
(C) Establishes a clear order of priority for immediate notifications.	Figure 3.1-1
(b) The plan must identify a central reporting office or individual who is responsible for implementing the call out process.	Section 3
(12) Response Personnel. Each plan must describe the personnel, including contract personnel available, to respond to an oil spill, including:	Figure 3.1-5; Figure 3.1-6; Section 4
(a) A job description for each type of spill response position needed as indicated in the spill response organization scheme addressed in section (7) of this rule, or a reference to a recognized NIMS position;	Section 4
(b) The number of personnel available to perform the duties of each type of spill response position;	Figure 3.1-5; Figure 3.1-6
(A) This number must be equal to or greater than the number of persons necessary to sustain a response to the worst case spill defined in the plan.	Section 7.1; Appendix B; Figure 3.1-5; Appendix D.5.2
(B) If 24 hour operations are expected, the number of persons available to staff the ICS must be multiplied by the proposed number of operational periods (shifts).	Figure 3.1-5
(c) Arrangements for pre-positioning personnel at strategic locations	Section 6.10

that will meet criteria pursuant to OAR 340-141-0190(3)(d); and	
(d) The type and frequency of spill response operations and safety training that each individual in a spill response position receives to attain the level of qualification demanded by their job description.	Appendix A
(13) Equipment and spill response resources. Each plan must describe equipment and spill resources as follows:	
(a) Each plan must list all resident equipment and resident dedicated response vessels used for oil containment, recovery, removal, shoreline and adjacent lands cleanup and wildlife rescue and rehabilitation. Each plan must also list all relied upon communication tools. The Department will accept information about equipment by reference if the equipment is being provided through a primary response contractor as part of the plan. The Department may request information about the condition and date of manufacture of any listed and referenced equipment to further evaluate its applicability to the planning standards or a response.	Section 7.1.1; Section 7.1.3; Section 7.1.6; Appendix B
(b) For resident equipment and vessels listed under subsection (a) of this section that are not owned by or available exclusively to the plan holder, the plan must also estimate the extent that other contingency plans rely on the same equipment.	Appendix B

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(c) For all resident oil containment and recovery equipment, the plan also must include equipment make and model, the manufacturer's nameplate capacity of the response equipment, the EDRC (in barrels per day) and applicable design limits (e.g., maximum wave height capability, suitability for inland waters or open ocean).	Section 7.1.1
(d) Based on information described in subsection (c) of this section, the plan must state the maximum amount of oil that could be recovered per 24-hour period with the equipment used as it is designed.	Appendix D.6, Appendix D.7
(e) For purposes of determining plan adequacy under OAR 340-141-0190, and to assess realistic capabilities based on potential limitations by weather, sea state, and other variables, the Department will use the data presented in subsections (c) and (d) of this section to apply a higher efficiency factor for equipment listed in a plan if that plan holder provides adequate evidence that the higher efficiency factor is warranted for particular equipment or if the United States Coast Guard has approved a higher efficiency rating.	Section 7.1; Appendix B
(f) The plan must provide arrangements for pre-positioning of oil spill response equipment at strategic locations that will meet response time criteria pursuant to OAR 340-141-0190(3)(d).	Section 6.10, Section 7.1; Appendix B
(g) When calculating the delivery time of equipment to a spill staging area, the plan must use travel speeds consistent with federal speed predictions for the equipment being moved.	Figure 7.1-1

(14) Communications. Each plan must describe the communication systems used for spill notification and response operations, including:	Section 7.1.6
(a) Communication procedures that identify who will be responsible for the function, to whom and from whom communication will be established and any special instructions;	Section 3.1; Section 7.1.6
(b) The communication function (e.g., ground-to-air) assigned to each channel or frequency used;	Section 5.3.6; Section 7.1.6
(c) The maximum geographic range for each type of communications equipment used; and	Section 5.3.6
(d) The communication system compatibility with key spill response agencies.	Section 7.1.6
(15) Response Operation Sites. Each plan must describe the process used by the plan holder to establish sites needed for spill response operations, including location or location selection criteria for an incident command post, a communications center if located away from the command post and equipment and personnel staging areas.	Section 7.1
(16) Response Flow Chart or Timeline. Each plan must describe the response process by:	
(a) Presenting a flowchart or decision tree describing the procession of each major stage of spill response operations from spill discovery to completion of cleanup. The flowchart or decision tree must describe the general order and priority in which key spill response activities are performed; and	Figure 2.1-1

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(b) Describing all key spill response operations in checklist forms, to be used by spill response managers in the event of an oil spill.	Section 2
(17) Authorities. Each plan must describe responsible authorities by:	
(a) Listing the local, state and other government authorities responsible for the emergency procedures peripheral to spill containment and cleanup; and	Figure 3.1-6
(b) Describing the plan holder's role in these emergency operation procedures before the proper authorities arrive, including but not limited to, control of fires and explosions, rescue activities, access restriction to the spill impact area and site security.	Section 2
(18) Damage Control. Each plan must describe equipment and procedures to be used by the facility or covered vessel personnel to minimize the magnitude of the spill and minimize structural damage that could increase the quantity of oil spilled.	Figure 2.1-3
(a) For facilities, damage control procedures must include methods to slow or stop pipeline, storage tank, and other leaks, and methods	Figure 2.1-3

to achieve immediate emergency shutdown.	
(b) For tank vessels, damage control procedures must include methods and onboard equipment to achieve vessel stability and prevent further vessel damage, slow or stop pipe, tank, and other leaks and achieve emergency shutdown during oil transfer.	N/A
(c) For other covered vessels, damage control procedures must address methods to achieve vessel stability and slow or stop leaks from fuel tanks and lines.	N/A
(19) Containment. Each plan must describe, in detail, any nonstandard methods specific to the plan to contain spilled oil and recover it from the environment. When a plan calls for the use of methods that have not been expressly approved by the Department, the description of the proposed options must include:	
(a) The surveillance methods expected to be used to detect and track the extent and movement of the spill; and	Section 2.1.2
(b) A description of methods to be used to contain and remove oil that will be effective for environmentally sensitive locations included in the Zone, or Zones, for which the plan is written.	Section 6
(20) Response Time. Each plan must briefly describe initial equipment and personnel deployment activities that will accomplish the response standard listed in OAR 340-141-0190(e)(d) and provide:	
(a) An estimate of the actual execution time;	Section 7.1; Appendix B
(b) The specific location in the Zone where the resident required response equipment is stored; and	Section 7.1.1; Appendix B
(c) The source and management of personnel to deploy the initial response equipment.	Figure 2.1-2; Figure 3.1-5; Section 4
(21) Chemical Agents. If the plan holder proposes to use dispersants, coagulants, bioremediants or other chemical agents for response operations under certain conditions, the plan must describe:	

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(a) Type and toxicity of chemicals, supplemented with material safety data sheets (MSDS) for each product;	Section 5.7, Section 5.8, Section 6.4
(b) The conditions under which the chemicals will be applied, in conformance with all applicable local, state and federal requirements, including the Northwest Area Contingency plan and OAR 340-141-0020;	Section 5.7; Section 5.8, Section 6.4; Figure 6.3-2
(c) Methods of deployment; and	Section 5.7;

	Figure 6.3-2; Section 6.4
(d) Location and accessibility of supplies and deployment equipment.	Section 7.1; Appendix B
(22) In Situ-Burning. If the plan holder proposes to use in-situ burning for response operations, the plan must describe:	
(a) Type of burning operations;	Section 5.9; Section 6.4.3
(b) Conditions under which burning will be applied in conformance with all applicable local, state and federal requirements, including the Northwest Area Contingency plan and OAR 340-264-0030 to 0040;	Section 5.9; Section 6.4.3; Section 7.4.3
(c) Methods of application; and	Section 5.9; Section 6.4.3
(d) Location and accessibility of supplies and deployment equipment.	Section 7.1; Appendix B
(23) Environmental Protection. Each plan must describe how environmental protection will be achieved, including:	
(a) Protection of sensitive shoreline and island habitat by diverting or blocking oil movement;	Section 6.2
(b) Priorities for sensitive area protection in the region of operation covered by the plan as provided in a Geographic Response Strategy of the Northwest Area Contingency Plan, or designated by the Department;	Section 6
(c) Rescue and rehabilitation of birds, marine mammals and other wildlife contaminated or otherwise affected by the oil spill; and	Section 6.5
(d) Measures taken to reduce damages to the environment caused by shoreline and adjacent land cleanup operations.	Section 6.3
(24) Interim Storage. Each plan that has identified that oil will be recovered must plan for the storage of the oil and combined oily waste material potentially created.	Section 7.4
(a) Each plan must describe site criteria and methods used for interim storage of oil recovered and oily wastes generated during response and cleanup operations, including sites available within the facility. Interim storage methods and sites must be designed to prevent contamination of the storage area by recovered oil and oily wastes.	Section 7.4
(b) If use of interim storage sites will require approval by local, state or federal officials, the plan must include information that could expedite the approval process, including a list of appropriate contacts and a brief description of procedures to follow for each applicable approval process.	Section 5.6
(c) Interim storage and permanent disposal methods and sites must be sufficient to sustain support for oil recovery operations and manage the entire volume of oil recovered and oily wastes generated.	Section 7.4

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(d) Interim storage and permanent disposal methods and sites must comply with all applicable local, state and federal requirements.	Section 5.6
(25) Health and Safety. Each plan must describe procedures to protect the health and safety of oil spill response workers, and other individuals on-site. Provisions for training, decontamination facilities, safety gear and a safety officer position must be addressed.	Section 5.4
(26) Post Spill Review. Each plan must explain post-spill review procedures, including methods to review both the effectiveness of the plan and the need for plan amendments. Post-spill procedures must provide for a debriefing with the Department that will include any newly recognized need to amend the plan and list of any other lessons learned.	Section 8
(27) Drills and Exercises. All approved plans must be verified by drills and exercises. Each plan must describe the schedule and type of drills and other exercises that will be practiced to ensure readiness of the plan elements, including drills that satisfy OAR 340-141-0200 (3).	Appendix A
(a) The plan holder must test and document internal call out procedures at least once every 90 calendar days. The plan holder must retain records of these drills for at least three years and make them available for Department review upon request.	Figure A.1-2
(b) The plan holder must notify the Department of drills and exercises, at least 60 days before full deployment and tabletop drills, and 10 days prior to equipment exercises. Prior notice to the Department is not required before notification drills and internal phone number verification exercises.	Figure A.1-2
(c) The plan holder must send post drill reports for all tabletop exercises or deployment drills to the Department no later than 60 days after the completion of the drill or exercise. The executive summary from a National Preparedness for Response Exercise Program (N-PREP) report may be submitted to meet this requirement when the exercise has been designed by the N-PREP staff.	Figure A.1-2
(28) Risk Variables. Each plan must list the spill risk variables within the region of operation covered by the plan, including:	
(a) Each plan for a facility must list the following:	
(A) Types, physical properties and amounts of oil handled;	Appendix D.8; Figure C-5
(B) A written description and map indicating site topography, stormwater and other drainage systems, mooring areas, pipelines, tanks, and other oil processing, storage and transfer sites and operations;	Appendix C; Section 6.11; Figure 1-2
(C) A written description of sites or operations with a history of or high potential for oil spills, including key areas that pose significant	Figure C-15; Section D.2.1

navigation risk within the region of operation covered by the plan; and	
(D) Methods to reduce spills during transfer operations, including overfill prevention.	Appendix D; Section 7.4.2
(b) Each plan for a covered vessel must list the following:	N/A

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(A) Types, physical properties and amounts of oil handled;	N/A
(B) A written description and diagram showing cargo, fuel and ballast tanks; and piping, power plants and other oil storage and transfer sites and operations; and	N/A
(C) A written description of operations with a history of or high potential for oil spills, including key areas that pose significant navigation risks within the region of operation covered by the plan.	N/A
(29) Environmental Variables. Each plan must list the environmental variables within the region of operation covered by the plan. Facility plans required to include river or coastal areas must identify the environmental variables from the probable point of release to the point the oil could travel in 24 hours in a current of four knots. Vessel contingency plans must encompass the entire length of the Oregon waterway in the Zone or sub-Zone entered. All plans must describe:	Section 6.7, Section 6.11
(a) Natural resources, including coastal and aquatic habitat types and sensitivity by season, breeding sites, presence of state or federally listed endangered or threatened species and presence of commercial and recreational species;	Section 6
(b) Public resources, including public beaches, water intakes, drinking water supplies and marinas;	Section 6
(c) Seasonal hydrographic and climatic conditions; and	Section 6.1.1
(d) Physical geographic features, including relative isolation of coastal regions, beach types, and other geological characteristics. Plans may reference numbered Geographic Response Plan strategies (GRPs) in the Northwest Area Contingency Plan when identifying individual environmental features.	Section 6.1.2
(30) Logistical Resources. Each plan must list the logistical resources within the region of operation covered by the plan, including facilities for fire services, medical services and accommodations; and shoreline access areas, including boat launches.	Figure 3.1-6; Section 6.9
(31) Response Strategy Outline. Each plan must include a statement of the intended response activities. This statement must describe how the plan resources must be applied to adequately respond during the initial phase of the response to an average most probable and worst case spill, release or discharge. The Response Strategy Outline must begin with a description of the situation to be managed, and must describe:	Appendix D.5

(a) Deployment of resources and estimates of response times;	Appendix D.5
(b) The intended result of the activity for each person listed in section (7) and (12) of this section;	Appendix D.5
(c) Command and control arrangements;	Appendix D.5
(d) Required coordination; and	Appendix D.5

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0140), CONTINUED	LOCATION
(e) Probable obstacles and an estimate of oil movement during the first 72 hours.	Appendix D.4; Appendix D.5; Appendix D.7
(33) Technical Terms Glossary. Each plan must include a glossary of technical terms and abbreviations used in the plan.	Appendix F
Stat. Auth.: ORS 468.020 & 468B.395	
Stats. Implemented: ORS 468B.345 - 468B.390	
Hist.: DEQ 2-2003, f. & cert. ef. 1-31-03; DEQ 8-2005, f. & cert. ef. 7-14-05	

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0160)	LOCATION
Prevention Strategies for Facilities	
(1) The owner or operator of each onshore and offshore facility must develop spill prevention strategies that will, when implemented, provide the best achievable protection from damages caused by the discharge of oil into the waters of the state. The strategies may be in the form of:	
(a) Appendices to oil spill prevention and emergency response plans required under this chapter; or	
(b) A stand alone prevention plan that meets all requirements of OAR 340-141-0100 to 340-141-0230.	Appendix C
(2) Spill Prevention Countermeasure and Control Plans (SPCC), Operation Manuals and other prevention documents prepared to meet federal requirements under 33 CFR 154, 33 CFR 156, 40 CFR 109, 40 CFR 112, or the Federal Oil Pollution Act of 1990 or plans prepared to meet the requirements of other states may be submitted to satisfy requirements	Appendix C

under this chapter if the Department deems that such requirements equal or exceed those of the Department, or if the plans are modified or appended to satisfy requirements of this Division.	
(3) Spill prevention strategies must at a minimum provide all of the following:	
(a) Documentation of types and frequency of spill prevention training provided to applicable personnel;	Figure A.2-3
(b) Evidence that the facility has an operations manual;	Figure C-4
(c) A description of a drug and alcohol awareness program that provides training and information materials to all employees on recognition of alcohol and drug abuse treatment opportunities, and applicable company policies;	Appendix A.3
(d) Evidence of a maintenance and inspection program that includes:	
(A) Summary of the frequency and type of all regularly scheduled inspection and preventative maintenance procedures for tanks, pipelines, key storage, transfer, or production equipment including associated pumps, valves, and flanges, and overpressure safety devices and other spill prevention equipment;	Figure C-4; Figure C-12
(B) Description of integrity testing of storage tanks and pipelines using such techniques as hydrostatic testing and visual inspection, including but not limited to the frequency of tests, means of identifying that a leak has occurred and measures to reduce spill risk if test material is product;	Figure C-4; Figure C-12
(C) External and internal corrosion detection and repair;	Figure C-4; Figure C-12
(D) Damage criteria for equipment repair or replacement;	Figure C-4; Figure C-12
(E) Maintenance and inspection records of the storage and transfer facilities and related equipment will be made available to the Department upon request; and	Figure C-4; Figure C-12; Figure C-13
(F) Documentation required under 40 CFR 112.7(e) or 33 CFR 154, Subparts C and D may be used to address elements of this subsection.	

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0160), CONTINUED	LOCATION
(e) A description of the use of containment boom at facilities transferring persistent oil, including:	
(A) Type(s) of boom used based upon the varied conditions within the region(s) of operation; and	Section 7.1.1; Figure 7.1-1; Section 6.2
(B) Methods of boom placement and anchoring.	Section 6.2
(f) Identification of spill prevention technology currently in use,	

including if applicable:	
(A) Tank and pipeline materials and design;	Figure C-4
(B) Storage tank overflow alarms, tank overflow cutoff switches, low level alarms and automatic transfer shutdown systems, including methods to alert operators, system accuracy and tank fill margin remaining at time of alarm activation before overflow would occur at maximum pumping rate (documentation required under 40 CFR 112.7(e)(2)(viii) or 33 CFR 154.310(a) (12-13) may be used to address some or all of these elements);	Figure C-4
(C) Leak detection systems for both active and nonactive pipeline conditions including detection thresholds in terms of duration and percentage of pipeline flow limitations on system performance due to normal pipeline events, and procedures for operator response to leak alarms (documentation required under 40 CFR 112.7(e)(3) may be used to address some or all of these elements);	Figure C-4
(D) Rapid pump and valve shutdown procedures, including means of ensuring that surge and overpressure conditions do not occur, rates of valve closure, sequence and time duration (average and maximum) for entire procedure, automatic and remote control capabilities utilized and visual displays of system status for operator use (documentation required under 40 CFR 112.7(e)(3) may be used to address some or all of these elements);	Figure 7.3-2; Appendix D.3
(E) Minimization of post-shutdown residual drainout from pipes, including criteria for locating valves, identification of all valves (including types and means of operation) that may be open during a transfer process, and any other techniques for reducing drain out;	Figure C-4
(F) Means of relieving pressure due to thermal expansion of liquid in pipes during periods of nonuse;	Figure C-4
(G) Secondary containment, including contents of the largest tank plus space for precipitation, and material design and permeability of the containment area (documentation required under 40 CFR 112.7(e)(1) and (2)(ii) - (iv) may be used to address some or all of these elements);	Figure C-5
(H) Surge control systems;	Figure C-4
(I) Internal and external corrosion control coatings or wrappings and instruments;	Figure C-4
(J) Storm water and other drainage retention, treatment and discharge systems, including maximum storage capacities and identification of any applicable discharge permits (documentation required under 40 CFR 112.7(e)(1) and (2)(iii) and (ix) may be used to address some or all of these elements); and	Figure C-4

FIGURE E-6 - OREGON CROSS-REFERENCE, CONTINUED

STATE OF OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY CROSS-REFERENCE INDEX (340-141-0160), CONTINUED	LOCATION
(K) Criteria for suspension of operations while leak detection or other spill	Figure C-4;

control systems are inoperative.	Appendix D.3
(g) A description of facility site security systems, including:	
(A) Procedures for controlling and monitoring facility access;	Figure C-4
(B) Lighting (documentation required under 33 CFR 154.570 may be used to address some or all of this element);	Figure C-4
(C) Signage; and	Figure C-4
(D) Right-of-way identification or other measures to prevent third party damage (documentation required under 40 CFR 122.7(e)(3)(v) and (9) may be used to address some or all of this element).	Figure C-4
(h) History of any discharges of oil to the land or waters of the state in excess of 25 barrels (1,050 gallons) which occurred during the five-year period prior to the plan submittal date. For each discharge, describe:	Figure C-15
(A) Quantity;	Figure C-15
(B) Type of oil;	Figure C-15
(C) Geographic area;	Figure C-15
(D) Analysis of cause, including source(s) of discharged oil and contributing factors (e.g., equipment failure, employee error, adverse weather, etc.); and	Figure C-15
(E) Measures taken to remedy the cause and prevent reoccurrence.	Figure C-15
(i) A detailed and comprehensive site risk analysis that:	Appendix D.2.2
(A) Evaluates the construction, age, corrosion, inspection and maintenance, operation and oil spill risk of the transfer, production and storage system including piping, tanks, pumps, valves and associated equipment;	Appendix D.2.2
(B) Evaluates spill minimization and containment systems;	Appendix D.2.2
(C) Incorporates information required in subsection (f) of this section;	Appendix D.2.2
(D) Is prepared under the supervision of (and bears the seal of) a licensed professional engineer; and	Figure C-1
(E) Includes documentation required under 40 CFR 112.7(b) and (e) may be used to address some or all of the elements in this subsection.	Appendix C, Figure C-5
(j) A description of how the facility will incorporate those measures that will provide best achievable protection to address the spill risks identified in the risk analyses required in subsection (i) of this section. (Information documented pursuant to 40 CFR 112.7(e) and 33 CFR 154.310 may be used to address some or all of the elements of this subsection.)	Section 2; Appendix A; Figure C-4; Appendix D.2.2
[Publications: Publications referenced are available from the agency.]	
Stat. Auth.: ORS 468.020, ORS 468B.395 Stats. Implemented: ORS 468B.345 - ORS 468B.390 Hist.: DEQ 2-2003, f. & cert. ef. 1-31-03	

FIGURE E-7 - OSHA CROSS-REFERENCE

EAP REQUIREMENTS (29 CFR 1910.38 [a] [2])	LOCATION
• Emergency escape procedures and emergency escape route assignments	Figure C-8, Section 2.2
• Procedures to be followed by employees who remain to operate critical plant operations before they evacuate	N/A
• Procedures to account for all employees after emergency evacuation has been completed	Section 2
• Rescue and medical duties for those employees who are to perform them	Section 2
• The preferred means of reporting fires and other emergencies	Section 2, Figure 3.1-6
• Names of regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan	Figure 3.1-5, Section 4.6

ERP REQUIREMENTS (29 CFR 1910.120 [l] [2])	LOCATION
• Pre-emergency planning	Appendix C, Appendix D
• Personnel roles, lines of authority, and communication	Section 4, Section 7.1.6
• Emergency recognition and prevention	Section 2, Appendix C, Appendix D
• Safe distances and places of refuge	Section 2
• Site security and control	Section 5.11, Section 7.3
• Decontamination procedures which are not covered by the site safety and health plan	Section 5.5, Section 5.6
• Emergency medical treatment and first aid	Section 2
• Emergency alerting and response procedures	Section 2, Section 3
• Critique of response and follow-up	Section 8.3
• PPE and emergency equipment	Section 7.1.1, Figure 7.1-1

FIGURE E-8 - EPA RESPONSE PLAN COVER SHEET

Owner/ operator of facility:	Shore Terminals LLC
Owner / operator address / Phone (street address or route):	19003 IH-10 West San Antonio, TX 78257 (210) 918-5566 (Fax) (210) 918-2000 (Phone)
Facility name:	Portland Terminal
Facility address (street address or route):	9420 N.W. St. Helens Road
City, state, and U.S. zip code	Portland, OR 97231
Facility mailing address:	As above
Facility phone number.:	(503) 286-6732 - Steve Kober
Latitude:	(b) (7)(F)
Longitude:	(b) (7)(F)
Facility Acres:	
Facility Start Up Date:	1979
Dun & Bradstreet number:	037270415
Largest above ground oil storage tank capacity (gallons):	4,200,000
Number of above ground oil storage tanks:	44 (including additive tanks)
North American Industrial Classification System (NAICS):	493190
Maximum oil storage capacity (gallons):	(b) (7)(F)
Worst case oil discharge amount (gallons.):	(b) (7) (F)
Name of Protected Waterway or Environmentally Sensitive Area:	Williamette River
Number of Underground Storage Tanks:	2
Total Underground Storage Tanks (gallons):	2,000
Total Storage of Drums (gallons):	0
Total Storage of Transformers that Contain Oil (gallons):	180
Number of Surface Impoundments:	0
Total Storage of Surface Inmpoundments (gallons):	0
Facility distance to navigable water; mark the appropriate line.	
0-1/4 ☑ 1/4-1/2 mile ☐ 1/2 - 1 mile ☐ > 1 mile ☐	

FIGURE E-8 - EPA RESPONSE PLAN COVER SHEET CONTINUED

APPLICABILITY OF SUBSTANTIAL HARM CRITERIA
Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

YES ☑ NO ☐
Does the facility have a total oil storage capacity greater than or equal to one million gallons and, within any storage area, does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation?
YES ☐ NO ☑
Does the facility have a total oil storage capacity greater than or equal to one million gallons and is the facility located at a distance (as calculated using the appropriate formula in or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?
YES ☑ NO ☐
Does the facility have a total oil storage capacity greater than or equal to one million gallons and is the facility located at a distance (using the appropriate formula in or a comparable formula) such that a discharge from the facility would shut down a drinking water intake?
YES ☐ NO ☑
Does the facility have a total oil storage capacity greater than or equal to one million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last five years?
YES ☐ NO ☑

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and that based on my inquiry of those individuals responsible for obtaining information, I believe that the submitted information is true, accurate, and complete.

Signature: 	Date: 6/4/2013
Name: Steven Kober	Title: Terminal Manager

APPENDIX F Last Revised: May 2008

ACRONYMS AND DEFINITIONS

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F.1 Acronyms

F.2 Definitions

F.1 ACRONYMS

ACP	Area Contingency Plan
AFFF	Aqueous Film Forming Foam
ASTM	American Society of Testing Materials
BBL	Barrel(s)
BLM	Bureau of Land Management (USDOI)
BPD	Barrels Per Day
BPH	Barrels Per Hour
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act of 1980, as amended
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
COTP	Captain of the Port (USCG)
CRZ	Contamination Reduction Zone
CWA	Clean Water Act of 1977 (Federal)
EAP	Emergency Action Plan
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERAP	Emergency Response Action Plan
ERP	Emergency Response Plan
ERT	Emergency Response Team
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FOSC	Federal On-Scene Coordinator
FRP	Facility Response Plan
FRT	Facility Response Team
FWPCA	Federal Water Pollution Control Act of 1972
GIS	Geographic Information System
GPM	Gallons Per Minute
HAZMAT	Hazardous Materials
HMIS	Hazardous Material Information System
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System

JIC	Joint Information Center

F.1 ACRONYMS, CONTINUED

LEL	Lower Explosive Limit
LEPC	Local Emergency Planning Committee
LEPD	Local Emergency Planning District
LNG	Liquid Natural Gas
LPG	Liquefied Petroleum Gas
MSDS	Material Safety Data Sheets
MTR	Marine Transportation Related
N/A	Not Applicable
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NIIMS	National Interagency Incident Management System
NM	Nautical Miles
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
NRDA	National Resource Damage Assessment
NRT	National Response Team
OBA	Oxygen Breathing Apparatus
OPA 90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator/Commander
OSHA	Occupational Safety and Health Administration (USDL)
PHMSA	Pipeline and Hazardous Materials Safety Administration (DOT)
PPE	Personal Protective Equipment
PREP	(National) Preparedness for Response Exercise Program
QI	Qualified Individual
RCRA	Resource Conservation and Recovery Act of 1976
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act
SCADA	Supervisory Control and Data Acquisition (System)
SCBA	Self Contained Breathing Apparatus
SDWA	Safe Drinking Water Act of 1986
SERC	State Emergency Response Commission
SETS	Safety Environment and Training Services
SI	Surface Impoundment

SIC	Standard Industrial Classification (Code)
EMT	Emergency Management Team
SOSC	State On-Scene Coordinator

F.1 ACRONYMS, CONTINUED

SPCC	Spill Prevention, Control, and Countermeasures (Plan)
SSC	Scientific Support Coordinator (NOAA)
UCS	Unified Command System
UEL	Upper Explosive Limit
USACOE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOD	U.S. Department of Defense
USDL	U.S. Department of Labor
USDOE	U.S. Department of Energy
USDOI	U.S. Department of the Interior
USDOJ	U.S. Department of Justice
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service (USDOI)
USGS	U.S. Geological Survey (USDOI)

F.2 DEFINITIONS

Adverse Weather
The weather conditions that will be considered when identifying response systems and equipment in a response plan for the applicable operating environment. Factors to consider include significant wave height, ice, temperature, weather-related visibility, and currents with the Captain of the Port (COTP) zone in which the systems or equipment are intended to function.

Aqueous Film Forming Foam
A fluoro-carbon surfactant that acts as an effective vapor securing agent due to its effect on the surface tension of the water. Its physical properties enable it to float and spread across surfaces of a hydrocarbon fuel with more density than protein foam.

Average Most Probable Discharge **(USCG)**
A discharge of the lesser of 50 barrels (2100 gallons) or one percent of the volume of the worst case discharge.

Barrel
Measure of space occupied by 42 U. S. gallons at 60 degrees Fahrenheit.

Bleve
A boiling liquid-expanding vapor explosion; failure of a liquefied flammable gas container caused by fire exposure. Pronounced "blevey."

Boilover
Occurs when the heat from a fire in a tank travels down to the bottom of the tank causing water that is already there to boil and push part of the tank's contents over the side.

Carbon Dioxide
A heavy, colorless, odorless, asphyxiating gas, that does not normally support combustion. It is one and one-half times heavier than air and when directed at the base of a fire its action is to dilute the fuel vapors to a lean mixture to extinguish the fire.

Class A Fire
A fire involving common combustible materials which can be extinguished by the use of water or water solutions. Materials in this category include wood and wood-based materials, cloth, paper, rubber and certain plastics.

Class B Fire
A fire involving flammable or combustible liquids, flammable gases, greases and similar products. Extinguishment is accomplished by cutting off the supply of oxygen to the fire or by preventing flammable vapors from being given off.

Class C Fire
A fire involving energized electrical equipment, conductors or appliances. Nonconducting extinguishing agents must be used for the protection of firefighters.

Class D Fire
A fire involving combustible metals, for example, sodium, potassium, magnesium, titanium and aluminum. Extinguishment is accomplished through the use of heat-absorbing extinguishing agents such as certain dry powders that do not react with the burning metals.

F.2 DEFINITIONS, CONTINUED

Cold (Support) Zone
An area free of contaminants so that Personal Protection Equipment (PPE) is not required for personnel working in this area. Command functions and supporting operations are carried out here.

Command Post
A site located at a safe distance from the spill site where response decisions are made, equipment and manpower deployed, and communications handled. The Incident Commander and the On-Scene Coordinators may direct the on-scene response from this location.

Communication Equipment
Equipment that will be utilized during response operations to maintain communication between employees, contractors, federal/state/local agencies.

Containment Boom
A flotation/freeboard device, made with a skirt/curtain, longitudinal strength member, and ballast unit/weight designed to entrap and contain the product for recovery.

Contamination Reduction Zone
Same as the warm zone, a buffer between the hot and cold zones. Decontamination activities take place there. Equipment needed to support the primary response operation may be staged in the warm zone.

Contingency Plan
A document used by: (1) federal, state, and local agencies to guide planning and response

procedures regarding spill of oil, hazardous substances, or other emergencies; (2) a document used by industry as a response plan to spills of oil, hazardous substances, or other emergencies occurring upon their vessels or at their facilities.

Contract or Other Approved Means
Includes:

- A written contractual agreement with a response contractor. The agreement should identify and ensure the availability of the specified personnel and equipment described under U.S.C.G. Regulations within stipulated response times in the specified geographic areas
- Certification by the facility owner or operator that the specified personnel and equipment described under USCG Regulations are owned, operated, or under the direct control of the facility owner or operator, and are available within stipulated times in the specified geographic areas
- Active membership in a local or regional oil spill removal organization that has identified specified personnel and equipment described under USCG Regulations that are available to respond to a discharge within stipulated times in the specified geographic areas
- A document which:
    - Identifies the personnel, equipment, services, capable of being provided by the response contractor within stipulated response times in specified geographic areas
    - Sets out the parties' acknowledgment that the response contractor intends to commit the resources in the event of a response
    - Permits the Coast Guard to verify the availability of the response resources identified through tests, inspections, drills
    - Is incorporated by reference in the Response Plan
- For a facility that could reasonably be expected to cause substantial harm to the environment, with the consent of the response contractor or oil spill removal organization, the identification of a response contractor or oil spill removal organization with specified equipment and personnel which are available within stipulated response times in specific geographic areas.

F.2 DEFINITIONS, CONTINUED

Demand Breathing Apparatus
A type of self-contained breathing apparatus that provides air or oxygen from a supply carried by the user.

Dispersants
Those chemical agents that emulsify, disperse, or solublize oil into the water column or promote the surface spreading of oil slicks to facilitate dispersal of the oil into the water column.

Diversion Boom
A flotation/freeboard device, made with a skirt/curtain, longitudinal strength member, and

ballast unit/weight designed to deflect or divert the product towards a pick up point, or away from certain areas.

Environmentally Sensitive Areas
Streams and water bodies, aquifer recharge zones, springs, wetlands, agricultural areas, bird rookeries, endangered or threatened species (flora and fauna) habitat, wildlife preserves or conservation areas, parks, beaches, dunes, or any other area protected or managed for its natural resource value.

Exclusion Zone
Same as hot zone, the area where a hazard exists. This is the hazardous location on site, therefore entry requires personal protective equipment (PPE). It must be big enough for both mitigation activities and protection of personnel in the warm zone should an explosion, fire, change of wind direction, or an unexpected release occur during response activities.

Explosive Range
Flammable range; the range of the mixture of air and flammable gas or flammable vapor of liquids that must be present in the proper proportions for the mixture to be ignited. The range has upper and lower limits; any mixture above the upper explosive limit or below the lower explosive limit will not burn.

Facility
Any pipeline, structure, equipment, or device used for handling oil including, but not limited to, underground and aboveground storage tanks, impoundments, mobile or portable drilling or workover rigs, barge mounted drilling or workover rigs, and portable fueling facilities located offshore or on or adjacent to coastal waters or any place where a discharge of oil from the facility could enter coastal waters or threaten to enter the coastal waters.

Federal Fund
The oil spill liability trust fund established under OPA.

First Responders, First Response Agency
A public health or safety agency (i.e., fire service or police department) charged with responding to a spill during the emergency phase and alleviating immediate danger to human life, health, safety, or property.

Flashover
The ignition of combustibles in an area heated by convection, radiation, or a combination of the two. The action may be a sudden ignition in a particular location followed by rapid spread or a "flash" of the entire area.

F.2 DEFINITIONS, CONTINUED

Flash Point
The temperature at which a liquid fuel gives off sufficient vapor to form an ignitable mixture near its surface.

Foam
A blanket of bubbles that extinguishes fire mainly by smothering. The blanket prevents flammable vapors from leaving the surface of the fire and prevents oxygen from reaching the fuel. The water in the foam also has a cooling effect.

Hazardous Material
Any nonradioactive solid, liquid, or gaseous substance which, when uncontrolled, may be harmful to humans, animals, or the environment. Including but not limited to substances otherwise defined as hazardous wastes, dangerous wastes, extremely hazardous wastes, oil, or pollutants.

Hazardous Substance
Any substance designed as such by the Administrator of EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act; regulated pursuant to Section 311 of the Federal Water Pollution Control Act.

Hazardous Waste
Any solid waste identified or listed as a hazardous waste by the Administrator of the EPA pursuant to the federal Solid Waste Disposal Act, as amended by the Resources Conservation and Recovery Act (RCRA), 42 U.S.C., Section 6901, et seq as amended. The EPA Administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in Title 40 of the Code of Federal Regulations, Part 261, Subparts C and D respectively.

Higher Volume Port Area
Ports of:

- Boston, MA
- New York, NY
- Delaware Bay and River to Philadelphia, PA
- St. Croix, VI
- Pascagoula, MS
- Mississippi River from Southwest Pass, LA to Baton Rouge, LA
- Louisiana Offshore Oil Port (LOOP), LA
- Lake Charles, LA
- Sabine-Nachez River, TX
- Galveston Bay and Houston Ship Channel, TX
- Corpus Christi, TX
- Los Angeles/Long Beach Harbor, CA
- San Francisco Bay, San Pablo Bay, Carquinez Strait, Suisun Bay to Antioch, CA
- Straits of Juan de Fuca and Puget Sound, WA
- Prince William Sound, AK

Hot (Exclusion) Zone
The area where a hazard exists. This is the hazardous location on site, therefore entry requires personal protective equipment (PPE). It must be big enough for both mitigation activities and protection of personnel in the warm zone should an explosion, fire, change of wind direction, or an unexpected release occur during response activities.

F.2 DEFINITIONS, CONTINUED

Hyperthermia
A dangerously high fever that can damage nerve centers. This condition can result from exposure to excessive heat over an extended period of time.

Ignition Temperature
The lowest temperature at which a fuel will burn without continued application of an ignition

source.

Incident Commander (IC)
The one individual in charge at any given time of an incident. The Incident Commander will be responsible for establishing a unified command with all on-scene coordinators.

Incident Command System
A method by which the response to an extraordinary event, including a spill, is categorized into functional components and responsibility for each component assigned to the appropriate individual or agency.

Interim Storage Site
A site used to temporarily store recovered oil or oily waste until the recovered oil or oily waste is disposed of at a permanent disposal site. Interim storage sites include trucks, barges, and other vehicles, used to store waste until the transport begins.

Lead Agency
The government agency that assumes the lead for directing the spill response.

Lead Federal Agency
The agency which coordinates the federal response to incidents on navigable waters. The lead Federal agencies are:

- **U. S. Coast Guard (USCG):** Oil and chemically hazardous materials incidents on navigable waters
- **Environmental Protection Agency (EPA):** Oil and chemically hazardous materials incidents on most inland waters and in the inland zone

Lead State Agency
The agency which coordinates state support to Federal and/or Local governments or assumes the lead in the absence of a Federal spill response.

Lower Flammable Limit
Minimum flammable concentration of a particular gas in the air.

Marine Transportation-Related Facility (MTR Facility)
An onshore facility, including piping and any structure used to transfer oil to or from a vessel, subject to regulation under 33 CFR Part 154 and any deepwater port subject to regulation under 33 CFR Part 150.

Maximum Extent Practicable
The planning values derived from the planning criteria used to evaluate the response resources described in the response plan to provide the on-water recovery capability and the shoreline protection and cleanup capability to conduct response activities for a worst case discharge from a facility in adverse weather.

Maximum Most Probable Discharge (USCG)
A discharge of the lesser of 2,500 barrels or ten percent of the volume of a worst case discharge.

F.2 DEFINITIONS, CONTINUED

Medium Discharge **(EPA)**
Same as maximum most probable discharge.

National Contingency Plan
The plan prepared under the Federal Water Pollution Control Act (33 United States Code '1321 et seq) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 United State Code '9601 et seq), as revised from time to time.

Nearshore Area
The area extending seaward 12 miles from the boundary lines defined in 46 CFR Part 7, except in the Gulf of Mexico. In the Gulf of Mexico, it means the area extending seaward 12 miles from the line of demarcation (COLREG) lines) defined in '80.740 - 80.850 of Title 33 of the CFR.

Non-Persistent or Group I Oil
A petroleum-based oil that, at the time of shipment, consists of hydrocarbon fractions:

- At least 50% of which by volume, distill at a temperature of 340EC (645EF)
- At least 95% of which volume, distill at a temperature of 370EC (700EF)

Non-Petroleum Oil
Oil of any kind that is not petroleum-based. It includes, but is not limited to, animal and vegetable oils.

Offshore Area
The area beyond 12 nautical miles measured from the boundary lines defined in 46 CFR Part 7 extending seaward to 50 nautical miles, except in the Gulf of Mexico. In the Gulf of Mexico it is the area beyond 12 nautical miles of the line of demarcation (COLREG lines) defined in '80-740 - 80.850 of Title 33 of the CFR extending seaward to 50 nautical miles.

Oil or Oils
Naturally occurring liquid hydrocarbons at atmospheric temperature and pressure coming from the earth, including condensate and natural gasoline, and any fractionation thereof, including, but not limited to, crude oil, petroleum gasoline, fuel oil, diesel oil, oil sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Oil does not include any substance listed in Table 302.4 of 40 CFR Part 302 adopted August 14, 1989, under Section 101(14) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by P.L. 99-499.

Oil Spill Removal Organization (OSRO)
An entity that provides oil spill response resources, and includes any for profit or not-for-profit contractor, cooperative, or in-house response resources that have been established in a geographic area to provide required response resources.

Operating Area
The rivers and canals, inland, nearshore, Great Lakes, or offshore geographic location(s) in which a facility is handling, storing, or transporting oil.

Operating Environment
Rivers and canals, inland, Great Lakes, or ocean. These terms are used to define the conditions in which response equipment is designed to function.

Overhaul
A procedure following a fire whereby the area is examined for hidden fire and fire extension

and the fire area is cleaned up.

F.2 DEFINITIONS, CONTINUED

Owner or Operator
Any person, individual, partnership, corporation, association, governmental unit, or public or private organization of any character.

PPE - Level A
Offers the highest level of respiratory, skin, eye and mucous membrane protection. Intended for IDLH or near IDLH conditions. Level A consists of the following:

- Positive pressure self contained breathing apparatus (SCBA)
- Fully encapsulated chemical resistant unit
- Inner and outer chemical resistant gloves
- Chemical resistant boots with steel toe and shank
- Hard hat
- Other accessories as required

PPE - Level B
Offers the highest degree of respiratory protection, but a lesser level of skin and eye protection. Level B is the minimum level recommended on initial site entries until the hazards have been further identified and defined by monitoring sampling, and other methods. Level B protection may be used where confined space entry conditions exist and existing gases or vapors are not harmful to the skin. Level B consists of the following:

- Positive pressure self contained breathing apparatus (SCBA)
- Chemical resistant clothing appropriate for hazard
- Inner and outer chemical resistant gloves
- Chemical resistant boots with steel toe and shank
- Hard hat
- Other accessories as required

PPE - Level C
May be used when the type of airborne substance is known, its concentration has been measured, and criteria for using air-purifying respirators have been met. Also, skin and eye exposure is unlikely. Level C consists of the following:

- Full-face, air purifying respirator appropriate for contaminant
- Chemical, fire and/or heat resistant clothing appropriate for hazard
- Inner and outer chemical resistant gloves
- Chemical resistant boots with steel toe and shank
- Hard hat
- Other accessories as required

PPE - Level D
Standard minimum level of protection required during routine operations or incidents with no known hazards. Level D consists of the following:

- Flame retardant clothing
- Safety glasses
- Leather boots or shoes

Hard hat
- Fire fighting protective clothing

F.2 DEFINITIONS, CONTINUED

Persistent Oil
A petroleum-based oil that does not meet the distillation criteria for a non-persistent oil. For the purposes of this Appendix, persistent oils are further classified based on specific gravity as follows:

- Group II - specific gravity less than .85
- Group III - specific gravity between .85 and less than .95
- Group IV - specific gravity .95 to and including 1.0
- Group V - specific gravity greater than 1.0

Primary Response Contractor(s)
An individual, company, or cooperative that has contracted directly with the plan holder to provide equipment and/or personnel for the containment or cleanup of spilled oil.

Qualified Individual(s)
An English-speaking representative(s) of the facility identified in the plan, located in the United States, available on a 24-hour basis, familiar with implementation of the facility response plan, and trained in his or her responsibilities under the plan. This person must have full written authority to implement the facility's response plan. This includes:

- Activating and engaging in contracting with identified oil spill removal organization(s)
- Acting as a liaison with the predesignated of Federal On-Scene Coordinator (FOCS)
- Obligating, either directly or through prearranged contracts, funds required to carry out all necessary or directed response activities

Regional Response Team
The Federal Response Organization (consisting of representatives from selected Federal and State agencies) which acts as a regional body responsible for planning and preparedness before an oil spill occurs and providing advice to the FOSC in the event of a major or substantial spill.

Reid Vapor Pressure Method
Method used by the American Society of Testing Materials to test vapor pressure. It is a measure of the volatility, or tendency to vaporize, of a liquid.

Responsible Party
Any person, owner/operator, or facility that has control over an oil or hazardous substance immediately before entry of the oil or hazardous substance into the atmosphere or in or upon the water, surface, or subsurface land of the state.

Rivers and Canals
A body of water confined within the inland area that has a projected depth of 12 feet or less, including the Intracoastal Waterway and other waterways artificially created for navigation.

F.2 DEFINITIONS, CONTINUED

Skimmers
Mechanical devices used to skim the surface of the water and recover floating oil. Skimmers fall into four basic categories (suction heads, floating weirs, oleophilic surface units, and hydrodynamic devices) which vary in efficiency depending on the type of oil and size of spill.

Slopover
An event that occurs when water is introduced into a tank of very hot liquid, causing the liquid to froth and spatter.

Small Discharge (EPA)
Same as average most probable discharge.

Sorbents
Materials ranging from natural products to synthetic polymeric foams placed in confined areas to soak up small quantities of oil. Sorbents are very effective in protecting walkways, boat decks, working areas, and previously uncontaminated or cleaned areas.

Emergency Management Team
The personnel identified to staff the organizational structure identified in a response plan to manage response plan implementation.

Spontaneous Ignition
A fire that occurs without a flame, spark, hot surface, or other outside source of ignition.

Staging Areas
Designated areas near the spill site accessible for gathering and deploying equipment and/or personnel.

State Emergency Response Commission (SERC)
A group of officials appointed by the Governor to implement the provisions of Title III of the Federal Superfund Amendments and Reauthorization Act of 1986 (SARA). The SERC approves the State Oil and Hazardous Substance Discharge Prevention and Contingency Plan and Local Emergency Response Plans.

Static Electricity
Charges of electricity accumulated on opposing and usually moving surfaces having negative and positive charges, respectively. A hazard exists where the static potential is sufficient to discharge a spark in the presence of flammable vapors or combustible dusts.

Support Zone
Same as cold zone, an area free of contaminants so that personal protection equipment (PPE) is not required for personnel working in this area. Command functions and supporting operations are carried out here.

Tornado Warning
A tornado has been sighted.

Tornado Watch
Conditions are favorable for tornados to form.

F.2 DEFINITIONS, CONTINUED

Unified Command
The method by which local, state, and federal agencies will work with the Incident Commander to:

- Determine their roles and responsibilities for a given incident
- Determine their overall objectives for management of an incident
- Select a strategy to achieve agreed upon objectives
- Deploy resources to achieve agreed-upon objectives

Warm (Contamination Reduction) Zone
A buffer between the hot and cold zones. Decontamination activities take place there. Equipment needed to support the primary response operation may be staged in the warm zone.

Waste
Oil or contaminated soil, debris, and other substances removed from coastal waters and adjacent waters, shorelines, estuaries, tidal flats, beaches, or marshes in response to an unauthorized discharge. Waste means any solid, liquid, or other material intended to be disposed of or discarded and generated as a result of an unauthorized discharge of oil. Waste does not include substances intended to be recycled if they are in fact recycled within 90 days of their generation or if they are brought to a recycling facility within that time.

Wildlife Rescue
Efforts made in conjunction with federal and state agencies to retrieve, clean, and rehabilitate birds and wildlife affected by an oil spill.

APPENDIX G Last Revised: February 2012

ADDITIONAL INFORMATION

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- Earthquake Preparedness Procedure
- ICS Form 201
- ICS Form 202
- ICS Form 203
- ICS Form 204
- ICS Form 204a
- ICS Form 205
- ICS Form 205a
- ICS Form 206
- ICS Form 207
- ICS Form 209
- ICS Form 210
- ICS Form 211e
- ICS Form 211p
- ICS Form 213
- ICS Form 214
- ICS Form 214a
- ICS Form 215
- ICS Form 216
- ICS Form 217
- ICS Form 218
- ICS Form 219-2
- ICS Form 219-4
- ICS Form 219-6

- ICS Form 219-7
- ICS Form 220
- ICS Form 221
- ICS Form 230
- ICS Form 231
- ICS Form 232
- IAP Cover Pg

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EMERGENCY RESPONSE ACTION PLAN

Last Revised: April 2014

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1.0 INTRODUCTION

1.1 Purpose / Scope of Plan

This Portland Terminal Emergency Response Action Plan (ERAP) provides guidelines to assist in managing an emergency. The primary goal of this Plan is to provide tools to enable an efficient, coordinated, and effective response to emergencies.

The ERAP is not meant to replace common sense or actions not specifically described herein. Responders should continually evaluate the effectiveness of actions called for in this Plan and make the appropriate adjustments based on past experience and training.

This ERAP contains tactical response plans that identify site-specific potential response strategies. Response strategies, equipment and manpower requirements, and site conditions are based on conditions that were present during site assessments. Actual conditions at the time of a response may vary significantly and may necessitate the need for a different strategy and/or equipment requirements. The strategies and equipment lists contained in this plan should be used as guidelines only.

This document is intended to satisfy the requirements of 29 CFR 1910.38(a)(2) and 1910.120(l)(2) (OSHA Emergency Response Plan and Emergency Action Plan) and 40 CFR

Part 112.20 (EPA Emergency Response Action Plan). Cross-references for these regulations are located in **APPENDIX E** of the Spill Response Plan.

1.2 Plan Review and Updating Procedures

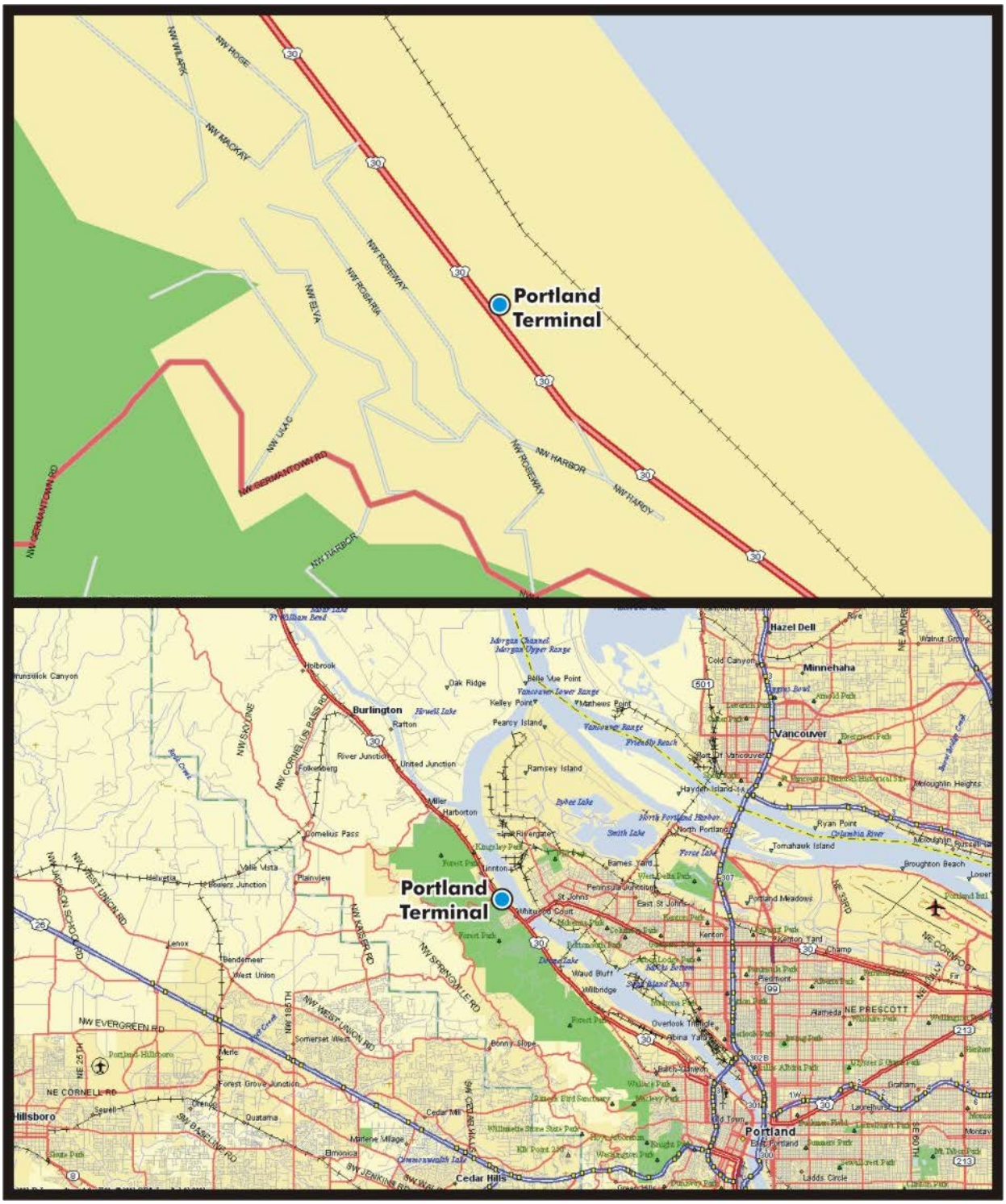
The ERAP will be reviewed and modified as appropriate to address new information.

Plan revisions will be numbered sequentially and entered on the Record of Changes Form. The change numbers, date, and description of change will also be entered on the form. These changes are then to be distributed to all plan holders on the Distribution List.

1.3 Facility Description

This site is a petroleum bulk tank farm and marine terminal consisting of aboveground storage tanks ranging in size from 120 to 110,000 barrels. The facility is used for bulk storage and distribution of petroleum hydrocarbons. The facility receives and ships product by pipeline, tank truck, and waterborne vessels. Products transferred through this facility are non-persistent oils consisting of gasoline, gasoline additives, ethanol, and distillates.

FIGURE 1-1 - FACILITY AREA MAP



2.0 RESPONSE STEPS

2.1 SPILL / RELEASE RESPONSE

RESPONSE ACTION	
First Person to Discover Spill	
Immediately notify Supervisory Personnel. Take appropriate action to protect life and ensure safety of personnel. Contact the appropriate local emergency responders or	☐

request the office to do so.	
Immediately shut down terminal operations (if applicable). Remotely controlled motor operated valves should be closed as soon as a leak is detected. Manual operated valves should be closed if safe to do so.	☐
Secure the scene. Isolate the area and assure the safety of people and the environment. Keep people away from the scene and outside the safety perimeter.	☐
Supervisory Personnel	
Assume role of Incident Commander until relieved by upper Management (if applicable).	☐
Conduct preliminary assessment of health and safety hazards.	☐
Evacuate nonessential personnel, notify emergency response agencies to provide security, and evacuate surrounding area (if necessary).	☐
Call out spill response contractors (**FIGURE 3-5**).	☐
If safe to do so, direct facility responders to shut down potential ignition sources in the vicinity of the spill, including motors, electrical pumps, electrical power, flairs, etc. Keep drivers away from truck rack if spill occurs there.	☐
If safe to do so, direct facility responders to shut down and control the source of the spill. Be aware of potential hazards associated with product and ensure that lower explosive limits (LELs) are within safe levels before sending personnel into the spill area.	☐
If safe to do so, direct facility responders to stabilize and contain the situation. This may include construction of minor earthen berms and/or sorbent boom and pads.	☐
For low flash oil (<100ºF), consider applying foam over the oil, using water spray to reduce vapors, grounding all equipment handling the oil, and using non-sparking tools.	☐
If there is a potential to impact shorelines, consider lining shoreline with sorbent or diversion boom to reduce impact.	☐
Notify Local Emergency Responders. Obtain the information necessary to complete the Leak Accident Report Form (**FIGURE 3-2**).	☐
Make local notifications: • LEPC • Police • Fire • Sheriff	☐
HSE Regional Manager	
Make appropriate notifications: • National Response Center (800) 424-8802 • External regulatory notifications (**FIGURE 3-5**)	☐

2.1 SPILL/RELEASE RESPONSE, CONTINUED

RESPONSE ACTION

On-Scene Coordinator	
Activate all or a portion of Emergency Management Team (EMT) (as necessary). HSE Department will maintain contact with notified regulatory agencies.	☐
Ensure the EMT has mobilized spill response contractors (if necessary). It is much better to demobilize equipment and personnel if not needed than to delay contacting them if they are needed.	☐
Document all response actions taken, including notifications, agency/media meetings, equipment and personnel mobilization and deployment, and area impacted. (Refer to **SECTION 5** in the Spill Response Plan for documentation.)	☐
Water-based Spills: Initiate spill tracking and surveillance operations. Determine extent of pollution via surveillance aircraft or vehicle. Estimate volume of spill utilizing information in **SECTION 2.1.3** in the Spill Response Plan. Send photographer / videographer, if safe. Use of dispersants requires Federal or State approval.	☐
Land-based Spills: Initiate spill tracking and surveillance, if applicable.	☐
SECONDARY RESPONSE ACTIONS (Refer to EMT job descriptions in **SECTION 4.6** in the Spill Response Plan)	
FACILITY-SPECIFIC RESPONSE CONSIDERATIONS (Refer to **SECTIONS 6.0** through **SECTION 11.0** for maps, tactical plans, and sensitivity information).	

SITE-SPECIFIC ACTIONS	
DOCUMENT ALL ACTIONS TAKEN	
First Priority	
Account for all personnel and visitors.	☐
Identify and assess fire/safety hazards.	☐
Second Priority	
Secure spill source, if possible.	☐
Assure all required notifications are conducted.	☐
Secure all drainage leading from facility.	☐
Third Priority	
This size discharge would most likely occur due to a natural disaster or catastrophic event. Diking and containment areas are located throughout the Facility. For a discharge of this size to reach a navigable waterway, or leave the Facility property, diking would have to be damaged or destroyed (breached). This spill type is one that would result in a chain reaction of failures of other equipment. In the unlikely event of a spill leaving the property, it would probably enter navigable water at the Williamette River.	☐
These calculations take into account adverse weather. Severe rain events and associated flooding would also increase the chances of an oil spill from leaving the property. Nevertheless, boom could be deployed as an initial measure to reduce the potential for any off-site drainage from a spill that may unfortunately occur concurrently with a severe rain event, associated flooding, or a hurricane.	☐
Once deployment of response equipment has been completed, initiate recovery of product.	☐

Upon arrival of EMT, assure all information is accurate and complete prior to being released.	☐
Assure proper documentation has been completed from initial discovery of spill to finish; reference **SECTION 5** in the Spill Response Plan.	☐

2.2 EVACUATION

EVACUATION CHECKLIST	
TASK	
Request assistance from off-site response organizations; convey Command Post's location. Notify appropriate agencies (if appropriate).	☐
Assemble personnel at predetermined safe location: upwind/up gradient of release (assembly area).	☐
Account for Company and contractor personnel.	☐
Assess casualties (number/type/location).	☐
Determine probable location of missing personnel.	☐
Secure site, establish re-entry point and check-in/check-out procedures.	☐
Develop list of known hazards (confined spaces, electrical hazards, physical hazards, vapors, oxygen deficiency, fire/explosion, etc.).	☐
Monitor situation (weather, vapors, product migration) for significant changes.	☐
Assist in developing a Rescue Plan, if necessary.	☐

2.2 EVACUATION, CONTINUED

EVACUATION FACTORS	
FACTOR	**DESCRIPTION**
Stored material location	• Located in oil storage area • Identified in facility Plot Plan (**FIGURE 5-4**)
Spilled material hazards	• Hazard is fire/explosion
Water currents, tides or wave conditions	• Water current: 1 knot, Tides: 1.5 ft. tide, Wave Conditions: Not Applicable
Evacuation routes	• Routes are summarized on Evacuation Plan Diagram (**FIGURE 5-2** • Criteria for determining safest evacuation routes from facility may include: wind direction, potential exposure to toxins and carcinogens, intense heat, potential for explosion/fire, and

	blockage of planned route by fire, debris, or released liquid
Alternate evacuation routes	• Alternate routes may exist; refer to Evacuation Plan Diagram (**FIGURE 5-2**)
Injured personnel transportation	• Emergency services can be mobilized to the facility (**FIGURE 5-2**
Alarm/Notification system location	• by two-way radio
Community evacuation plans	• Company may request local police, county sheriff and/or state police assistance (**FIGURE 3-5**). Community evacuations are the responsibility of these agencies.
Spill flow direction	• Surface drainage is towards the river (north). • Identified in facility drainage diagram (**FIGURE 5-1**)

2.2 EVACUATION, CONTINUED

EVACUATION FACTORS	
FACTOR	**DESCRIPTION**
Prevailing wind direction and speed	• West to East 5 mph • Because wind direction varies with weather conditions, consideration for evacuation routing will depend in part on wind direction
Emergency personnel/response equipment arrival route	• The primary arrival route of emergency response personnel and response equipment is N.W. St. Helens Road. • Directions to nearest medical facility provided below

2.2 EVACUATION, CONTINUED

EVACUATION FACTORS	
FACTOR	**DESCRIPTION**
Centralized check-in area	• The primary muster point is the main gate. In the event the primary muster point is not accessible, the secondary muster point is at the end of the frontage road, next to the railroad crossing. • Supervisor is responsible for head count

Mitigation Command Center location	• Initial Command Center located at The main office will be the mitigation command center and the location of shelter at the Facility if conditions permit. • Mobile Command Posts may be established as necessary
Facility Shelter Location	• The main office will be the mitigation command center and the location of shelter at the Facility if conditions permit. • Not a safe harbor from fires, explosions, vapor clouds, or other significant emergencies; however, may be used for temporary shelter from inclement weather
Directions to nearest medical facility	Directions to Good Samaritan : • 1040 NW 22nd Ave.; Portland, OR 97210. Start on US-30 [Lower Columbia River Hwy.] (South-East) 5.2 miles. Turn right (West) onto NW Nicolai Street 0.1 miles. Turn left (South) onto NW 24th Avenue 0.8 miles. Turn left (East) onto NW Lovejoy Street 0.2 miles. Arrive at Good Samaritan Hospital.

2.3 TORNADO

TORNADO CHECKLIST	
TASK	
Monitor news media reports (**FIGURE 3-5**). • Tornado watch means conditions are favorable for tornadoes. • Tornado warning means a tornado has been sighted.	☐
When a tornado warning is issued, immediately notify all personnel on-site. Notify off site personnel of the situation (Control Center or Regional Management).	☐
Take shelter: • Go to an interior room on the lowest floor. • Get under a sturdy piece of furniture or solid structure. • Use your arms to protect head and neck.	☐
Have location personnel report to the designated area.	☐
Account for all personnel on duty.	☐
Look for funnel formations on the ground or in the clouds; listen for a roar that sounds like a jet aircraft or rail traffic.	☐

If the facility is damaged by the tornado, notify Management.	☐
Go to the scene of the incident to evaluate the situation. • Be aware of broken glass and downed power lines. • Assess the area for damaged equipment or product releases. • Check for injuries. • Use caution entering a damaged building.	☐
Update Supervisory Personnel/Management.	☐
Perform Initial Response Actions functions as stated in **SECTION 2.1**.	☐
Conduct post-emergency evaluation and report.	☐

2.4 FLOOD

FLOOD CHECKLIST	
TASK	
Perform continuous monitoring of the situation by listening to radio and/or television reports (**FIGURE 3-5**). • Flash flood watch means flooding is possible. • Flash flood warning means flooding is occurring or is imminent.	☐
Update Supervisory Personnel when flooding is imminent.	☐
Establish an evacuation plan (**SECTION 2.2**).	☐
Take preliminary actions to secure the facility before flooding and mandatory evacuation.	☐
Consider having sandbags brought to sites that could be affected by the flooding.	☐
Consider obtaining portable pumps and hoses from local suppliers or from other petroleum service locations in the area.	☐
Remove product from underground storage tanks (i.e., sumps and separators, if applicable) and replace with water to prevent them from floating out of the ground.	☐
If additional new product is available fill each tank to the minimum level necessary to prevent buoyancy in the event of flooding (Rule of thumb is 30% of the safe fill height). If additional product is not available, transfer appropriate product among tanks to prevent buoyance. If minimum levels cannot be reached through product transfer, add water bottoms.	☐
Plug all rack drains and facility drains connected to the sump.	☐
Empty all dikes of water.	☐
Ensure that tank roof drains are working properly.	☐
Anchor all bulk additive tanks, fuel barrels, empty drums, and propane tanks (if	☐

applicable).	
Notify Supervisory Personnel/Management that the facility will be closed. Customer should be notified.	☐
Back up computer files.	☐
Remove assets such as files, computers, spare parts, and vehicles.	☐
Shut off high voltage power and natural gas lines.	☐
Close all valves on product and additive storage tanks.	☐
Before evacuation, know where all the employees will be residing and obtain phone numbers so they can be contacted if additional emergencies occur.	☐

2.4 FLOOD, CONTINUED

FLOOD CHECKLIST	
TASK	
Conduct a post-emergency evacuation and report.	☐
Maintain hazards awareness: • Structural damage; • Equipment damage and product release; • Downed power lines; • Leaking natural gas, water, and sewer lines; • Poisonous snakes and other wildlife sheltering in structures, vehicles, and furniture; and • Avoid direct contact with flood water, mud, and animal carcasses.	☐

2.5 MEDICAL

MEDICAL CHECKLIST	
TASK	
Summon Emergency Medical Services (EMS) to the scene (**FIGURE 3-5**).	☐
Do not move the patient unless a situation (such as a fire) threatens patient's life.	☐
If trained, provide appropriate first aid for both injury and shock until the EMS arrives at the scene.	☐
As the situation warrants, try to stop the bleeding and keep the patient breathing until the EMS arrives at the scene.	☐
The rescuer's role includes:	

• Removing the patient from any situation threatening patient's life or the lives of rescuers. • Correcting life-threatening problems and immobilizing injured parts before transporting the patient. • Transporting the patient in a way that minimizes further damage to injured parts. • Administering essential life support while the patient is being transported. • Observing and protecting the patient until medical staff can take over. • Administering care as indicated or instructed.	☐
Notify Supervisory Personnel and/or Regional Management.	☐
Notify victim's immediate family.	☐
Complete follow-up and written reporting, as the situation demands.	☐

2.6 BOMB THREAT

(b) (7)(F)



(b) (7)(F)

2.6 BOMB THREAT, CONTINUED

BOMB THREAT BY LETTER, TELEGRAM, MESSAGE CHECKLIST	
TASK	
(b) (7)(F)	☐
	☐

• Isolate it and evacuate to a safe distance.	
Notify the Facility Management. If supervision is not present, call the appropriate local government agencies listed in **FIGURE 3-5** and inform them of the bomb threat.	☐
Save all containers, including the envelope the threat arrived in. Once the message is recognized as a bomb threat, further unnecessary handling of the materials should be avoided.	☐
Make every possible effort to retain and protect evidence such as fingerprints, handwriting or typewriting, paper and postal marks. Place all materials in a document protector, plastic envelope, or similar container.	☐

2.7 FIRE AND/OR EXPLOSION

Your first consideration is always the safety of people in the immediate area, including your own.

The first responder's initial objective is site management.

FIRE AND/OR EXPLOSION CHECKLIST	
TASK	
At a manned facility	
Evaluate the situation; approach cautiously from upwind; do not rush in.	☐
Notify the local police and fire departments (Dial 911).	☐
Sound the facility alarm and push the red emergency shutdown switch (if equipped).	
Notify Qualified Individual and Operations Control (if applicable).	☐
Appropriately trained personnel may attempt to extinguish the fire if it is in the incipient (early) stage and **if it can be done safely**.	☐
In the event the fire is too large for an individual to fight alone, the individual sounding the alarm or making the phone call should stand by at a safe distance to direct the fire department to the scene of the fire and keep personnel and vehicles from entering the danger area.	☐
Alert all Facility areas of the exact location and extent of the fire.	☐
Instruct all drivers to discontinue loading, disconnect loading arms, and tell all drivers present to stand by the trucks (if safe to do so) and wait for instruction to remove same to safe area.	☐
Shut off all pumps.	☐
If the fire/explosion is a result of a pipe rupture, isolate product release by closing valves.	☐
If product is being received from pipelines, notify the appropriate pipeline personnel of the fire and request that the pipeline be shut down. The tank which is receiving product from the pipeline must not be closed until assurance is received that the pipeline is shut down, unless that tank is on fire.	☐

After confirmation has been received that pipelines have been shut down, close the pipeline header valves.	☐
Undertake basic site control: • Make an assessment of hazards. • Isolate the area. • Keep people away from the scene and outside the safety perimeter. • Establish safety zones and escape routes.	☐
Respond to the fire: • Establish a Command Post and lines of communication. • Maintain site control. • Establish Incident Command/Unified Command as necessary (**SECTION 4.4**) in the Spill Response Plan.	☐
Call in additional resources if on-scene personnel and equipment are inadequate to handle the emergency.	☐
Conduct a post-emergency evaluation and report.	☐

2.7 FIRE AND/OR EXPLOSION, CONTINUED

Your first consideration is always the safety of people in the immediate area, including your own.

The first responder's initial objective is site management.

FIRE AND/OR EXPLOSION CHECKLIST, CONTINUED	
TASK	
At an unmanned facility	
Handle the call.	☐
Notify the local police and fire departments.	☐
Notify Qualified Individual and Operations Control.	☐
Go to the incident scene to evaluate the situation; approach cautiously from upwind; do not rush in.	☐
Undertake basic site control: • Make an assessment of hazards. • Isolate the area. • Keep people away from the scene and outside the safety perimeter.	☐

• Establish safety zones and escape routes.	
If roads or railroads are in the affected area, assist the sheriff or local emergency officials with halting traffic.	☐
Update the next level manager.	☐
If the fire/explosion is a result of a pipe rupture, isolate the product release by closing valves.	☐
Respond to the fire: • Establish a Command Post and lines of communication. • Maintain site control. • Establish Incident Command/Unified Command as necessary, refer to **SECTION 4.4** in the Spill Response Plan.	☐
Call in additional resources if on-scene personnel and equipment are inadequate to handle the emergency.	☐
Conduct a post-emergency evaluation and report.	☐

2.8 VAPOR CLOUD

VAPOR CLOUD CHECKLIST	
TASK	
The person who discovers the vapor cloud will notify the facility management on duty and vacate the area.	☐
Remember: the only proper action in the presence of a vapor cloud is to get away from it. Do not shut off electrical equipment.	☐
All personnel will report to the evacuation muster point for roll call and further instructions.	☐
After all personnel have been accounted for, the Facility Management, the Facility Supervisor or a Facility Operator will initiate the following actions as deemed necessary: • Shut down pipeline. • Evacuation of adjacent property. • Only the fire department will be permitted to enter the Facility.	☐
Contact the appropriate agencies and potentially affected neighbors (refer to **FIGURE 3-5**).	☐

3.0 NOTIFICATIONS

FIGURE 3-1 - FIRST REPORT OF INCIDENT

Original to File; Copies To: Terminal Mgr or Ops Mgr & LP HSE Group

I. Location: _____ Time: _____ Date: _____

II. INCIDENT TYPE:

A. Safety

- ☐ Non-injury
- ☐ Property/Equipment Damage
- ☐ Fire
- ☐ Other ____
- ☐ Injury
- ☐ First Aid
- ☐ Off-site Treatment
- ☐ Near Miss
- ☐ Employee
- ☐ Contractor

B. Environmental

- ☐ Spill
- ☐ Air Upset
- ☐ Discharge Event
- ☐ Other

For Safety and Environmental Departments Use Only

☐ Recordable Injury ☐ Chemical Exposure ☐ Recordable Illness ☐ Reportable to Agency
☐ PSM/RMP ☐ Other

Signature _____ **Date** _____

III. INJURED EMPLOYEE / CONTRACTOR

Name: _____ Social Security: _____
Occupation: _____ Department / Company: _____
Nature of work related injury:
_____
_____
Supervisor's Name:
_____

IV. DESCRIPTION OF INCIDENT: (Use additional sheet(s) if necessary)

Date: _____ Time: _____ Location: _____
_____
_____
_____
_____

V. IMMEDIATE ACTION(s) TAKEN : (Use additional sheet(s) if necessary)

_____
_____
_____

VI. Incident Investigation Required ☐ Yes ☐ No

VII. Name of person preparing this report: _____
(Please print)

Signature: _____ Date: _____ Time: _____

Supervisor: _____ Date: _____

FIGURE 3-2 - LEAK ACCIDENT REPORT FORM

PL SYSTEM: _____

PL SEGMENT: _____

PRODUCTS ☐ CRUDE ☐

DISTRIBUTION:

Original - PIPELINE SAFETY ☐	
NOTE - Copy to the following as needed:	
MGR - ☐	SUP - ☐
ENG - C. Jewell ☐	ROW - D. HICKEY ☐
ENV - ☐	☐

REPORT INFORMATION:

RECORDS RETENTION - Permanent
REPORT FREQUENCY - As Required
DUE DATES - Within 5 Days 1 day

PART A - TIME & LOCATION OF LEAK OR ACCIDENT

1. DATE (Month, Day, Year)	2. HOUR ☐ AM	3. LOCATION (State, County, City)
	☐ PM	

4. PHYSICAL LOCATION (Direction to site, reference highways and towns)

SECTION _____ BLOCK or TOWNSHIP _____ SURVEY or RANGE _____

PART B - ORIGIN OF LIQUID OR VAPOR RELEASE

1. PART OF CARRIER'S SYSTEM INVOLVED:

LINE PIPE ☐ PUMPING STATION ☐ TANK FARM ☐ OTHER (Specify) ☐

2. ITEM INVOLVED:

LINE PIPE ☐ GIRTH WELD ☐ LONGITUDINAL WELD ☐ PUMP ☐ OTHER (Specify) ☐

TANK ☐ WELDED FITTING ☐ BOLTED FITTING ☐ VALVE ☐ OTHER (Specify) ☐

PART C - CAUSE OF LEAK ACCIDENT

CORROSION ☐ FAILED WELD ☐ FAILED PIPE ☐ INCORRECT OPERATION BY OPERATING PERSONNEL ☐

OUTSIDE FORCE DAMAGE ☐ MALFUNCTION OF CONTROL OR RELIEF EQUIP. ☐ OTHER (Specify) ☐

PART D - INJURY OR DEATH

NUMBER OF PERSONS INJURED		NUMBER OF PERSONS KILLED	
CARRIER	NON-	CARRIER	NON-

EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES

PART E - ESTIMATED DAMAGES & COSTS

1. DAMAGE TO OPERATOR	2. LAND DAMAGE	3. CLEAN-UP COST	4. PRODUCT COST

5. ITEMS DAMAGED (Specify):

PART F - COMMODITY SPILLED OR RELEASED

1. NAME OF COMMODITY SPILLED OR RELEASED:	2. CLASSIFICATION: ☐ Crude Oil ☐ Gas Oil ☐ MVL ☐ Non-MVL	3. TOTAL LOSS BBLS (_) RECOVERED BBLS NET LOSS BBLS	4. WAS THERE A FIRE? YES ☐ NO ☐	5. WAS THERE AN EXPLOSION? YES ☐ NO ☐

PART G - OCCURRED IN LINE PIPE (Answer sections G, H, or I ONLY if it specifically applies to the leak or accident)

1. NOMINAL DIAMETER in.	2. WALL THICKNESS in.	3. SPECIFICATION & GRADE:	4. YEAR OF INSTALLATION Before 1970 (Specify Yr.): ☐ After 1970 (Specify Yr.) ☐	5. TYPE OF JOINT: Weld ☐ Flanged ☐ Threaded ☐ Coupled ☐ Other ☐ _____

6. CONFIGURATION AT POINT OF ACCIDENT: Straight ☐ Sag ☐ Overbend ☐ Sidebend ☐	7. PIPE WAS: Coated ☐ Not Coated ☐	8. PIPE WAS: Above Ground ☐ Below Ground ☐

FIGURE 3-2 - LEAK ACCIDENT REPORT FORM, CONTINUED

PART G - OCCURRED IN LINE PIPE (Answer sections G, H, or I ONLY if it specifically applies to the leak or accident), Continued

9. COVER (if below ground) in.	10. MAXIMUM OPERATING PRESSURE: psig	11. PRESSURE AT TIME & LOCATION OF ACCIDENT psig	12. SYSTEM PRESSURE TEST YES ☐ NO ☐

13. TEST MEDIUM USED; (If item 12, is Yes) Water ☐ Petroleum ☐ Air ☐	14. DURATION OF TEST hrs.	15. MAXIMUM TEST PRESSURE psig	16. DATE OF LATEST TEST

PART H - CAUSED BY CORROSION

1. LOCATION OF CORROSION EXTERNAL ☐ INTERNAL ☐	2. FACILITY COATED: YES ☐ NO ☐	3. FACILITY UNDER CATHODIC PROTECTION? YES ☐ NO ☐	4. TYPE OF CORROSION: GALVANIC ☐ OTHER ☐

PART I - CAUSED BY OUTSIDE FORCES

1. ☐ DAMAGE BY OPERATOR	☐ DAMAGE BY OPERATOR'S CONTRACTOR	☐ DAMAGE BY OTHERS (Name) _____

☐ DAMAGE BY NATURAL FORCES	☐ Washout	☐ Flood	☐ Subsidence	☐ Landslide	☐ Frostheave
☐ EARTHQUAKE	☐ OTHER (Specify)_____				

2. DID EXCAVATOR CALL? YES ☐ NO ☐	3. WAS PIPELINE TEMPORARILY MARKED FOR EXCAVATOR? YES ☐ NO ☐	4. DISTANCE TO NEAREST LINE MARKER: feet

1. DETAILS OF INCIDENT: (Complete description of Cause, Response, Repairs, Affected Area & Land Damages.)
Use back for any additional information

PERSON COMPLETING THIS REPORT (Name):	DATE:

NRC # = 800-424-8802

INITIAL NOTIFICATION OF NRC MUST NOT BE DELAYED PENDING COLLECTION OF ALL INFORMATION.

FIGURE 3-3 - FORM 4004 - RELEASE NOTIFICATION DATA SHEET

Incident Date:		Incident Time:	
Reporters Name:		Reporter's Company:	
		Reporter's Position:	
Reporters Address:		City / State:	
Reporters Phone:		Zip:	
Name of Person who notified the reporter of the incident:			

It is not necessary to wait for all information before calling NRC. National Response Center 1-800-424-8802		
Were Materials Discharged (please circle one)	Yes	No
Calling for Responsible Party (please circle one)	Yes	No

Incident Description				
Facility Name:		Facility Address or driving directions:		
Organization Type:		Facility Latitude/Longitude:		
Responsible Party: (Name of company)		Owner's Address:		2330 Loop 1604 West San Antonio, Texas 78248
Facility Contact Name & Title:		Facility Contact Phone No's	Office	
			Cell	
			Other	

Were Materials Discharged? Y____ N ____	Confidential? Y____ N ____
Meeting Federal Obligations to Report? Y ___ N __	Date Called: _____

Incident Description

Location of Spill:	Source or cause of discharge:		
Material Released:	CHRIS Code:		
Total Quantity Released:	Was surface water impacted by the spill? (yes or no)		
Total Quantity Recovered:	Total quantity into the water:		
Net Loss:	Tank Number (above/below) involved or pipe diameter:		
Container Type (AST/UST):	Tank Capacity (gallons):		
Facility Oil Storage Capacity	Units of Measure:		
Nearest City:	County:	State:	ZIP
Distance from City (in miles):	Direction from City:	Section:	
Township:	Range:	Borough:	

Weather conditions at time of incident (wind, rain, snow, temperature, etc.):		
Was there a fire or explosion involved?	Number of Injuries:	Extent of Injuries if known:
Number of Deaths:	Numbers Evacuated (if any):	
Was there any damage:	Yes / No / Unknown (please circle one)	
	Estimate Dollars of Damage:	Medium Affected:
Description:		
More Information about Medium:		
Additional Information not recorded elsewhere in the report:		

Response Actions

Actions taken to correct, control, or mitigate the incident:	

Notifications

Group or Agency	Persons Notified	Date & Time Notified	Notify By:	Incident No.
NRC				
State Agency				
LEPC - County				
HSE Group:				
Other:				

Original: 10/20/2003 Revised: 3/6/07, 6/14/2007, 2/25/2009, 4/1/2009, 12/17/2012

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

*24-Hour Number

FACILITY RESPONSE TEAM		
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**
Steve Kober Manager Terminal **Qualified Individual**	(503) 286-6732 x7114 (Office) (503) 597-9805 *(Mobile)	2
Don Marti (Operations Supervisor (Portland) **Qualified Individual**	(503) 286-6732 (Office) (b) (6) *(360) 772- 1918 *(Mobile)	1
Todd Clark Terminal Operator **Qualified Individual**	(503) 285-6732 (Office) (b) (6) (503) 969-5173 *(Mobile)	1
Todd Habets Director of Health, Safety and Environmental **Qualified Individual**	(916) 509-3256 (Elk Grove) (Office) (916) 479-6118 *(Mobile)	10
Chad Edinger VP & General Manager West Region **Qualified Individual**	(916) 509-3254 (Elk Grove) (Office) (916) 753-6751 *(Mobile)	10
Jerome Jackson Area Manager **Qualified Individual**	(916) 509-3274 (Office) (916) 317-0799 *(Mobile)	10
Joe Hufman Area Manager Terminal, Pipeline and Distributionn **Qualified Individual**	(916) 509-3272 (Elk Grove) (Office) (310) 427-9785 *(Mobile)	10

Refer to **FIGURE A.2-3** in the Spill Response Plan for personnel training records

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**ICS POSITION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
	(503) 286-6732					

Steve Kober Manager Terminal **Qualified Individual** Â	x7114 (Office) (503) 597-9805 *(Mobile)	2	Incident Commander	x	x	x
Jerome Jackson Area Manager **Qualified Individual** Â	(916) 509-3274 (Office) (916) 317-0799 *(Mobile)	10	Incident Commander	x	x	x

EMERGENCY RESPONSE TRAINING TYPE	
TYPE	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**ICS POSITION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Todd Habets Director of Health, Safety and Environmental **Qualified Individual** Â	(916) 509-3256 (Elk Grove) (Office) (916) 479-6118 *(Mobile)	10	Incident Commander: Deputy Incident Commander: Planing Section Chief; Environmental Unit Leader	x	x	x
Joe Hufman Area Manager Terminal, Pipeline and Distributionn **Qualified Individual** Â	(916) 509-3272 (Elk Grove) (Office) (310) 427-9785 *(Mobile)	10	Incident Commander	x	x	x
EMERGENCY RESPONSE TRAINING TYPE						

TYPE	DESCRIPTION
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	PHONE NUMBER	RESPONSE TIME (hours)	ICS POSITION	RESPONSE TRAINING TYPE[1]		
				1	2	3
Don Marti (Operations Supervisor (Portland) **Qualified Individual** Â	(503) 286-6732 (Office) (b) (6) [redacted] *(360) 772- 1918 *(Mobile)	1	Deputy IC, Safety Officer, Deputy Planning Section Chief, Operations Section Chief	x	x	x
Greg McKinney Director Corporate Safety Â	(806) 371-1311 (Office) (806) 676-2740 *(Mobile)	10		x	x	x

EMERGENCY RESPONSE TRAINING TYPE	
TYPE	DESCRIPTION
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	PHONE NUMBER	RESPONSE TIME (hours)	ICS POSITION	RESPONSE TRAINING TYPE[1]		
				1	2	3
Greg Matula Director, Corporate Communications Â	(210) 918-2318 (Office) (210) 601-3897 *(Mobile)	10	Information & Liaison Officer			
Winnie Kane Â	(916) 509-3268 (Office) (b) (6) (503) 816-9806 *(Mobile)	10	Information Officer / Situation Unit Leader, Deputy Planning Chief	x	x	x

EMERGENCY RESPONSE TRAINING TYPE	
TYPE	DESCRIPTION
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	PHONE NUMBER	RESPONSE TIME (hours)	ICS POSITION	RESPONSE TRAINING TYPE[1]		
				1	2	3
Jerry Stauffer Executive Director HSE Compliance Â	(210) 918-4942 (Office) (210) 957-4849 *(Mobile)	10		x	x	x

Robert Burns Â	(253) 627-5711 (Office) (b) (6) (253) 737-6940 *(Mobile)	2	Air Ops Director, On-Shore Supervisor, Logistics Section Support	x		

EMERGENCY RESPONSE TRAINING TYPE	
TYPE	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**ICS POSITION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Ron Walton VP, Risk Management Â	(210) 918-2258 (Office) (210) 323-9848 *(Mobile)	10	Risk Management	x	x	x
Dan Villarreal Corporate Security Manager Â	(210) 918-2253 (Office) (210) 487-9953 *(Mobile)	10	Security	x	x	x

EMERGENCY RESPONSE TRAINING TYPE	
TYPE	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER

2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE PERSONNEL AND BUSINESS UNIT NOTIFICATIONS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**ICS POSITION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Karen Thompson SVP General Counsel Â	(210) 918-2973 (Office) (210) 241-4800 *(Mobile)	10	Legal			

EMERGENCY RESPONSE TRAINING TYPE	
TYPE	**DESCRIPTION**
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-4 - INTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS, CONTINUED

*24-Hour Number

EMERGENCY RESPONSE CONTRACTORS						
NAME/TITLE	**PHONE NUMBER**	**RESPONSE TIME (hours)**	**RESPONSIBILITY DURING RESPONSE ACTION**	**RESPONSE TRAINING TYPE[1]**		
				1	**2**	**3**
Clean Rivers Cooperative, Inc (Portland Terminal)	(503) 220-2040 (503) 295-3660 (fax)	1				

EMERGENCY RESPONSE TRAINING TYPE

TYPE	DESCRIPTION
1	29 CFR 1910.120 HAZWOPER
2	OPA (Training Reference for Oil Spill Response) All Facility Personnel, SMT, QI Components
3	Qualified Individual/Incident Command Training

Note: Refer to **APPENDIX A** in the Spill Response Plan for training dates.

FIGURE 3-5 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Initial		
National Response Center (PHMSA Only) Within 2 hrs for a reportable pipeline incident or as required by State law. Whichever is sooner.	(800) 424-8802* (202) 267-2675* (202) 267-1322 Fax	
U.S. Environmental Protection Agency, Region X - Spill Response and Investigation/Public Affairs	(206) 553-1263	
Occupational Safety and Health Administration (OSHA), Washington, DC - IMMEDIATE NOTIFICATION IS REQUIRED - For A FATALITY from a work-related injury, or HOSPITALIZATION of three (3) or more employees as a result of a work related incident.	1-800-321-OSHA (6742) - Emergency	
Oregon Department of Environmental Quality (DEQ) Northwest Division (Liaison for Portland area)	(800) 452-4011 In-state (503) 229-5696 (503) 229-5263 NW region (503) 229-5153 headquarters	
Recommended		
Federal Agencies		
Federal Aviation Administration	(866) 835-5322	
National Marine Fisheries Service	(503) 861-1818	
National Oceanic & Atmospheric Administration (NOAA) - Northwest Region	(206) 526-6317* (206) 526-4911 (Emerg. Only) (206) 526-6329 (206) 526-6087 weather	

NOAA Law Enforcement & Mammal Protection	(206) 526-6133	
NOAA National Marine Fisheries Service	(206) 230-5400	
U.S. Coast Guard - Marine Safety Office, Portland, OR	(503) 240-9301 watchstander (503) 240-9362 (503) 240-9379 safety office	
U.S. Fish and Wildlife Service (USFWS), Northeast Regional Office, Hadley, MA	(413) 253-8200 (413) 253-8456 (Fax)	
U.S. Fish and Wildlife Service, Region I	(503) 231-6223	
Washington Department of Ecology	(360) 407-6300	
Washington Department of Fish & Wildlife	(360) 902-2200 (360) 902-2534	
Washington Emergency Management Division	(800) 258-5990	

FIGURE 3-5 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Recommended, Continued		
State Agencies		
Oregon Department of Environmental Quality (DEQ) Spill Prevention and Management Division	(800) 452-0311* (503) 378-6377* (503) 229-6931 (503) 229-5969	
Oregon Department of Environmental, Air Quality Div.	(503) 229-5359	
Oregon Department of Fish & Wildlife Columbia River Management	(503) 657-2000	
Oregon Department of Fish & Wildlife Headquarters	(503) 947-6000	
Oregon Department of Transportation (Highways Division)	(503) 986-4000	
Oregon Emergency Management	(503) 378-2911	
Oregon Health Division	(503) 731-4000	

Oregon State Fire Marshall	(503) 378-3473	
Oregon State Police - Emergency Management Division/Oregon Emergency Response System, Salem, OR	(800) 452-0311 In-state (503) 378-6377 (503) 378-3387 (800) OILS-911 In-state	
Oregon State Police, Portland, OR	(503) 731-3027 (503) 731-3030	
Oregon Steel - Environmental Department	(503) 223-9228 (503) 286-9651	
Seattle Audubon Society	(206) 523-4483	
Local Agencies		
City of Portland - Environmental Services	(503) 823-7180* (503) 323-3398 (503) 823-8805	
Multnomah Co. Emergency Management (LEPC)	(503) 618-2363	
Multnomah Co. Environmental Health	(503) 988-3400	

FIGURE 3-5 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Recommended, Continued		
Local Agencies		
Multnomah Co. Transportation Division	(503) 988-5050	
Port of Portland General Office (not for spill)	(503) 944-7000	
Port of Portland Marine Security	(503) 240-2230	
Portland Water Bureau Repair (pipe burst only)	(503) 823-4874	
St. Helens City Public Works	(503) 397-3532	
Fire Departments		
Portland Fire Department	911* (503) 286-0579	

Emergency Medical Services		
American Medical Response	(503) 282-2232	
Hospitals		
Emanuel Hospital & Medical Center	(503) 413-2200	
Good Samaritan Hospital & Medical Center	(503) 413-7711 (503) 413-7241	
Law Enforcement		
Multnomah Co. Sheriff Department	(503) 255-3600 (503) 243-7952 (River Patrol) (503) 288-6788 (River Patrol)	
Portland Police Bureau	(503) 823-3333	
USCG Classified OSRO's		
Clean Rivers Cooperative, Inc (Portland Terminal) Portland , OR	(503) 220-2040 (503) 295-3660 (fax)	
Neighboring Facilities		
Boise Cascade Paper Division	(503) 397-2900	
Dyno Nobel Chemical - Environmental Department	(503) 397-2225	
Georgia Pacific	(503) 455-2221	

FIGURE 3-5 - EXTERNAL NOTIFICATIONS AND TELEPHONE NUMBERS

*24-Hour Number

AFFILIATION	PHONE NUMBER	TIME CONTACTED
Recommended, Continued		
Neighboring Facilities		
Rainier City	(503) 556-7301	
Newspaper		
Associated Press	(212) 621-1500	
United Press International	(202) 898-8000	

Radio Stations		
KEX Radio	(503) 225-1190	
Television Stations		
KATU Channel 2	(503) 231-4222	
KGW Channel 8	(503) 226-5000 (503) 226-5111	
KOIN Channel 6	(503) 464-0600	
Utilities		
Portland General Electric	(503) 464-7777	
Weather		
Weather Forecast - Portland	(503) 261-9246	
Wildlife Rehabilitation		
International Bird Rescue Center	(707) 207-0380	
Tri-State Bird Rescue	(302) 737-7241 (302) 737-9543 (Main) (800) 710-0695 (Pager) (800) 710-0696 (Pager)	

4.0 RESOURCES

FIGURE 4-1 - EMERGENCY MANAGEMENT TEAM (EMT) ORGANIZATION CHART*

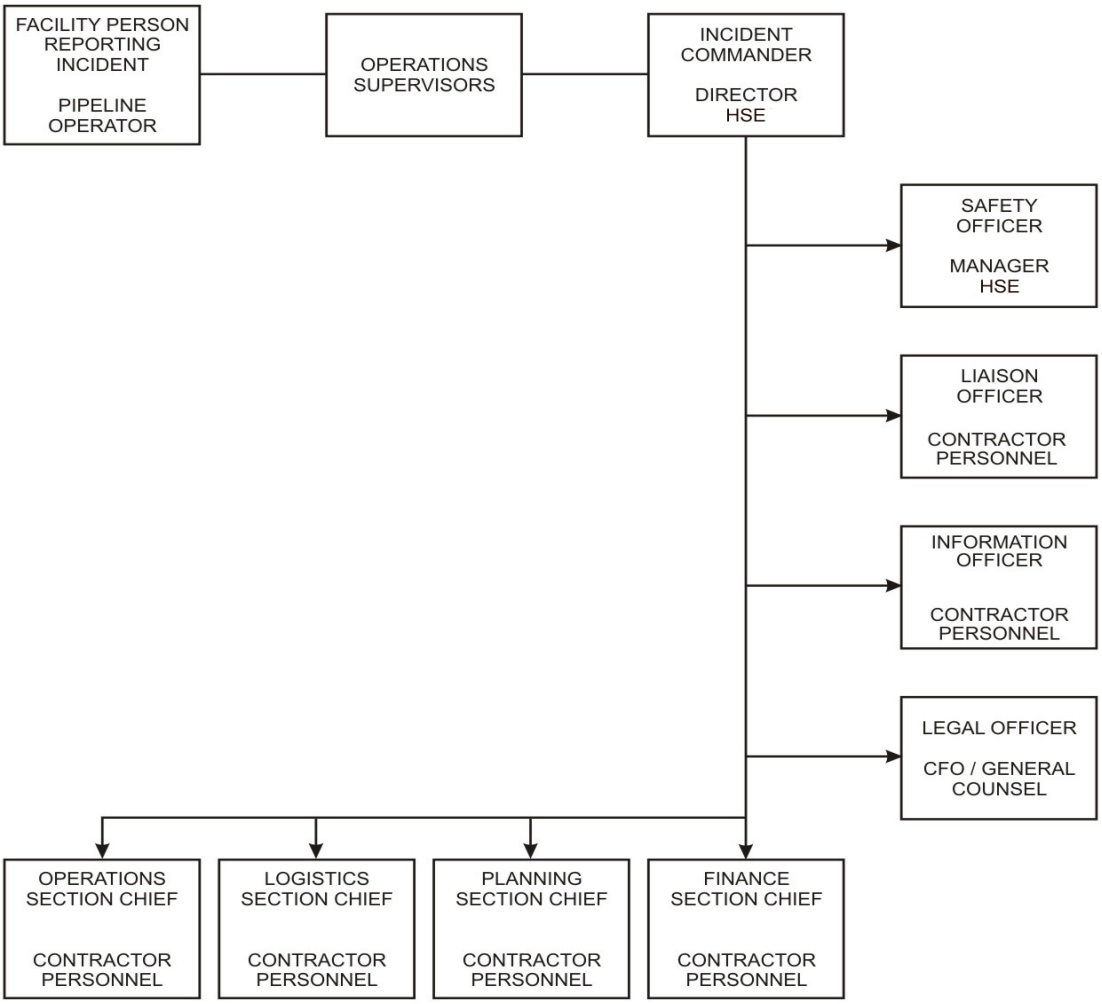


FIGURE 4-2 - FACILITY EQUIPMENT*

BOOM					
TYPE/MODEL/YEAR	QUANTITY	SIZE	CONTAINMENT AREA (sq ft)	STORAGE LOCATION	
Containment Boom/Skirt Type	3,000â€™	18â€		South Dock Float	
Containment Boom/Skirt Type	1,500â€™	18"		South Equipment Shed	
Containment Boom/Skirt Type	1000'	18		Warehouse by North Dock	
SORBENTS					
TYPE/YEAR	QUANTITY	ABSORPTION CAPACITY (gal)	STORAGE LOCATION	OPERATIONAL STATUS	

Pads	10 bags		Warehouse	Operational	
Absorbent Boom	160 feet		Warehouse	Operational	
OTHER					
TYPE/YEAR	QUANTITY	STORAGE LOCATION	OPERATIONAL STATUS		
Work Boat - 22 ft Response Boat / Built 2006	1		Operational		

***Note:** Response equipment is tested and deployed as described in **APPENDIX A** of the Spill Response Plan.

FIGURE 4-3 - REGIONAL COMPANY AND RESPONSE CONTRACTOR'S EQUIPMENT LIST / RESPONSE TIME

*USCG Classified OSRO for facility

COMPANY/CONTRACTOR	EQUIPMENT	RESPONSE TIME
*Clean Rivers Cooperative, Inc (Portland Terminal) Portland , OR	Full Response Capability (The Terminal is an active member of Clean Rivers Cooperative for both aerial oil tracking and wildlife rehabilitation with cooperation from IBRRC.	1 hours

Note: Response equipment is tested and deployed as described in **APPENDIX A** of the Spill Response Plan.

FIGURE 4-4 - EPA REQUIRED RESPONSE EQUIPMENT TESTING AND DEPLOYMENT DRILL/EXERCISE LOG

(Other versions of this form may be used)

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

Item:	Date of Last Update:

ACTIVITY	INFORMATION
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill/exercise date	
Deployment frequency	
OSRO Certification (if applicable)	

5.0 PLOT PLANS / TANK TABLE

FIGURE 5-1 - DRAINAGE DIAGRAM

(Click here for Drainage Diagram)

FIGURE 5-2 - EVACUATION DIAGRAM

(Click here for Evacuation Diagram)

FIGURE 5-3 - TANK TABLE

Container/ Source	Major Type of Failure	(b) (7)(F)	Tank Type	Year Constructed/ Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored
ABOVEGROUND			**,513,984**				
703	Overfill / Rupture / Leakage		IFR	1938		Northeast / Instantaneous	Cutter
1009	Overfill / Rupture / Leakage		IFR	1981		Northeast / Instantaneous	Gasoline/Diesel
1010	Overfill / Rupture / Leakage		IFR	1980		Northeast / Instantaneous	Gasoline/Diesel
1011	Overfill / Rupture / Leakage		IFR	1980		Northeast / Instantaneous	Ethanol / Gasoline
2020	Overfill / Rupture / Leakage		IFR	1935		Northeast / Instantaneous	Gasoline
2021	Overfill / Rupture / Leakage		IFR	1935		Northeast / Instantaneous	Gasoline
2022	Overfill / Rupture / Leakage		IFR	1935		Northeast / Instantaneous	Gasoline
2113	Overfill / Rupture / Leakage		IFR	1938		Northeast / Instantaneous	Bio Diesel
2511	Overfill / Rupture		Cone	1925		Northeast / Instantaneous	MFO

		(b) (7)(F)			(b) (7)(F)		
	/ Leakage						
2512	Overfill / Rupture / Leakage		Cone	1925		Northeast / Instantaneous	MFO
2705	Overfill / Rupture / Leakage		Cone	1980		Northeast / Instantaneous	Diesel
2706	Overfill / Rupture / Leakage		IFR	1980		Northeast / Instantaneous	Gasoline/Diesel
3201	Overfill / Rupture / Leakage		IFR	1979		Northeast / Instantaneous	Ethanol
3203	Overfill / Rupture / Leakage		IFR	1979		Northeast / Instantaneous	Gasoline/Diesel
3204	Overfill / Rupture / Leakage		IFR	1979		Northeast / Instantaneous	Gasoline/Diesel

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, * Not in Containment Area, ** Curbing and containment system

Tank / Roof Type: C=Cylinder, CR=Cone Roof, DW=Double Wall, EFR=External Floating Roof, FG=Fiberglass, GD=Geodesic Dome, H=Horizontal, HSM=Horizontal Skid Mounted, IF=Internal Floater, OOS=Out of Service, OT=Open Top, R=Riveted, S=Steel, SM=Skid Mounted, V=Vertical, W=Welded

FIGURE 5-3 - TANK TABLE , CONTINUED

Container/ Source	Major Type of Failure	(b) (7)(F)	Tank Type	Year Constructed/ Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored
(b) (7)(F)							
3510	Overfill /		IFR	1937		Northeast / Instantaneous	Ethanol

	Rupture / Leakage	(b) (7)(F)			(b) (7)(F)		
3605	Overfill / Rupture / Leakage		Cone	1936		Northeast / nstantaneous	MFO
3614	Overfill / Rupture / Leakage		IFR	1958		Northeast / nstantaneous	Gasoline/Diesel
4402	Overfill / Rupture / Leakage		IFR	1979		Northeast / nstantaneous	Gasoline/Diesel
4507	Overfill / Rupture / Leakage		IFR	1980		Northeast / nstantaneous	Out of Service
5209	Overfill / Rupture / Leakage		IFR	1971		Northeast / nstantaneous	Gasoline/Diesel
5618	Overfill / Rupture / Leakage		IFR	1958		Northeast / nstantaneous	Gasoline
5901	Overfill / Rupture / Leakage		IFR	1929		Northeast / nstantaneous	Gasoline
5902	Overfill / Rupture / Leakage		IFR	1929		Northeast / nstantaneous	Diesel
5919	Overfill / Rupture / Leakage		Cone	1935		Northeast / nstantaneous	Diesel
6408	Overfill / Rupture		IFR	1981		Northeast / nstantaneous	Gasoline/Diesel

	/ Leakage	(b) (7)(F)		(b) (7)(F)		
8006	Overfill / Rupture / Leakage	IFR	1953		Northeast / Instantaneous	Gasoline/Diesel
8007	Overfill / Rupture / Leakage	IFR	1953		Northeast / Instantaneous	Gasoline
8308	Overfill / Rupture / Leakage	IFR	1969		Northeast / Instantaneous	Gasoline/Diesel
1015	Overfill / Rupture / Leakage	one	1938		Northeast / Instantaneous	Out of Service

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, * Not in Containment Area, ** Curbing and containment system

Tank / Roof Type: C=Cylinder, CR=Cone Roof, DW=Double Wall, EFR=External Floating Roof, FG=Fiberglass, GD=Geodesic Dome, H=Horizontal, HSM=Horizontal Skid Mounted, IF=Internal Floater, OOS=Out of Service, OT=Open Top, R=Riveted, S=Steel, SM=Skid Mounted, V=Vertical, W=Welded

FIGURE 5-3 - TANK TABLE , CONTINUED

Container/ Source	Major Type of Failure	(b) (7)(F) (b) (7)(F)	Tank Type	Year Constructed Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored
(b) (7)(F)							
1016	Overfill / Rupture / Leakage		Cone	1938		Northeast / stantaneous	Out of Service
181	Overfill / Rupture / Leakage		Cone			Northeast / stantaneous	Gasoline / Diesel Additive
23	Overfill /		Cone			Northeast / stantaneous	Gasoline / Diesel Additive

	Rupture / Leakage	(b) (7)(F)			Northeast / nstantaneous	
212	N/A		-		Northeast / nstantaneous	N/A
195	N/A		-		Northeast / nstantaneous	N/A
30	N/A		-		Northeast / nstantaneous	N/A
24	Overfill / Rupture / Leakage		Horizontal		Northeast / nstantaneous	Bio Diesel Additive
100026	Overfill / Rupture / Leakage		IF	2007	Northeast / nstantaneous	Gasoline/Diesel
100027	Overfill / Rupture / Leakage		IF	2007	Northeast / nstantaneous	Gasoline/Diesel
Tank 4 (Dryer Storage Tank)	-		-		-	Out of Service
Tank 24 (Empty Rack Additive Tank)	-		-		-	-
Tank 01 (Oil Water Separator Tank)	-		-		-	-
Tank 17	-		-		-	-
Tank 1104	-		-		-	-
(b) (7)(F)						
Tote - Red Dye	Overfill / Rupture / Leakage		Tote		Northeast / nstantaneous	Red Dye

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, * Not in Containment Area, ** Curbing and containment system

Tank / Roof Type: C=Cylinder, CR=Cone Roof, DW=Double Wall, EFR=External Floating Roof, FG=Fiberglass,

GD=Geodesic Dome, H=Horizontal, HSM=Horizontal Skid Mounted, IF=Internal Floater, OOS=Out of Service, OT=Open Top, R=Riveted, S=Steel, SM=Skid Mounted, V=Vertical, W=Welded

FIGURE 5-3 - TANK TABLE , CONTINUED

Container/ Source	Major Type of Failure	(b) (7)(F)	Tank Type	Year Constructed Installed	(b) (7)(F)	Direction of Flow/Rate (See Plot Plan)	Product Stored
(b) (7)(F)							
Tote - Lubricity Additive	Overfill / Rupture / Leakage		Tote			Northeast / Instantaneous	Lubricity Additive
Truck Rack	Hose rupture, overfill		-			Northeast / Instantaneous	Petroleum Products
Loading Arm	Hose rupture, overfill		-			Northeast / Instantaneous	Petroleum Products
(b) (7)(F)							
Transformers (2 ea.)	Leak/ Rupture		-			Northeast / Instantaneous	Lube Oil
(b) (7)(F)			0				
Heating Oil Fuel Tank	Leak/ Rupture		orizontal			Northeast / Instantaneous	Heating Oil
Out of Service Heating Oil Tank	N/A		orizontal			N/A	Out of Service
(b) (7)(F)							

Containment Type: 1=Earthen Berm and Floor, 2=Concrete Berm and Floor, 3=Earthen Berm and Concrete Floor, 4=Metal Berm and Floor, 5=Portable Containment or Inside Building, 6=Double Walled, 7=Coated Asphalt Materials, * Not in Containment Area, ** Curbing and containment system

Tank / Roof Type: C=Cylinder, CR=Cone Roof, DW=Double Wall, EFR=External Floating Roof, FG=Fiberglass, GD=Geodesic Dome, H=Horizontal, HSM=Horizontal Skid Mounted, IF=Internal Floater, OOS=Out of Service, OT=Open Top, R=Riveted, S=Steel, SM=Skid Mounted, V=Vertical, W=Welded

FIGURE 5-4 SITE DIAGRAM

(Click here for Site Plan)

FIGURE 5-4 SITE DIAGRAM

(Click here for Plot Plan)

6.0 ENDANGERED AND THREATENED SPECIES BY STATE

ENDANGERED AND THREATENED SPECIES BY STATE

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Albatross, short-tailed	*Phoebastria (=Diomedea) albatrus*	Pelagic; often in regions of high productivity	E	Oregon
Butterfly, Fender's blue	*Icaricia icarioides fenderi*	Pine barrens and oak savannas on sandy soils	E	Oregon
Chub, Borax Lake	*Gila boraxobius*	Borax Lake, with its highly variable thermal springs	E	Oregon
Daisy, Willamette	*Erigeron decumbens var. decumbens*	Heavy soils in seasonally wet native or dry upland prairie grasslands	E	Oregon
Deer, Columbian white-tailed Columbia River DPS	*Odocoileus virginianus leucurus*	Farmlands, brushy areas, woods, and suburbs and gardens	E	Oregon
Desert-parsley, Bradshaw's	*Lomatium bradshawii*	Open, clay soil bottomland with seasonal standing water	E	Oregon
Fritillary, Gentner's	*Fritillaria gentneri*	Open, somewhat dry, low elevation, mixed oak-madrone woodlands	E	Oregon
Lily, Western	*Lilium occidentale*	Pacific coastal wetlands	E	Oregon
Lomatium, Cook's	*Lomatium cookii*	Bottoms of vernal pools or the tops of the mounds	E	Oregon
Meadowfoam, large flowered wooly	*Limnanthes floccosa grandiflora*	Vernal pools	E	Oregon
Milk-vetch, Applegate's	*Astragalus applegatei*	Flat seasonally moist remnants of alkaline floodplain grasslands of the Klamath Basin	E	Oregon
Popcornflower, rough	*Plagiobothrys hirtus*	Open, moist, poorly drained clay soils	E	Oregon
Rock-cress,	*Arabis*	Rocky serpentine areas	E	Oregon

McDonald's	*mcdonaldiana*			
Salmon, sockeye U.S.A. (Snake River, ID stock wherever found.)	*Oncorhynchus (=Salmo) nerka*	Adult sockeye oceanic; kokanee do best in high, cold, large mountain lakes	E	Oregon
Sea turtle, leatherback	*Dermochelys coriacea*	Warm sands of tropical beaches	E	Oregon
Sucker, Lost River	*Deltistes luxatus*	Deep water lakes and impoundments; deep pools of small to medium rivers	E	Oregon
Sucker, Modoc	*Catostomus microps*	Shallow mud-bottomed pools of cool creeks	E	Oregon
Sucker, shortnose	*Chasmistes brevirostris*	Open waters of large shallow lakes and river channels	E	Oregon

6.0 ENDANGERED AND THREATENED SPECIES BY STATE, CONTINUED

ENDANGERED AND THREATENED SPECIES BY STATE

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Whale, humpback	*Megaptera novaeangliae*	Surface of the ocean	E	Oregon
Whale, killer Southern Resident DPS	*Orcinus orca*	Open ocean and coastal waters	E	Oregon
Wire-lettuce, Malheur	*Stephanomeria malheurensis*	Broad hilltop composed of volcanic tuff	E	Oregon
Wolf, gray Western Distinct Population Segment	*Canis lupus*	Open tundra and forests	E	Oregon
Butterfly, Oregon silverspot	*Speyeria zerene hippolyta*	Coastal salt spray meadows, stabilized dunes, montane meadows	T	Oregon
Catchfly, Spalding's	*Silene spaldingii*	Grasslands intermingled with ponderosa pine woodlands	T	Oregon
Checker-mallow, Nelson's	*Sidalcea nelsoniana*	Moist, open ground, prairie merges with deciduous woodland	T	Oregon
Chub, Hutton tui	*Gila bicolor ssp.*	Springs in the Alkali subbasin	T	Oregon
		Slow-moving pools,		

Chub, Oregon	*Oregonichthys crameri*	sloughs, backwaters, ponds, and reservoirs	T	Oregon
Dace, Foskett speckled	*Rhinichthys osculus ssp.*	Foskett Spring and its outflow; very small springholes and rivulets	T	Oregon
Fairy shrimp, vernal pool	*Branchinecta lynchi*	Ephemeral water of swales and vernal pools	T	Oregon
Four-o'clock, MacFarlane's	*Mirabilis macfarlanei*	Gentle to very steep, open river canyon slopes	T	Oregon
Howellia, water	*Howellia aquatilis*	Bottom sediments of ponds and sloughs	T	Oregon
Lupine, Kincaid's	*Lupinus sulphureus (=oreganus) ssp. kincaidii (=var. kincaidii)*	Remnant upland and wetland prairies	T	Oregon
Lynx, Canada (Contiguous U.S. DPS)	*Lynx canadensis*	Mature forests with dense undergrowth	T	Oregon
Murrelet, marbled CA, OR, WA	*Brachyramphus marmoratus*	Coastal, old-growth forests of the Pacific Northwest	T	Oregon
Owl, northern spotted	*Strix occidentalis caurina*	Forest, woodlands	T	Oregon
Paintbrush, golden	*Castilleja levisecta*	Open grasslands	T	Oregon

6.0 ENDANGERED AND THREATENED SPECIES BY STATE, CONTINUED

ENDANGERED AND THREATENED SPECIES BY STATE

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Plover, western snowy Pacific coastal pop.	*Charadrius alexandrinus nivosus*	Coastal wetlands and coastal dune	T	Oregon
Salmon, chinook fall Snake R.	*Oncorhynchus (=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chinook lower Columbia R.	*Oncorhynchus (=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chinook spring/summer Snake R.	*Oncorhynchus (=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
	Oncorhynchus			

Salmon, chinook upper Willamette R.	*(=Salmo) tshawytscha*	Mainly oceanic, gravel riffles in main streams	T	Oregon
Salmon, chum Columbia R.	*Oncorhynchus (=Salmo) keta*	Coastal waters; enters streams to spawn	T	Oregon
Salmon, coho OR, CA pop.	*Oncorhynchus (=Salmo) kisutch*	Inshore waters at mid-depths or near surface; spawns in coastal streams, sometimes far inland	T	Oregon
Sea turtle, green except where endangered	*Chelonia mydas*	Coasts, open sea	T	Oregon
Sea turtle, loggerhead	*Caretta caretta*	Estuaries, coastal streams and salt marshes	T	Oregon
Sea-lion, Steller eastern pop.	*Eumetopias jubatus*	Coastal waters near shore and over the continental slope	T	Oregon
Steelhead lower Columbia R.	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Steelhead middle Columbia R.	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Steelhead Snake R. Basin	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Steelhead upper Willamette R.	*Oncorhynchus (=Salmo) mykiss*	Small headwater streams, large rivers, lakes, or reservoirs	T	Oregon
Sturgeon, North American green U.S.A. (CA) Southern Distinct Population Segment	*Acipenser medirostris*	Freshwater and Saltwater	T	Oregon
Sucker, Warner	*Catostomus warnerensis*	Spawns over silt-free gravel substrate in low gradient streams	T	Oregon
Thelypody, Howell's spectacular	*Thelypodium howellii spectabilis*	Moist, moderately well-drained, somewhat alkaline meadows	T	Oregon
Trout, bull U.S.A., conterminous, lower 48 states	*Salvelinus confluentus*	Bottom of deep pools in cold rivers and large tributary streams	T	Oregon

6.0 ENDANGERED AND THREATENED SPECIES BY STATE, CONTINUED

ENDANGERED AND THREATENED SPECIES BY STATE

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS	STATE
Trout, Lahontan cutthroat	*Oncorhynchus clarki henshawi*	Inshore marine and estuarine waters; lakes; coastal, inland, and alpine streams	T	Oregon

7.0 VULNERABILITY ANALYSIS (DETAILED)

VULNERABILITY ANALYSIS (DETAILED)
(b) (7)(F)

Residential Areas:
Residential population is thinly scattered throughout the area adjacent to the Facility and downstream along the Willamette and Columbia Rivers and the Multnomah Channel. Farm properties are predominant on Sauvie Island and along the river. Any evacuation efforts for these areas will be coordinated with the local emergency assistance agencies (police department, fire department, etc.).

7.0 VULNERABILITY ANALYSIS (DETAILED), CONTINUED

VULNERABILITY ANALYSIS (DETAILED)
Businesses:
The immediate area surrounding the Facility is for the most part commercialized. It is

unlikely that such businesses would be directly impacted by the spill, although they could be indirectly impacted by interruption of river traffic and perhaps some limited interruptions of highway and rail traffic.

Any evacuation efforts and any highway and rail closures for these areas will be coordinated with the local emergency assistance agencies (police department, fire department, etc.). The USCG and the Port of Portland authorities would control river traffic.

Wetlands or Other Sensitive Environments:

The area surrounding the Facility and the downstream areas of potential impact are highly populated with fish and wildlife and wetlands and other sensitive environments are numerous.

During a response situation the USFWS and applicable state agencies will be contacted for information regarding wetlands and other sensitive environments. Working with those agencies and using the several reference documents that address the treatment of such environments during a spill response, the Company will:

Identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge.

Identify potential environmental effects on fish and wildlife, wetlands, and other sensitive environments resulting from removal actions or countermeasures.

7.0 VULNERABILITY ANALYSIS (DETAILED), CONTINUED

VULNERABILITY ANALYSIS (DETAILED)

Fish and Wildlife:

The area surrounding the Facility and the downstream areas of potential impact are highly populated with fish and wildlife and wetlands and other sensitive environments are numerous.

During a response situation the USFWS and applicable state agencies will be contacted for information regarding wetlands and other sensitive environments. Working with those agencies and using the several reference documents that address the treatment of such environments during a spill response, the Company will:

Identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge.

Identify potential environmental effects on fish and wildlife, wetlands, and other sensitive environments resulting from removal actions or countermeasures.

Lakes and Streams:

Waterways (rivers, creeks, sloughs) that may be potentially impacted by a discharge originating at the Facility are identified on the maps.

During a response situation the USFWS and applicable state agencies will be contacted for information regarding wetlands and other sensitive environments. Working with those

agencies and using the several reference documents that address the treatment of such environments during a spill response, the Company will:

Identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge.

Identify potential environmental effects on fish and wildlife, wetlands, and other sensitive environments resulting from removal actions or countermeasures.

7.0 VULNERABILITY ANALYSIS (DETAILED), CONTINUED

VULNERABILITY ANALYSIS (DETAILED)
Endangered Flora and Fauna:
Endangered flora and fauna that may be potentially impacted by a discharge originating at the Facility are identified in this plan on maps.
Recreational Areas:
The recreational areas that may be potentially impacted by a discharge originating at the Facility are more fully identified on the maps.

7.0 VULNERABILITY ANALYSIS (DETAILED), CONTINUED

VULNERABILITY ANALYSIS (DETAILED)
Transportation Routes (Air, Water, Land):
There are various public roadways and waterways which may be potentially effected by a discharge originating from the Facility. The local emergency assistance agencies (police department, fire department, etc.) and the U.S. Coast Guard and Port of Portland authorities (as applicable) would be contacted for traffic control in the impacted areas.
Utilities:
Some power companies operate power plants and other facilities in the areas potentially impacted by a discharge from the Facility. They would be advised in order to determine possible impact.
Other Applicable Areas:
The Willamette and Columbia Rivers and connecting waterways are bordered by numerous dock facilities, other commercial facilities, and recreational/public use areas. Most of the commercial facilities are up-river along the Willamette where the spill trajectory is possible but unlikely. Any evacuation efforts necessary for these areas will be coordinated with the local emergency assistance agencies (police department, fire department, etc.), State Police, U.S. Coast Guard, and other agencies as the situation demands.

8.0 TACTICAL OVERVIEW MAP

9.0 TACTICAL PLAN INDEX

SITE #	SITE NAME

10.0 TACTICAL PLANS

Click here for Tactical Plan

11.0 SENSITIVITY MAPS

Click here for Index

11.0 SENSITIVITY MAPS

Click here for Introduction

11.0 SENSITIVITY MAPS

Click here for Legend

11.0 SENSITIVITY MAPS

Click here for Map Data

11.0 SENSITIVITY MAPS

Click here for Map 1 of 2

11.0 SENSITIVITY MAPS

Click here for Map 2 of 2

LINK FILES

CLEAN RIVERS
COOPERATIVE, INC.

February 15, 2012

200 SW Market Street, Suite 190
Portland, OR 97201
Phone: (503) 220-2040
Fax: (503) 295-3660

www.cleanriverscooperative.com

Mr. Bill Stowell
NuStar Energy Portland Terminal
9420 NW St. Helens Road
Portland, OR 97231

Re: 2011 PREP Documentation and 2012 Member Verification

Dear Bill,

This letter is to confirm that NuStar Energy Portland Terminal is a member of Clean Rivers Cooperative, Inc. (CRC), and that the cooperative will provide oil containment and recovery services as a qualified Oil Spill Removal Organization (OSRO) according to the terms and conditions outlined in the Membership Bylaws. This letter encompasses OSRO coverage for the 2012 calendar year for the purposes of meeting the requirements set forth in 33 CFR 154.1028, and shall be renewed each calendar year.

As a member of CRC, however, there is no "end date" to your coverage under the Bylaws. Coverage is terminated upon member request or at the discretion of the CRC Board of Directors and Membership. For specific terms of coverage and effective periods, please reference the Bylaws.

CRC additionally confirms that it has met the PREP (Preparedness for Response Exercise Program) requirements for 2011. Through equipment deployments, contractor training, maintenance and actual responses, Clean Rivers has exceeded the minimum representative sample of these equipment deployments and training exercises.

We conduct contractor training on a monthly basis (at a minimum) and membership specific training or spill events as they arise. These trainings involve both classroom and equipment deployment exercises, with the goal of increasing the competency levels of our contracted personnel as well as meets the PREP requirements. Preventative maintenance is done in accordance with the manufacturer's written specification with repairs conducted as needed. Additional training and maintenance records can be made available upon request.

Clean Rivers is located within Sector Columbia River. Our area of interest is the mouth of the Columbia River to River Mile 125, and the Willamette River from its confluence up to Willamette Falls (Zones 1 & 2). Our area of interest also includes our 12- and 24-hour response zones which are the Columbia River from River Mile 125 to its confluence with the Snake River, and the Snake River up to the Idaho border.

Please feel free to contact me should you have any questions. For additional information, please visit us online at www.cleanriverscooperative.com.

Sincerely,
Clean Rivers Cooperative

Ernie Quesada
General Manager

MC

Certificate of Membership

[redacted]
COOPERATIVE, INC.

Issued to:

NuStar Energy Terminals - Portland

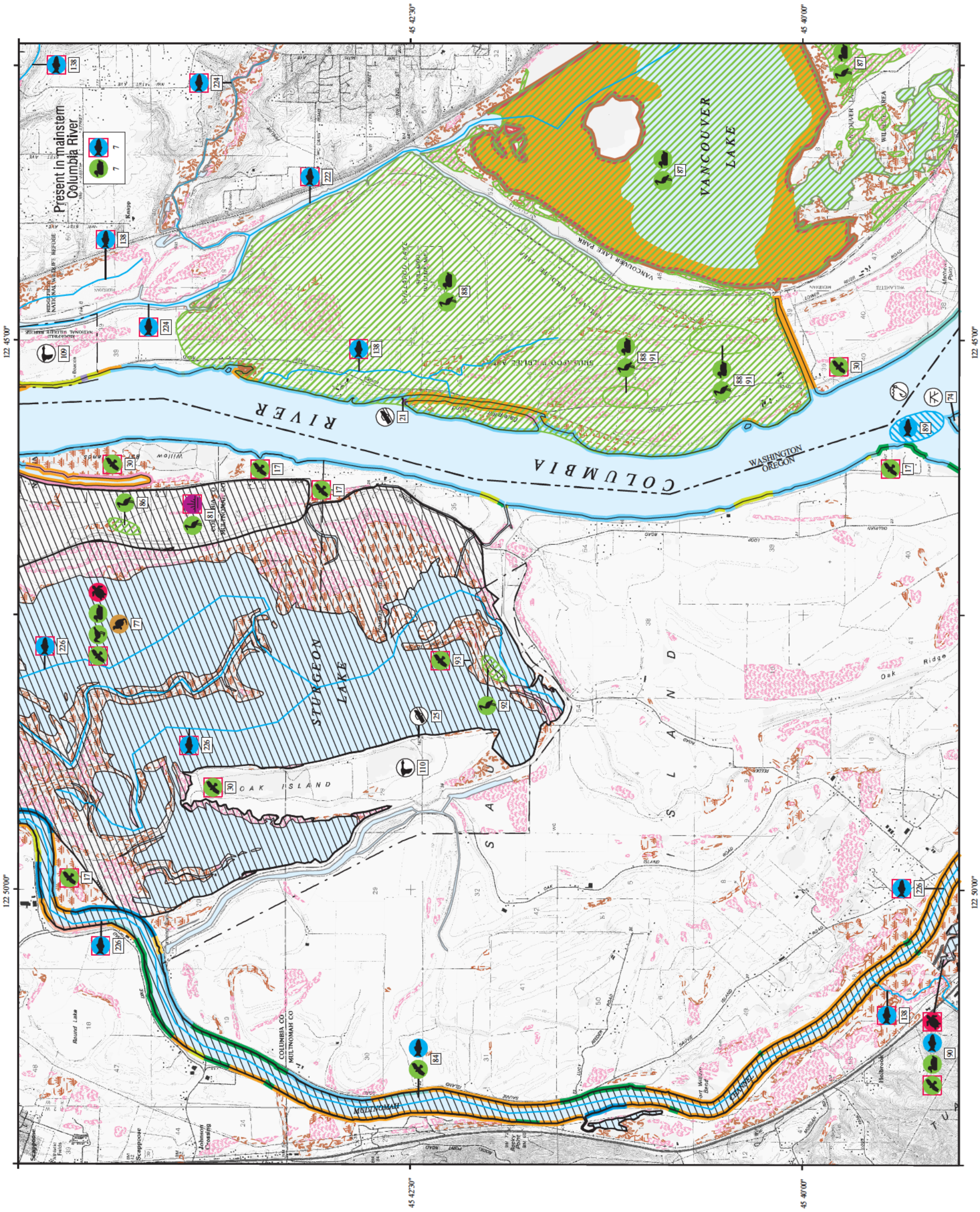
This is to certify that the above named company is a member in good standing of Clean Rivers Cooperative, Inc. and is therefore entitled to all the rights and privileges thereof.

February 15, 2012
Date

Ernie Quesada, General Manager
Clean Rivers Cooperative, Inc.
Portland, Oregon

PHMSA 000068628

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE HABITATS (ESI)

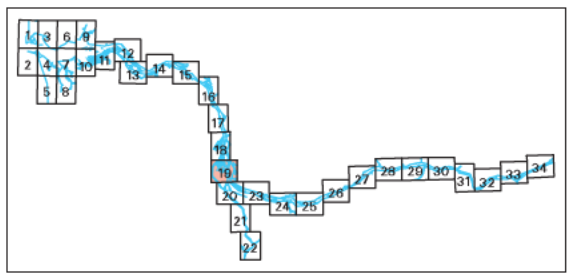
- 1A EXPOSED ROCKY SHORES
  1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
  3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
  9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB-SHRUB WETLANDS

N E S W

SCALE 1:45000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE



Not For Navigation

Published: June 2004

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

Columbia River **ESI-19**

Columbia River: ESIMAP 19

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X								X	X		-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
30	Bald eagle	T	T		2 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
77	Killdeer					X	X			X	X	X	X	X	X	X		-	-	-
	Trumpeter swan					X	X	X	X	X			X	X	X	X		-	-	-
	Tundra swan					X	X	X	X	X			X	X	X	X		-	-	-
	Waterfowl				250000	X	X								X	X		-	-	-
	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds				15000			X	X	X			X	X	X			-	-	-
	Spotted sandpiper					X	X	X	X	X			X	X	X	X		-	-	-
81	Sandhill crane				PRESENT	X	X	X	X	X				X	X	X		-	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
86	Great blue heron				6 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
87	Sandhill crane				100-200	X	X	X	X	X				X	X	X		-	-	-
	Greater white-fronted goose					X	X	X	X	X		X	X	X	X	X		-	-	-
	Ducks				100S	X	X								X	X		-	-	-
	Tundra swan					X	X	X	X	X				X	X	X		-	-	-
	Canada goose				1000S	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
88	Waterfowl				HIGH	X	X								X	X		-	-	-
	Sandhill crane					X	X	X	X	X				X	X	X		-	-	-
	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X								X	X		-	-	-
91	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
92	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
93	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
89	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
224	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

HABITAT:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
81	Water howellia	T	T	WA	PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
77	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
77	Northern river otter				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Beaver				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
21	BOAT RAMP		
25	BOAT RAMP		

PARK:

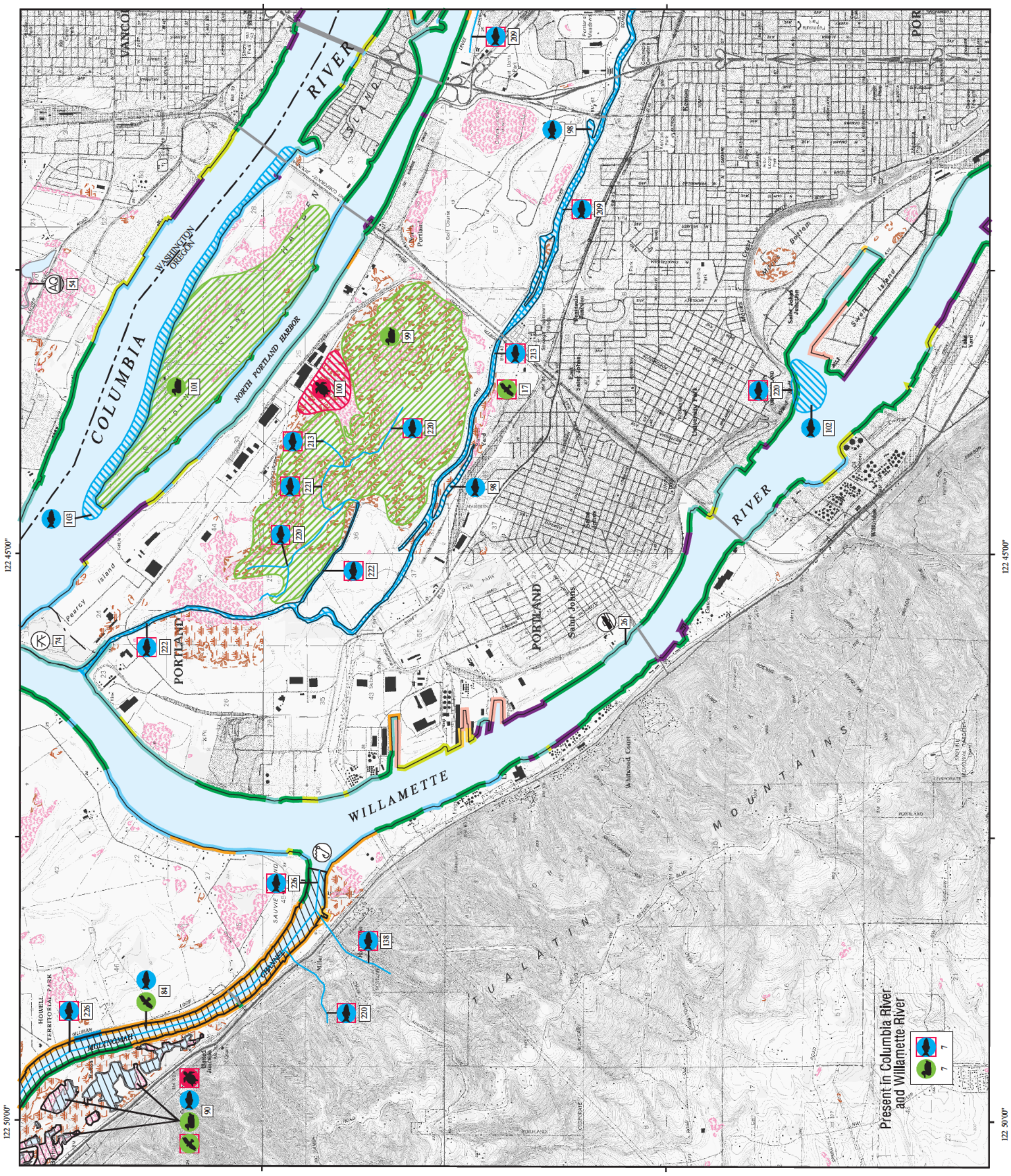
HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

WILDLIFE REFUGE:

HUN#	Name	Contact	Phone
109	RIDGEFIELD NWR	USFWS REFUGE MANAGER	360/887-4106
110	SAUVIE ISLAND WILDLIFE AREA	ODFW	503/621-3488

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

ENVIRONMENTAL SENSITIVITY INDEX MAP



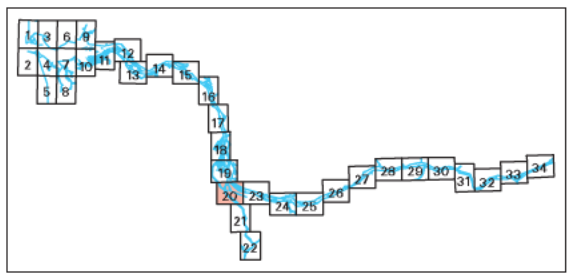
SHORELINE HABITATS (ESI)

- 1A EXPOSED ROCKY SHORES
  1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
  3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
  9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB-SHRUB WETLANDS

SCALE 1:45000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE



Not For Navigation

Published: June 2004

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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

Columbia River **ESI-20**

Columbia River: ESIMAP 20

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X									X	X	-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X									X	X	-	-	-
99	Waterfowl				HIGH	X	X									X	X	-	-	-
101	Waterfowl					X	X									X	X	-	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
98	Common carp					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	White crappie					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Smallmouth bass					X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	-	JAN-DEC
	Walleye					X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	-	JAN-DEC
102	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
103	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
209	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
213	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
220	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
221	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
100	Western painted turtle				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
26	BOAT RAMP		

HATCHERY:

HUN#	Name	Contact	Phone
54	VANCOUVER REGION FIVE OFFICE	WDFW	

PARK:

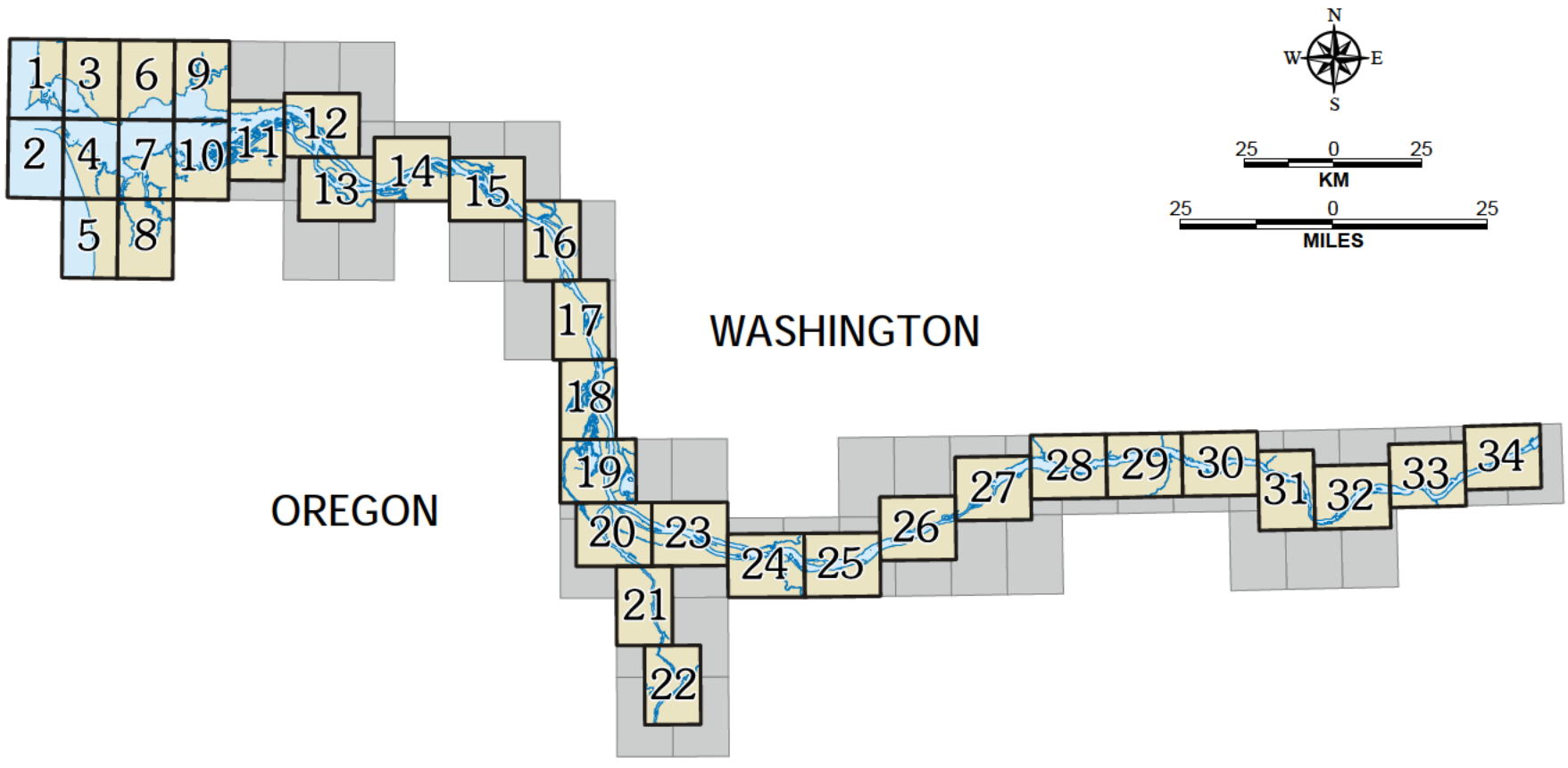
HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Sensitivity of Estuarine and Riverine Environments and Wildlife to Spilled Oil

COLUMBIA RIVER

Atlas



Supported by:

National Oceanic and Atmospheric Administration

National Ocean Service

Coastal Storms Initiative

Office of Response and Restoration
Hazardous Materials Response Division
Seattle, Washington

In cooperation with:

U.S. Fish and Wildlife Service

NOAA Fisheries

State of Oregon

State of Washington

The Columbia River ESI was supported with funds from NOAA's Coastal Storms Initiative. The Coastal Storms Initiative is a nationwide effort led by the National Oceanic and Atmospheric Administration to lessen the impacts to coastal communities from storms.

JUNE 2004

ENVIRONMENTAL SENSITIVITY INDEX: COLUMBIA RIVER

INTRODUCTION

Environmental Sensitivity Index (ESI) maps have been developed for the estuarine and riverine areas of the Columbia River up to the John Day Dam and the Willamette River up to the locks at Oregon City. The ESI maps are a compilation of information from three main categories: shoreline habitats; sensitive biological resources; and human-use resources.

The individual map pages in this atlas are divided according to the U.S. Geological Survey (USGS) topographic quadrangle index. Black and white scanned images of these maps are used as a backdrop for each map page in the atlas. The name and date on the bottom right of each map page refer to the corresponding USGS quadrangle and its publication or latest photorevision date.

SHORELINE HABITAT MAPPING

The shoreline habitats of the Columbia River from the jetties up to the John Day Dam and the Willamette River from its mouth up to Oregon City were mapped during overflights and ground surveys conducted by an experienced coastal geologist in October 2003. The overflights were conducted at elevations of 400-600 feet and slow air speed. During this work, the ESI shoreline classification was denoted directly onto the shoreline depicted on 1:24,000-scale USGS topographic maps. Where appropriate, revisions to the existing shoreline were made and, where necessary, multiple habitats were described for each shoreline segment.

To determine the sensitivity of a particular intertidal shoreline habitat, the following factors are integrated:

1) Shoreline type (substrate, grain size, tidal elevation, origin)
2) Exposure to wave and tidal energy
3) Biological productivity and sensitivity
4) Ease of cleanup

Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affect the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury and ease of cleanup of spilled oil are also important factors in the ESI ranking. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking. The list below includes the shoreline habitats delineated for the Columbia River region, presented in order of increasing sensitivity to spilled oil.

1A) Exposed Rocky Shores
1B) Exposed, Solid Man-made Structures
2A) Exposed Wave-cut Platforms in Bedrock
3A) Fine- to Medium-grained Sand Beaches
3B) Scarps and Steep Slopes in Sand
4) Coarse-grained Sand Beaches
5) Mixed Sand and Gravel Beaches
6A) Gravel Beaches
6B) Riprap
7) Exposed Tidal Flats
8A) Sheltered Rocky Shores
8B) Sheltered, Solid Man-made Structures
8C) Sheltered Riprap
9A) Sheltered Tidal Flats
9B) Sheltered, Vegetated Low Banks
10A) Salt- and Brackish-water Marshes
10B) Freshwater Marshes
10C) Swamps
10D) Scrub-Shrub Wetlands

All of the shoreline habitats are described on pages 7-13 in terms of their physical description, predicted oil behavior, and response considerations.

Wide intertidal habitats, such as rock platforms and tidal flats, were mapped as polygons where appropriate. Only the outer edge of wetland habitats was mapped during the overflights. To provide information on the areal extent of wetlands along the river, wetland polgyons derived from the U.S. Fish and Wildlife Service's National Wetlands Inventory were plotted on the maps. These polygonal wetland types were not checked or edited extensively as a part of this project.

SENSITIVE BIOLOGICAL RESOURCES

Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource experts from Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Oregon State University (OSU), Washington Department of Ecology (WADOE), Washington State Parks (WSP), Oregon State Parks (OSP), Department of the Interior (DOI), Bureau of Land Management (BLM), and the Lower Columbia River Estuary Program (LCREP). Information collected and depicted on these maps denotes the key biological resources that are most likely at risk in the event of an oil spill. Seven major categories of biological resources are included in this atlas: terrestrial mammals, marine mammals, birds, reptiles, fish, invertebrates, and benthic habitats/rare plants.

MARINE MAMMALS
- Pinnipeds

BIRDS
- Diving Birds
- Gulls and Terns
- Passerine Birds
- Raptors
- Shorebirds
- Wading Birds
- Waterfowl

TERRESTRIAL MAMMALS
- Small Mammals
- Ungulates

FISH
- Fish

REPTILES
- Turtles

INVERTEBRATES
- Bivalves
- Crabs

HABITATS
- Floating or Submersed Aquatic Vegetation

TERRESTRIAL MAMMALS

Terrestrial mammals depicted in this atlas include one endangered species as well as several common species. The federally endangered Columbian white-tailed deer (*Odeocoileus virginianus leucurus*) is a prevalent terrestrial mammal in Columbia River estuary. This sub-specie of deer inhabits low-lying mainland areas and islands long the Columbia River from about Skamakowa, Washington, to Port Westward, Oregon. Habitat loss and low productivity have severely reduced the number of deer present and population numbers now range from about 300-500 individuals. The majority of the remaining population inhabits the Julia Butler Hansen National Wildlife Refuge (NWR), which is located in the eastern reaches of the estuary. In addition, areas with highly abundant populations of semi-aquatic fur-bearing mammals, such as the river otter, are also shown on the maps. River otter, mink, beaver, and nutria distributions are based on expert opinion (2004), USFWS maps (1984), and Oil Spill Recovery Plan maps (1979). These distributions are depicted mainly in aquatic habitats such as in or along certain rivers or on islands within the Columbia River mainstem.

The expert contact for the Columbian white-tailed deer is Alan Clark (USFWS) at the Julia Butler Hansen NWR (360-795-3915).

Terrestrial mammals are displayed on the maps as polygons with a brown vertical hatch pattern, or as point occurrences indicated by a small brown dot. In cases where multiple resource types inhabit the same polygon (such as mammals and birds), a black hatch, multi-group pattern is used rather than a brown hatch pattern. A brown icon with a small mammal silhouette is used to indicate the presence of terrestrial mammals and is associated with all polygons or points containing these resources. In the case of the Columbian white-tailed deer, a brown icon with a deer silhouette is used in association with points or polygons containing this species.

The RAR# under the icon (or icon group) on the map references a table on the reverse side of the map. In this table, the first column gives the species name. The second column indicates whether the species is listed as a species of special concern (C), threatened (T), or endangered (E) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentrations for terrestrial mammals were represented with either an estimate of individuals present or, in the absence of specific numbers, by using a descriptive term, such as "present" or "high". "Present" is used for endangered or rare species that were known to occur at a site where more detailed concentration information was not available. Descriptive concentrations are based on the opinion of local resource managers or experts concerning relative concentrations within the study area. In many cases, concentration information is not well known. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an "X" is placed in the month column.

MARINE MAMMALS

Marine mammals depicted in the Columbia River atlas include Steller sea lions (federally threatened), California sea lions, and harbor seals. Seal areas shown on the maps represent major haul-out sites and pupping areas. Of the three pinniped species occurring in the Columbia River, only the harbor seal breeds in the estuary and can be considered a resident. The other two species, California sea lion and Steller sea lion, are migratory and use the estuary seasonally. Haul-out sites for all species have been indicated on the maps as either a point or a polygon. In addition to haul-out areas shown on the maps, harbor seals and California sea lions may be present throughout the estuary and may venture further up river and into some of the tributaries. Harbor seal feeding concentrations are often located in waters adjacent to major haul-out sites, but occur in other areas as well. Information on marine mammal distribution and abundance was provided by ODFW staff and WDFW priority habitat digital data. Though not considered threatened or endangered species, it should be noted that harbor seals and California sea lions are legally protected by the Marine Mammal Protection Act.

Expert contacts for marine mammals in the Columbia River are Robin Brown (ODFW, Corvallis, OR), 541/757-4186; Matthew Tennis (ODFW, Astoria, OR); and Brent Norberg (NOAA, Seattle, WA), 206/526-6733.

The species that were mapped are described below:

Steller sea lion - (Federal threatened, listed 1990)

Steller sea lions are migratory inhabitants of the Columbia River and can be found primarily on the South Jetty in the mouth of the estuary. Most of the Steller sea lions utilizing this haul out are females and young. Relatively few large males are present. Maximum densities of Steller sea lions (80-100) occur in January and through the winter and spring. Few Stellar sea lions are present in the summer and fall.

California sea lion

California sea lions utilize the rocky tip at the South Jetty in the mouth of the Columbia River as their primary haul-out site. They may also be found throughout the estuary and during the winter they are numerous in the upriver portion of the estuary. The use of the river from January through March corresponds to the annual run of smelt, lamprey, and steelhead.

Harbor seal

The harbor seal is the only permanent resident of the Columbia River estuary. Populations fluctuate from about 500 in the summer to 1,500 in the winter with abundances being greatest in the winter and mid-spring. Harbor seals tend to utilize sand bars and rocky islands as haul-out sites and may be present at Desdemona, Taylor, and Miller sands as well as several other locations at low tide.

Marine mammal areas are displayed on the maps as polygons with a brown hatch pattern. In cases where multiple resource types inhabit the same polygon (such as marine mammals and fish), a black hatch, multi-group pattern is used rather than a brown hatch pattern. A brown icon with a seal silhouette is used to indicate the presence of marine mammals and is associated with all polygons containing these resources.

The RAR# under the icon (or icon group) on the map references a table on the reverse side of the map. In this table, the first column gives the species name. The second column indicates whether the species is listed as a species of special concern (C), threatened (T), or endangered (E) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration was represented as the annual peak number of individuals present at a specific haul out site. In the absence of specific numbers, concentration was represented as a descriptive term, such as "high". Descriptive concentrations are based on the opinion of local resource managers or experts concerning relative concentrations within the study area. In many cases, concentration information is not well known. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an "X" is placed in the month column. The final columns list the time periods for sensitive life-history activities, such as mating and pupping.

BIRDS

Birds in this atlas are divided into several species subgroups based on taxonomy, morphology, behavior, and oil spill vulnerability and sensitivity. The species table lists all the birds included on the maps, sorted by subgroup. These species are included either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as threatened or endangered. Migratory or wintering concentration areas, nesting sites and colonies, and protected species are especially emphasized. Waterfowl, shorebird, and wading bird data were compiled from various reports and information provided by USFWS, ODFW, and adapted from WDFW digital priority habitat data. Also, data on Caspian terns and other seabirds were derived from the Columbia River Bird Research 2003 Season Summary (Roby et al. 2001).

Eagle nests and feeding areas - (Federal/state threatened)

Nesting locations for bald eagles are shown. These data are a compilation of surveys conducted over a 20-year period by OSU. Only nests that have been active within the last five years were included on the maps. Exact nest sites may vary from year to year. Bald eagle nest locations are shown as green points on the maps. These points may or may not indicate the exact position of the nests in order to protect sensitive nesting locations. Where multiple nests were found in the same location, a polygon was used to show the distribution of those nests. Locations are also shown where bald eagles have been documented as being present in high numbers feeding along rivers and in bays. Information on raptor feeding areas was gathered during interviews with ODFW and NOAA staff.

Terns and diving bird nesting and roosting

Locations are shown on the maps where terns and diving birds have been documented as nesting. Of particular note is East Sand Island in the Columbia River estuary, which supports the largest breeding colony of Caspian terns in the world (~9,900 pairs, Collis et al. 2002). This island also provides breeding habitat for the largest known Pacific coast colony of double-crested cormorants (~8,700 pairs) and large numbers of Brandt's cormorants (40-80 pairs). It is the largest nighttime roost for the brown pelican (federally endangered) (>10,000 individuals). Several additional islands and nearshore areas within the estuary also support large numbers of nesting and migrating terns and diving birds. Users should be aware that seabirds may be feeding and rafting in nearshore areas throughout the estuary in the vicinity and up to several miles away from their nests. During a spill, the experts listed below should be contacted for information on current locations.

Waterfowl

Waterfowl are seasonally abundant throughout the Columbia River during the fall and winter months. Locations are shown where waterfowl are nesting and feeding along the river as determined by expert opinion from ODFW, USFWS, and NOAA staff, as well as WDFW priority habitat data. USFWS waterfowl data were derived from aerial surveys conducted annually. Intertidal marshes and agricultural areas in the lower river provide key habitat for an abundance of waterfowl including mallards, northern pintails, wigeons, Canada geese, scaup, and scoters. These species also tend to utilize small embayments and coves along the Columbia River, as well as areas within the mainstem, as feeding and resting areas. Waterfowl species of particular concern include the dusky Canada goose and the Aleutian goose (federally threatened).

Wading bird roosting/nesting

Nesting and roosting locations for wading birds are shown on the maps. Nesting sites for wading birds such as the great blue heron were generally depicted on the maps as large polygons to protect the exact location of sensitive breeding areas. Roosting and foraging sites for the sandhilll crane (Washington state endangered) are also indicated on the maps. Sandhill cranes utilize open wetlands for roosting and are especially prevalent in the Ridgefield NWR Complex and the Sauvie Island Wildlife Management Area (Engler et al., 2004). Data concerning wading bird roosting, foraging, and nesting locations were compiled from expert information gathered from USFWS and ODFW staff and adapted from WDFW priority habitat digital data.

Migratory shorebird stopover

Areas where large concentrations of migratory shorebirds occur annually during the spring and fall months are indicated on the maps. During these months, several species of shorebirds utilize the Columbia River as a stopover in their migratory route including dunlin, sanderlings, sandpipers, and others. Substantial numbers of shorebirds may also overwinter in the estuary. Information on the locations of shorebird concentration areas was based on USFWS maps and expert information received from NOAA and USFWS staff.

Expert contacts for birds are Frank Issacs (bald eagles, OSU, Philomath, OR) 541/929-7154; Herman Biederbeck (ODFW, Tillamook, OR) 503/842-2741; Keith Kohl (ODFW, The Dalles, OR) 541/296-4628; Dan Roby (seabirds, OSU) 541/737-1955; Alan Clark (USFWS, Julia Butler Hansen NWR, Cathlamet, WA) 360/795-3915; Eric Anderson (USFWS, Ridgefield NWR complex) 360/887-

3883; and Mark Nebeker (ODFW, Sauvie Island Wildlife Area) 503/621-3488 ext. 25.

Birds are shown on the maps as polygons with a green hatch pattern. Nesting colonies are shown as green points or polygons in cases where multiple nests may extend over a wider area. The points may not necessarily be in the exact location of the nesting colonies. In cases where multiple resource types occupy the same polygon (such as birds and marine mammals), a black hatch, multi-group pattern is used rather than a green hatch pattern. A green icon (or icons) with the appropriate subgroup silhouette(s) is used to indicated the presence of different bird types (waterfowl, shorebirds, etc.). The appropriate icons are associated with all polygons containing birds.

The RAR# under the icon (or icon group) on the maps references a table on the reverse side of the map. In this table the first column contains the species common name. The second column indicated whether the species is listed as a species of special concern (C), threatened (T), or endangered (E) on the federal (F) list. The next column provides an estimate of the concentration of the species at the site. Concentration is usually represented by number of birds, although the term "high" may be used when an exact number is not known. Concentration numbers, when reported, are represented as the annual peak number of individuals present at a specific location. In some cases, concentration values have not been used if information was not available. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column. The last three columns denote the migratory or nesting seasonality, if applicable, for each species.

REPTILES

Few reptiles of concern are found along the Columbia River. The common western painted turtle is present in many areas along the river. In addition, the western pond turtle (Washington state endangered) has been released into several areas in an attempt to augment declining populations in the area. Nesting and foraging areas for the western pond turtle were determined based on expert knowledge and information provided by local USFWS staff.

The expert contact for the western pond turtle is Eric Anderson (USFWS, Ridgefield, WA) 306/887-3883.

Reptiles are depicted as polygons with a red hatch pattern. In cases where multiple resources types occupy the same polygon, a black hatch, multi-group pattern is used rather than a red hatch polygon. A red icon with a turtle silhouette is used to indicate the presence of reptiles and is associated with all polygons containing these resources.

The RAR# under the icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as a species of special concern (C), threatened (T) or endangered (E) on the federal (F) and/or state (S) lists. The next column provides an estimate of the concentration of the species at the site. Concentration is listed as "high" for areas of known usage by the western pond turtle. In some cases, concentration values have not been used because information was not available. Note that concentration should not be interpreted as the "level of concern" of "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column.

FISH

Fish species depicted for Columbia River include selected estuarine, anadromous, and freshwater species. Species of commercial, recreational, ecological, and/or conservation interest are emphasized. Fish are mapped as multi-species assemblages to the greatest extent possible. Regional fish distributions were depicted with the assistance of ODFW, WDFW, and NOAA fish biologists.

Anadromous fish

Wild and hatchery-raised stocks of anadromous fish are major components of the freshwater ecosystem of the Columbia River. Chinook, chum, Coho, and sockeye salmon, rainbow trout (steelhead), and others are present in the area and utilize tributary rivers and streams along the Columbia River, as well as some areas in the mainstem, as spawning grounds. When adult fish return to their natal streams, they tend to concentrate at stream mouths prior to moving upstream. Most spawning beds are well upstream in the tributaries and are beyond the limit of tidal excursions that could carry oils slicks inland. In contrast, juvenile salmon and other fish species may concentrate in shallow, near shore habitats in the mainstem river and are likely to be impacted during a spill.

Within the Columbia River, several of the anadromous fish species have federal or state listed runs (e.g., Snake River fall Chinook run). The specific runs and their associated state or federal listings are presented in Table 1. Anadromous stream location for each fish species was depicted on the maps from data compiled by NOAA from ODFW, WDFW, and Streamnet digital data. Other areas of high concentrations of juvenile and adults in the mainstem river were identified by ODFW, USFWS, and NOAA staff. A review of selected species utilizing the Columbia River is presented below. Note that life history and seasonal presence for the following species is generalized for the entire Columbia River and local biologists should be consulted for exact run timings.

Chinook salmon

Three runs of Chinook salmon (*Oncorhynchus tshawytscha*) return to the lower Columbia River including spring Chinook, "tule" fall Chinook, and "bright" fall Chinook. Spring Chinook generally return to freshwater in March and April and spawn in the late summer. Spring Chinook juveniles migrate to the ocean after rearing in the river for one year. The distinction between the fall runs of Chinook refers to the timing of spawning. Both types of fall Chinook return to the Columbia River from August to October/November. However, "tule" fall Chinook spawn almost immediately in large tributary mainstems, while the "brights" spawn from November to January farther upriver. Juveniles for both types of fall Chinook migrate downstream as sub-yearlings during their first spring and summer. For the purposes of simplification on these maps, the two fall runs are treated as one. Several of the Chinook salmon runs are federally or state listed, and a review of those species can be found in Table 1.

Rainbow trout (Steelhead)

Similar to the Chinook salmon, the rainbow trout (Steelhead) (*Oncorhynchus mykiss*) has both summer and winter runs. Summer Steelhead typically enter the Lower Columbia River between May and October and spawn between February and April. In contrast, winter run Steelhead return from the ocean between December and May and generally spawn in April and May. Juveniles of both runs may rear in freshwater from 1 to 4 years before returning to the ocean. Several of the Steelhead runs are federally or state listed, and a review of those species can be found in Table 1.

Chum Salmon

Chum salmon (*Oncorhynchus keta*) return to the Columbia River to spawn from September through November. Most spawning occurs in the lower portions of the Columbia River tributaries and in some portions of the mainstem river. Chum fry migrate downstream to the ocean immediately after emergence from spawning beds. Annual runs of Chum have declined dramatically and now average only 4,000 fish, about 3% of the historic run size. All populations of Chum were listed as threatened in 1999 (Table 1). Hardy, Hamilton, and Ives Island areas in the mainstem river near Pierce NWR retain some of the last remaining Chum spawning grounds in the lower Columbia River, thus care should be taken to protect these areas in the event of an oil spill.

Coho salmon

Coho salmon (*Oncorhynchus kisutch*) return to the Columbia River as three year olds during the fall with most spawning for this species occurring in September and October. Juvenile Coho will rear for one year in the river prior to migrating to the ocean. Coho salmon are currently a candidate species under review for listing under the Endangered Species Act (Table 1.). Most Coho salmon present in the Columbia River are hatchery raised and released fish. Wild populations are generally believed to have been extirpated or to consist of no more than a few hundred fish.

Sockeye salmon

Sockeye salmon (*Oncorhynchus nerka*) return to the Columbia River at 3-5 years of age in June and July. Peak spawning months for this species are September and October. Juvenile Sockeye generally rear for one full year in freshwater lakes before migrating to the ocean. Sockeye salmon have declined dramatically in recent years from historic levels, and a portion of the Sockeye run was listed as endangered in 1991 (Table 1).

Sturgeon

Two species of sturgeon occur in the Columbia River, white sturgeon (*Acipenser transmontanus*) and the green sturgeon (*A. medirostris*). Both species are considered to be facultatively anadromous with the ability to live in both fresh and saltwater, but with no requirement for marine residence in their life history. Green sturgeon generally do not range far upstream from the estuary, while the white sturgeon is distributed throughout the Columbia River from the mouth to the John Day dam. The lower Columbia River below Bonneville Dam exhibits the most highly productive populations of white sturgeon on the entire west coast.

Expert contacts for anadromous and warm water fish in the area include Steve Stone (NMFS, Portland, OR) 503/231-2317; Ben Meyer (NMFS, Portland, OR) 503/230-5425; Steve Pribyl (ODFW, The Dalles, OR) 503/296-4628; Thomas Stahl (ODFW, Willamette

River, OR) 503/657-2000 ext. 231; John North (ODFW, Clackamas, OR) 503/657-2000 ext.251; Tom Rien (ODFW, Clackamas, OR) 503/657-2000 ext. 404; Wayne van der Naald (ODFW, Clackamas, OR) 503/657-2000 ext. 237; and Dan Guy (NOAA, Lacey, WA) 360/534-9342.

Fish are generally shown on the maps as polygons with a blue hatch pattern. Anadromous streams were depicted as linear features using a bright blue color readily distinguishable from the light blue color and black outline used for general hydrographic features. In cases where multiple resource types occupy the same polygon (such as fish and waterfowl), a black hatch, multi-group pattern is used rather than a blue hatch pattern. A blue icon with a fish silhouette is used to indicate the presence of fish. This icon is associated with all polygons or arcs containing fish.

The RAR# under the icon or icon group references a table on the reverse side of the map. In this table, the first column gives the species name. The second column denotes whether the species has been designated a species of special concern (C), endangered (E), or threatened (T) on either the state (S) and/or federal (F) lists. For anadromous salmon species an asterisk (*) appears on the data table. For those species refer to Table 1 below for detailed status information. The next column provides an estimate of the concentration of the species at the site. Descriptive terms such as "high" were used in most cases based upon information provided by ODFW and USFWS staff and adapted from WDFW priority habitat data. Concentration values were not used when no information was available.

The seasonality for each species or resource is shown in the next twelve columns corresponding to the months of the year. If a species or resource is present at a location in a particular month an "X" is placed in the month column. The last column denotes different life-history stages or activities including spawning, eggs, larvae, juveniles, and adults.

TABLE 1. Anadromous fish present in the Columbia River and its tributaries. Specific runs are classified as threatened (T), endangered (E), or candidate (Cand.) on either the federal and/or state (Washington, WA; Oregon, OR) level where applicable. The date of listing through the Endangered Species Act (ESA) is also given. S-C=Sensitive-Critical, S-V=Sensitive-Vulnerable, NL=Not listed.

Anadromous Fish	OR	WA	Federal (ESA)	ESA Year Listed
Chinook Salmon (Fall and Spring)				
Lower Columbia R. ESU	S-C	Cand.	T	1999
Upper Willamette R. ESU spring run	T	NL	T	1999
Upper Columbia R. spring run ESU	NL	Cand.	E	1999
Snake R. fall run ESU	T	Cand.	T	1992
Snake R. spring/summer run ESU	T	Cand.	T	1992
Rainbow Trout (Steelhead) (Winter and Summer)				
Lower Columbia R. ESU	S-C	Cand.	T	1998
Middle Columbia R. ESU	S-C	Cand.	T	1999
Upper Columbia R. ESU		Cand.	E	1997
Upper Willamette R. ESU winter run	S-C	NL	T	1999
Snake R. basin ESU	S-C	Cand.	T	1999
Sockeye Salmon				
Snake River ESU	NL	Cand.	E	1991
Coho Salmon				
Lower Columbia R./SW Wash. ESU	E (OR)	NL	Cand.	1995
Chum Salmon				
Columbia River ESU	S-C	Cand.	T	1999
Bull Trout				
Bull Trout-Columbia River Basin	S-C	NL	T	1998
Smelt (Euchalon)	NL	Cand.	NL	
White Sturgeon	NL	NL	NL	
Green Sturgeon	NL	NL	NL	

INVERTEBRATES

Invertebrate species of commercial, subsistence, recreational, ecological, and/or conservation interest are emphasized in this atlas and include crabs, clams, and mussels. Invertebrate distributions are based on information supplied by ODFW staff and WDFW priority habitat data.

The expert contact for invertebrates/shellfish in the Columbia River estuary is Matthew Hunter (ODFW, Astoria, OR) 503/325-2462.

Invertebrates are shown on the maps as polygons with an orange hatch pattern. An orange icon with a crab or bivalve silhouette is used to indicate the presence of these species. The icons are associated with all polygons or point features containing invertebrates.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Descriptive terms such as "high" were used in most cases based upon information provided by ODFW staff and WDFW priority habitat data. Concentration values were not used when no information was available.

The seasonality for each species or resource is shown in the next twelve columns corresponding to the months of the year. If a species or resource is present at a location in a particular month an "X" is placed in the month column. The last column denotes different life-history stages for invertebrates including spawning, eggs, larvae, juveniles, and adults.

BENTHIC HABITATS/RARE PLANTS

Eelgrass beds were mapped in the Columbia River estuary using expert opinion of NOAA and ODFW staff in conjunction with USFWS maps. Areas of concern for eelgrass include Grays Bay, Youngs Bay, and Bakers Bay in the estuary. Additional eelgrass beds may be present in other areas within the estuary.

Individual plant species of particular concern depicted on the maps include the wetland species water howellia (*Howellia aquaticus*) (federal threatened) and Columbia yellow cress (*Rorippa columbiae*) (Washington State threatened). Water howellia occurs in the western wetland habitats of Ridgefield NWR while the Columbia yellow cress occurs in the seasonally inundated cobble habitats near Pierce NWR. Both species were mapped using maps provided by USFWS through the Ridgefield National Wildlife complex. Care should be taken in the event of a spill to prevent impacts to these species from oil as well as trampling during periods of annual growth.

The expert contact for water howellia and Columbia yellow cress is Eric Anderson (Ridgefield, WA) 360/887-3883.

Submersed habitats and rare plants are depicted as polygons shaded with a purple hatch pattern. In cases where multiple resource types occupy the same polygon (such as eelgrass and fish), a black hatch, multi-group pattern is used rather than a purple hatch polygon. A purple icon with the appropriate silhouette is used to indicate the presence of submersed habitats or plants and is associated with all polygons or point features containing these resources. The RAR# under the icon references a table on the reverse side of the map. In this table, the first column gives the species name. The next column provides an estimate of the concentration of the species at the site. Concentration is generally listed using a descriptive term, such as "high," "medium," or "low." Records for rare and endangered species may also contain "present" in the concentration field where more detailed concentration descriptions are not appropriate or not available. The species seasonality is shown in the next twelve columns, representing the months of the year. If the species is present at that location in a particular month, an "X" is placed in the month column. Submersed habitats and rare plants were mapped as being present year round.

HUMAN-USE FEATURES

The human use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations. All the features are represented by icons indicating the type of human-use resource present. Many of the point features were mapped using digital data sources, expert information, published sources, and USGS topographical maps. Boat ramps and marina locations were supplemented by information gathered from the shoreline mapping overflights. Hardcopy maps were used to supplement or refine the digital management area data.



Aquaculture/Hatchery: Locations of aquaculture sites. When known, the site name, owner/manager, and contact information are provided on the data tables for each map. This information was provided by ODFW and WDFW staff.

Boat Ramp: Location of boat ramps. Boat ramp site names are provided on the data tables for each map, when available.

Coast Guard: Coast Guard station and marina.

Ferry: Sites where ferry landings are located.

Lock/Dam: Location of locks, dams, or similar structures.

Marina: Location of marinas. Marina names are provided on the data tables for each map, when available.

National Forest: Areas managed by USDA Forest Service.

Park: Areas managed by either Oregon State Parks or Washington State Parks for recreational and natural resource purposes. The property name, management agency, contact information, and telephone number are provided on the data table for each map.

Recreational Fishing: Location of recreational fishing sites. This information was provided by local experts.

Subsistence Fishing: Areas utilized by native Americans in Oregon and Washington for the collection of fish and shellfish.

Water Intake: Location of water intake. For most water intakes, the site name, owner/manager, contact person, and telephone number are provided on the data table for each map.

Wildlife Refuge/Management Areas: Areas managed by the USFWS as National Wildlife Refuges or by the State as Wildlife Management Areas. The property name, management agency, contact information, and telephone number are provided on the data table for each map.

GEOGRAPHIC INFORMATION SYSTEM

The entire atlas product is stored in digital form in a Geographic Information System (GIS) as spatial data layers and associated databases. The format for the data varies depending on the type of information or features for which the data are being stored.

Under separate cover is a metadata document that details the data dictionary, processing techniques, data lineage, and other descriptive information for the digital data sets and maps that were used to create this atlas. Below is a brief synopsis of the information contained in the digital version. Refer to the metadata file for a full explanation of the data and its structure.

SHORELINE CLASSIFICATIONS

The ESI shoreline habitat classification is stored as lines and polygons with associated attributes. In many cases, a shoreline may have two or three different classifications or colored lines on the shoreline. These multiple classifications are represented on the maps by double and triple line patterns and in the database by ESI#1/ESI#2, where ESI#1 is the landward-most classification and ESI#2 is the seaward-most classification. In addition to the line features, exposed wave-cut platforms (ESI = 2A), tidal flats (ESI = 7, ESI = 9A), marshes (ESI=10A, ESI=10B), swamps (ESI=10C), and Scrub-Shrub Wetlands (ESI = 10D) are also stored as polygons. Therefore, the legend on each map may contain two patterns depicted on a map: a linear feature as well as a polygonal feature.

SENSITIVE BIOLOGICAL RESOURCES

Biological resources are stored as polygons or points. Associated with each feature is a unique identification number that is linked to a series of data tables that further identify the resources. The main biological resource table consists of a list of species identification numbers for each site, the concentration of each species at each site, and identification codes for seasonality and source information. This data table is linked to other tables that describe the seasonality and life-history time-periods for each species (at month resolution) for the specified map feature. Other data tables linked to the first table include: the species identification table, which includes common and scientific names; the species status table, which gives information for state and/or federal threatened or endangered listings; and the source database, which provides source metadata at the feature-species level (specific sources are listed for each species occurring at each mapped feature in the biology coverages).

HUMAN-USE FEATURES

Human-use features are represented as lines, points, or polygons. The resource name, the owner/manager, a contact person, and phone number are included in the database for management areas, water intakes, marinas, and aquaculture sites when available. All metadata sources are documented at the feature level.

REFERENCES

Listed below are the major hardcopy reference materials used during this project. In some instances, reference materials were not directly used as source materials, but were instead used or interpreted by scientists or resource managers who provided expert knowledge or personal communication concerning resources depicted in the atlas.

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Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), the National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Oregon State University (OSU), Washington State Parks (WSP), Oregon State Parks (OSP), Washington Department of Ecology (WADOE), Department of the Interior (DOI), the Bureau of Land Management (BLM), and the Lower Columbia River Estuary Program (LCREP) staff from several divisions and programs contributed a vast amount of information to this effort, including first-hand expertise, publications, reports, maps, and digital data. Specific individuals and references used directly as source material are detailed in the metadata report that accompanies the digital data set. At Research Planning, Inc. (RPI) of South Carolina, numerous scientific, GIS, and graphics personnel were involved with different phases of the project. Shoreline habitat mapping was conducted by Colin Plank. The biological and human-use data were collected, compiled, and edited by Amy Gras-Mead and Christine Lord. Jon Whitlock, Lee Diveley, and Chris Locke entered, processed, and produced the GIS data under the supervision of Mark White, GIS director. Cartographic design and graphic art production was provided by Joe Holmes. Vermell Simon and Wendy Early prepared the final text documents and metadata.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural and human-use resources for the purposes of oil and hazardous materials spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held by WDFW, ODFW, USFWS, NOS, NMFS, BLM, or other agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural and cultural resource agencies, or in place of field surveys. This atlas should not be used for navigation.

SPECIES LIST

*Common Name	*Species Name

MARINE MAMMALS

PINNIPED

Steller sea lion	*Eumetopias jubatus*
Harbor seal	*Phoca vitulina*
California sea lion	*Zalophus californianus*

TERRESTRIAL MAMMALS

SMALL MAMMAL

Northern river otter	*Lutra canadensis*
Beaver	*Castor canadensis*
Muskrat	*Ondatra zibethicus*
Mink	*Mustela vison*
Nutria	*Myocastor coypus*

UNGULATE

Columbian white-tailed deer	*Odocoileus virginianus leucurus*

BIRDS

DIVING BIRDS

Western grebe	*Aechmophorus occidentalis*
Double-crested cormorant	*Phalacrocorax auritus*
Brandt's cormorant	*Phalacrocorax penicillatus*
Pelagic cormorant	*Phalacrocorax pelagicus*
Brown pelican	*Pelecanus occidentalis*
Loons	*Gavia spp.*
Grebes	

GULLS AND TERNS

Glaucous-winged gull	*Larus glaucescens*
Western gull	*Larus occidentalis*
Ring-billed gull	*Larus delawarensis*
Caspian tern	*Sterna caspia*
Gulls	

PASSERINES

Purple martin	*Progne subis*

RAPTORS

Bald eagle	*Haliaeetus leucocephalus*
Osprey	*Pandion haliaetus*
Peregrine falcon	*Falco peregrinus*
Goshawk	*Accipiter gentilis*
Turkey vulture	*Cathartes aura*

SHOREBIRDS

Spotted sandpiper	*Actitis macularia*
Dunlin	*Calidris alpina*
Western sandpiper	*Calidris mauri*
Sanderling	*Calidris alba*
Killdeer	*Charadrius vociferus*
Shorebirds	

WADING BIRDS

Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Green heron	*Butorides virescens*
Sandhill crane	*Grus canadensis*
Wading birds	

WATERFOWL

Tundra swan	*Cygnus columbianus*
Canada goose	*Branta canadensis*
Greater white-fronted goose	*Anser albifrons*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Green-winged teal	*Anas crecca*
Canvasback	*Aythya valisineria*
Common goldeneye	*Bucephala clangula*
Harlequin duck	*Histrionicus histrionicus*
White-winged scoter	*Melanitta fusca*
Surf scoter	*Melanitta perspicillata*
Common merganser	*Mergus merganser*
American coot	*Fulica americana*
American wigeon	*Anas americana*
Trumpeter swan	*Cygnus buccinator*
Dusky Canada goose	*Branta canadensis occidentalis*
Wood duck	*Aix sponsa*
Aleutian Canada goose	*Branta canadensis leucopareia*
Geese	
Scaup	*Aythya spp.*
Waterfowl	
Dabbling ducks	
Diving ducks	
Ducks	
Swans	*Cygnus spp.*

*Common Name	*Species Name

REPTILE

TURTLE

Western pond turtle	*Clemmys marmorata*
Western painted turtle	*Chrysemys picta bellii*

FISH

FISH

White sturgeon	*Acipenser transmontanus*
Green sturgeon	*Acipenser medirostris*
Coastal Cutthroat trout	*Oncorhynchus clarkii clarkii*
Coho salmon	*Oncorhynchus kisutch*
Sockeye salmon	*Oncorhynchus nerka*
Chum salmon	*Oncorhynchus keta*
Eulachon	*Thaleichthys pacificus*
Salmon	
American shad	*Alosa sapidissima*
Pacific lamprey	*Lampetra tridentata*
Chinook salmon (fall)	*Oncorhynchus tshawytscha (fall)*
Chinook salmon (winter)	*Oncorhynchus tshawytscha (winter)*
Chinook salmon (spring)	*Oncorhynchus tshawytscha (spring)*
Rainbow trout (summer)	*Oncorhynchus mykiss (summer)*
Rainbow trout (winter)	*Oncorhynchus mykiss (winter)*
Bull trout	*Salvelinus confluentus*
Chinook salmon (summer)	*Oncorhynchus tshawytscha*
Starry flounder	*Platichthys stellatus*
Common carp	*Cyprinus carpio*
Smallmouth bass	*Micropterus dolomieu*
Walleye	*Stizostedion vitreum vitreum*
White crappie	*Pomoxis annularis*

INVERTEBRATES

BIVALVES

Softshell clam	*Mya arenaria*
Pacific razor clam	*Siliqua patula*
Pacific littleneck	*Protothaca staminea*
Nuttall cockle	*Clinocardium nuttallii*
Freshwater mussel	*Anodonta spp.*

CRABS

Dungeness crab	*Cancer magister*

HABITATS

FLOATING AQUATIC VEGETATION (FAV)

Water howellia	*Howellia aquatilis*

SUBMERSED AQUATIC VEGETATION (SAV)

Eelgrass	*Zostera marina*
Columbian yellowcress	*Rorippa columbiae*

* Threatened and endangered species and species of special concern are designated by underlining

SHORELINE DESCRIPTIONS

EXPOSED ROCKY SHORES — ESI = 1A

DESCRIPTION

- The intertidal zone is steep (greater than 30° slope), with very little width; solid and composed of bedrock
- Sediment accumulations are uncommon because waves and currents remove debris slumped from the eroding cliffs
- There is strong vertical zonation of intertidal biological communities in the estuarine parts of the river
- This shoreline type is regularly exposed to wave action and strong currents
- Wave reflection is a common phenomena along the outer coast
- Species density and diversity vary greatly depending on exposure and salinity, but barnacles, snails, mussels, amphipods, and macroalgae can be abundant
- Present sparsely throughout the estuary, the most spectacular example is Cape Disappointment at the mouth; common along the river mainstem

PREDICTED OIL BEHAVIOR

- In the lower estuary and outer coast, oil is held offshore by waves reflecting off the steep, hard surfaces; Any oil that is deposited is rapidly removed from exposed faces
- Along the river, oil can form a band at the high water line
- The most resistant oil would remain as a patchy band at or above the high-water line



- Impacts to intertidal communities are expected to be short-term in duration. An exception would be where heavy concentrations of a light refined product comes ashore very quickly

RESPONSE CONSIDERATIONS

- Cleanup is usually not required
- Access can be difficult and dangerous

EXPOSED, SOLID MAN-MADE STRUCTURES — ESI = 1B

DESCRIPTION

- These structures are solid, man-made structures such as seawalls, groins, revetments, piers, and port facilities
- Many structures are constructed of concrete, wood, or metal
- Often there is no exposed substrate at low tide, but multiple habitats are indicated if present
- They are built to protect the shore from erosion by waves, boat wakes, and currents, and thus are exposed to rapid natural removal processes
- Attached animals and plants are sparse to moderate
- They are common along commercial zones and waterways

PREDICTED OIL BEHAVIOR

- Oil can be held offshore by waves reflecting off the vertical, hard surface in exposed settings
- Oil readily adheres to the dry, rough surfaces at the high-tide line, but it does not adhere to wet substrates
- The most resistant oil would remain as a patchy band at or above the high-tide line



RESPONSE CONSIDERATIONS

- Cleanup is usually not required
- High-pressure water spraying may be conducted to remove persistent oil in crevices, improve aesthetics, and prevent direct contact with oiled surfaces

EXPOSED WAVE-CUT PLATFORMS IN BEDROCK — ESI = 2A

DESCRIPTION

- They are characterized by a flat or gently sloping shelf or platform that is exposed to regular waves or currents
- Although the platform is composed of bedrock, portions of the platform may be covered by a thin patches of sediments
- The surface of the platform is irregular with numerous crevices; tidal pools are common
- Species density and diversity varies greatly along the salinity gradients
- Present throughout the river, with the largest areas near the John Day dam

PREDICTED OIL BEHAVIOR

- Oil will not adhere to the wet rock surface, but could penetrate crevices or patches of sediments
- Persistence of oil is usually short-term, except in wave shadows or where the oil was deposited high above normal wave activity



RESPONSE CONSIDERATIONS

- Cleanup is usually not required except for areas of high recreational use
- Where the shoreline is accessible, it may be feasible to manually remove heavy oil accumulations and oiled debris

FINE- TO MEDIUM-GRAINED SAND BEACHES ESI = 3A

DESCRIPTION

- These beaches are flat to moderately sloping and relatively hard packed
- There can be heavy accumulations of wrack present
- They are important habitats for migratory and summer nesting birds
- Common within the estuary, best examples are on Sand Island

PREDICTED OIL BEHAVIOR

- Light oil accumulations will be deposited as oily swashes or bands along the upper intertidal zone
- Heavy oil accumulations will cover the entire beach surface; oil will be lifted off the lower beach with the rising tide
- Maximum penetration of oil into fine- to medium-grained sand is about 10-15 cm
- Burial of oiled layers by clean sand within the first week after a spill typically will be less than 30 cm along the upper beach face
- Organisms living in the beach sediment may be killed by smothering or lethal oil concentrations in the interstitial water
- Biological impacts include temporary declines in infauna, which can affect important shorebird foraging areas

RESPONSE CONSIDERATIONS

- These beaches are among the easiest shoreline types to clean
- Cleanup should concentrate on removing oil and oily debris from the upper swash zone once oil has come ashore



- Traffic through both oiled and dune/riparian areas should be severely limited, to prevent contamination of clean areas
- Manual cleanup is advised to minimize the volume of sand removed from the shore and requiring disposal
- All efforts should focus on preventing the mixture of oil deeper into the sediments by vehicular and foot traffic
- Mechanical reworking of lightly oiled sediments from the high-tide line to the middle intertidal zone may be effective along outer beaches

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SCARPS AND STEEP SLOPES IN SAND ESI = 3B

DESCRIPTION

- These scarps are composed of relatively soft, unconsolidated sediments
- The scarps show evidence of active erosion, and beaches in front of the scarps are narrow or absent
- They are common generally at cut-banks of smaller tributaries

PREDICTED OIL BEHAVIOR

- Any stranded oil will form a band along the high-water line.
- There is some potential for oil penetration into any sediment accumulations at the base of the scarp, but active erosion of the scarp will also erode the oil

RESPONSE CONSIDERATIONS

- In some cases, cleanup is not necessary because of the short residence time of the oil
- The need for removal of oiled sediments should be carefully evaluated because of the potential for increased erosion
- Manual labor and close supervision should be used so that the minimal amount of sediment is removed during cleanup



COARSE-GRAINED SAND BEACHES ESI = 4

DESCRIPTION

- Highly variable beachface slopes; sediments are soft and permeable with low trafficability
- The rate of sediment mobility is relatively high, as the beachface is reworked by boat wakes
- Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical
- Very common over entire length of river

PREDICTED OIL BEHAVIOR

- During small spills oil is deposited primarily as a band along the high-water line
- Under heavy accumulations oil may spread across the entire intertidal zone, though it will be lifted off the lower part of the beach during rising tides or water levels in the river
- Penetration up to 25 cm is possible
- Burial of oiled layers by clean sand can be rapid
- Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water

RESPONSE CONSIDERATIONS

- Cleanup more difficult than for finer-grained beaches, because equipment tends to grind oil into the substrate due to the loosely packed and permeable nature of these coarser-grained sediments; therefore, special care must be exercised while using heavy equipment to prevent mixing oil deeper into the beach sediment



- Use of heavy equipment for oil/sand removal may also result in the export of excessive amounts of sand; therefore, where feasible and for smaller amounts of oil, manual cleanup may be desirable
- Vehicular and foot traffic through oiled areas and riparian habitat should be limited to prevent contamination of clean areas and disturbance of riparian vegetation
- Removal of sediment should be limited as much as possible to avoid erosion problems on the beach in the future; however, the common occurrence of multiple buried oil layers in these types of beaches increases the amount of sediment to be handled and disposed of

MIXED SAND AND GRAVEL BEACHES — ESI = 5



DESCRIPTION

- Moderately sloping beach composed of a mixture of sand and gravel (gravel component should comprise between 20 to 80 percent of total sediments)
- Because of the mixed sediment sizes, there may be zones of pure sand, pebbles, or cobbles
- There can be large-scale changes in the sediment distribution patterns depending upon season, because of the transport of the sand fraction offshore during storms
- Because of sediment desiccation and mobility on exposed beaches, there are low densities of attached animals and plants
- Uncommon in the lower estuary, occurring as small pocket beaches within the estuary and near Cape Disappointment
- Common along the river, generally found at the mouths of smaller tributaries such as the Sandy River in Troutdale

PREDICTED OIL BEHAVIOR

- During small spills, oil will be deposited along and above the high-tide swash
- Large spills will spread across the entire intertidal area
- Oil penetration into the beach sediments may be up to 50 cm; however, the sand fraction can be quite mobile, and oil behavior is much like on a sand beach if the sand fraction exceeds about 40 percent
- Burial of oil may be deep at and above the high-tide line, where oil tends to persist, particularly where beaches are only intermittently exposed to reworking by waves
- In sheltered pockets on the beach, pavements of asphalted sediments can form if there is no removal of heavy oil accumulations
- Once formed, asphalt pavements can persist for many years

RESPONSE CONSIDERATIONS

- Heavy accumulations of pooled oil should be removed quickly from the upper beachface
- All oiled debris should be removed
- Sediment removal should be limited as much as possible
- Low-pressure flushing may be used to float oil away from the sediments for recovery by skimmers or sorbents. High-pressure spraying should be avoided because of the potential for transporting contaminated finer sediments (sand) to the lower intertidal or subtidal zones
- Mechanical reworking of oiled sediments from the high-tide zone to the upper intertidal zone may be effective in areas regularly exposed to wave activity (as evidenced by storm berms). However, oiled sediments should not be relocated below the mid-tide zone
- In-place tilling may be used to reach deeply buried oil layers in the middle zone on exposed beaches

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GRAVEL BEACHES — ESI = 6A



DESCRIPTION

- Gravel beaches can be steep, with multiple wave-built berms forming the upper beach. Gravel beaches have the lowest trafficability of all beach types and may contain shell and woody debris
- Because of the high mobility of sediments on exposed gravel beaches, there are low densities of animals and plants
- Common, especially on the north side of estuary and very common along the river mainstem

PREDICTED OIL BEHAVIOR

- Deep penetration of stranded oil is likely on gravel beaches because of their high permeability
- Long-term persistence will be controlled by the depth of routine reworking by waves and boat wakes
- Along sheltered portions of the shorelines, chronic sheening and the formation of asphalt pavements is likely where accumulations are heavy

RESPONSE CONSIDERATIONS

- Heavy accumulations of pooled oil should be removed quickly from the upper beachface
- All oiled debris should be removed
- Sediment removal should be limited as much as possible
- Low-pressure flushing can be used to float oil away from the sediments for recovery by skimmers or sorbents
- Mechanical reworking of oiled sediments from the high-tide zone to the upper intertidal zone may be effective in areas regularly exposed to wave activity (as evidenced by storm berms). However, oiled sediments should not be relocated below the mid-tide zone
- In-place tilling may be used to reach deeply buried oil layers in the middle zone on exposed beaches

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RIPRAP — ESI = 6B



DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of rock
- Riprap structures are used for shoreline protection and as jetties in harbors
- Attached biota are sparse on exposed riprap
- They are common in Astoria and over the entire length of river, associated with boat ramps, dams, and railroads

PREDICTED OIL BEHAVIOR

- Deep penetration of oil between the blocks is likely
- Oil adheres readily to the rough surfaces of the blocks
- Uncleaned oil can cause chronic leaching until the oil hardens

RESPONSE CONSIDERATIONS

- When the oil is fresh and liquid, high pressure spraying and/or water flooding may be effective, making sure to recover all liberated oil
- Heavy and weathered oils are more difficult to remove, requiring scraping and/or hot-water spraying

EXPOSED TIDAL FLATS — ESI = 7

DESCRIPTION

- Exposed tidal flats are broad, flat intertidal areas composed primarily of sand and minor amounts of gravel (in a few areas)
- The presence of sand and gravel indicates that tidal currents and waves are strong enough to mobilize the sediments
- Biological utilization can be very high, with large numbers of infauna, heavy use by birds for roosting and foraging, and use by foraging fish
- They are very common in the lower estuary and sometimes occur on the seaward, more exposed edge of a larger mudflat

PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of exposed tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil does not penetrate water-saturated sediments
- Biological damage may be severe, primarily to infauna, thereby reducing food sources for birds and other predators



RESPONSE CONSIDERATIONS

- Currents and waves can be very effective in natural removal of the oil
- Cleanup is very difficult (and possible only during low tides)
- The use of heavy machinery should be restricted to prevent mixing of oil into the sediments

SHELTERED ROCKY SHORES — ESI = 8A

DESCRIPTION

- The substrate is solid and composed of bedrock
- This shoreline type is sheltered from large waves and strong currents
- Sediments may accumulate at the base of this shoreline type
- The slope of the intertidal zone is generally moderate to steep (greater than 15°) with little width
- Sheltered rocky shores are moderately common in the lower estuary; Not common along the river mainstem, mostly occurred along the banks of the Willamette River

PREDICTED OIL BEHAVIOR

- Heavy oils tend to coat the dry, irregular surface
- Stranded oil will persist because of low energy setting

RESPONSE CONSIDERATIONS

- Low-pressure flushing at ambient temperatures is most effective when the oil is fresh and still liquid
- Care must be taken during flushing operations to prevent oily effluents from affecting biologically rich, lower intertidal levels
- Where the high-tide area is accessible, it may be feasible to remove heavy oil accumulations and oiled debris



SHELTERED, SOLID MAN-MADE STRUCTURES — ESI = 8B

DESCRIPTION

- These structures are solid man-made structures such as seawalls, groins, revetments, piers, and port facilities
- Structures are constructed of concrete, wood, or metal
- Often there is no exposed beach at low water, but multiple habitats are indicated if present
- Attached animal and plant life is highly variable
- They are common in developed commercial waterfront areas such as around Astoria and Portland, also common along the Willamette River and in association with dams

PREDICTED OIL BEHAVIOR

- Oil will adhere readily to rough surfaces, particularly along the high-tide line, forming a distinct oil band
- The lower intertidal zone usually stays wet (particularly if algae covered), preventing oil from adhering to the surface

RESPONSE CONSIDERATIONS

- Cleanup of seawalls is usually conducted for aesthetic reasons or to prevent leaching of oil
- Low- to high-pressure spraying at ambient water temperatures is most effective when the oil is fresh



SHELTERED RIPRAP **ESI = 8C**

DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of rock
- These structures are found inside harbors and bays in highly developed areas, sheltered from direct exposure to waves
- Attached animal and plant life can be present
- Sheltered riprap is very uncommon in the mapped area

PREDICTED OIL BEHAVIOR

- Deep penetration of oil between the boulders is likely
- Oil adheres readily to the rough surfaces
- If oil is left uncleaned, it may cause chronic leaching until the oil hardens

RESPONSE CONSIDERATIONS

- High-pressure spraying may be required to remove oil for aesthetic reasons and to prevent leaching of oil from the structure



- Cleanup crews should make sure to recover all released oil

SHELTERED TIDAL FLATS **ESI = 9A**

DESCRIPTION

- Sheltered tidal flats are composed primarily of mud with minor amounts of sand and shell
- They are present in calm-water habitats, sheltered from major wave activity, and frequently backed by marshes
- The sediments are very soft and cannot support even light foot traffic in many areas
- They can have heavy wrack deposits along the upper fringe
- Large concentrations of shellfish, worms, and snails can be found on and in the sediments
- They are heavily utilized by birds for feeding
- Large sheltered muddy flats are very common throughout the lower estuary, generally associated with islands of saltmarsh such as Russian Island

PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of sheltered tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil will not penetrate the water-saturated sediments, but could penetrate burrows and desiccation cracks or other crevices in muddy sediments
- In areas of high suspended sediments, sorption of oil can result in deposition of contaminated sediments on the flats



- Biological damage may be severe

RESPONSE CONSIDERATIONS

- These are high-priority areas necessitating the use of spill protection devices to limit oil-spill impact; deflection or sorbent booms and open water skimmers should be used
- Cleanup of the flat surface is very difficult because of the soft substrate; many methods may be restricted
- Low-pressure flushing and deployment of sorbents from shallow-draft boats may be helpful

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SHELTERED, VEGETATED LOW BANKS **ESI = 9B**

DESCRIPTION

- These habitats are composed of low banks with grasses or shrubs along smaller tributaries
- They can be flooded occasionally by high water
- These habitats can be important for fish, shellfish, birds, and terrestrial mammals
- They are occur in the riverine sections, along the smaller tributaries, with minimal tidal water level changes

PREDICTED OIL BEHAVIOR

- During low water, it is unlikely that oil in the main river would affect these areas; however, during high river levels, oil could flow into them
- Oil will coat any vegetation at the water line
- Oil can contaminate and become trapped in debris

RESPONSE CONSIDERATIONS

- Low-pressure flushing may be effective in small waterbodies, to flush oil trapped along the banks and in debris to collection sites
- Care should be taken to prevent mixing of oil into sediments during response activities
- Deployment of sorbents may be necessary to recover sheens after gross oil removal



SALT- AND BRACKISH-WATER MARSHES ESI = 10A

DESCRIPTION

- Intertidal wetlands containing emergent, herbaceous vegetation
- Width of the marsh can vary widely, from a narrow fringe to extensive areas
- Marsh soils can range from sand to high-organic peats
- Exposed areas are located along bays with wide fetches and along heavily trafficked waterways
- Sheltered areas are not exposed to significant wave or boat wake activity
- Resident flora and fauna are abundant with numerous species with high utilization by birds, fish, and shellfish
- They are very common in the lower estuary, particularly in the Lewis and Clark National Wildlife Refuge

PREDICTED OIL BEHAVIOR

- Oil adheres readily to intertidal vegetation
- The band of coating will vary widely, depending upon the water level at the time oil slicks are in the vegetation. There may be multiple bands
- Large slicks will persist through multiple tidal cycles and coat the entire stem from the high-tide line to the base
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, although lighter oils can penetrate deeper, to the limit of tidal influence
- Medium to heavy oils do not readily adhere to or penetrate the fine sediments, but can pool on the surface or in burrows
- Light oils can penetrate the top few centimeters of sediment and deeply into burrows and cracks (up to one meter)



RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery; natural removal processes and rates should be evaluated prior to conducting cleanup
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Cleanup activities should be carefully supervised to avoid vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

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FRESHWATER MARSHES ESI = 10B

DESCRIPTION

- These are grassy wetlands composed of emergent herbaceous vegetation in tidal freshwater settings
- Marsh soils can vary widely from sand and gravel to peat
- Resident flora and fauna are abundant
- Common throughout riverine areas as both extensive islands and narrow fringing marsh

PREDICTED OIL BEHAVIOR

- Oil adheres readily to the vegetation
- The band of coating will vary widely, depending upon the water level changes at the time oil slicks are in the vegetation. There may be multiple bands
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, although lighter oils can penetrate deeper

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery; natural removal processes and rates should be evaluated prior to conducting cleanup
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Cleanup activities should be carefully supervised to avoid vegetation damage



- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

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SWAMPS ESI = 10C

DESCRIPTION

- Swamps consist of shrubs and hardwood forested wetlands. Vegetation is taller, on average, than 6 meters
- Sediments are silty clay with large amounts of organic debris
- They are seasonally flooded, though there are areas that are permanently flooded, mostly along the floodplains of tributaries or man-made impoundments
- Flora and fauna are abundant with numerous species
- They occur in inland areas, often along stream floodplains and as isolated wetlands

PREDICTED OIL BEHAVIOR

- They are risk of oiling from river spills during high-water events and spills from land
- Oil can penetrate into loose organic-rich soils and root cavities where there is no standing water
- Woody vegetation is less sensitive than grasses to oil

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. Cleanup is usually difficult and intrusive



- Oily debris can be removed where there is access
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Woody vegetation should not be cut

SCRUB-SHRUB WETLANDS **ESI = 10D**



DESCRIPTION

- Scrub-shrub wetlands consist of woody vegetation less than 6 meters tall including true shrubs, small trees, and trees and shrubs that are stunted due to environmental conditions
- The sediments are silty clay mixed with organic debris
- They grow above normal spring high tides, thus they are seldom inundated by salt water
- Resident flora and fauna are abundant
- They are usually found in association with artificial ponds created by railroad tracks

PREDICTED OIL BEHAVIOR

- They are generally not a risk of oiling from marine spills because of their position above normal high tides
- They could become oiled during very high water levels, from land-based spills, or during cleanup of adjacent areas
- Woody vegetation is less sensitive than grasses to oil

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Oily debris can be removed where there is access
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Woody vegetation should not be cut

COLUMBIA RIVER

SHORELINE HABITATS

- 1A EXPOSED ROCKY SHORES
- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB / SHRUB WETLANDS

SENSITIVE BIOLOGICAL RESOURCES

BIRD

- DIVING BIRD
- GULL / TERN
- PASSERINE
- RAPTOR
- SHOREBIRD
- WADING BIRD
- WATERFOWL
- NESTING SITE

MARINE MAMMAL

- PINNIPED
- HAUL-OUT SITE

TERRESTRIAL MAMMAL

- SMALL MAMMAL
- UNGULATE

INVERTEBRATE

- BIVALVE
- CRAB

FISH

- FISH
- ANADROMOUS STREAM

REPTILE / AMPHIBIAN

- TURTLE

HABITAT

- FLOATING OR SUBMERGED AQUATIC VEGETATION

MULTIPLE ELEMENTS

- THREATENED / ENDANGERED
- 123 RAR NUMBER

HUMAN-USE FEATURES

- AQUACULTURE / HATCHERY
- BOAT RAMP
- COAST GUARD
- FERRY
- LOCK AND DAM
- MARINA
- NATIONAL FOREST
- PARK
- RECREATIONAL FISHING
- SUBSISTENCE FISHING
- WATER INTAKE
- WILDLIFE REFUGE
- 123 HUMAN-USE NUMBER
- MANAGEMENT AREA
- BRIDGE

Guidelines for Interpreting ESI Maps

To help users interpret the ESI maps and tabular data, we offer the following guidelines for use in addition to the map legend:

• Shoreline Habitats. The "shoreline," representing the boundary between land and water, is color-coded with the ESI classification. Most shoreline habitats are shown as a line, with no areal dimension. Where there is more than one shoreline type (e.g., a beach in front of a seawall), the colors for each habitat are shown, with the color for the landward habitat on the land side of the shoreline and the color for the seaward habitat on the water side. In areas where the intertidal zone is wide (e.g., wide tidal flats, wave-cut rocky platforms), the habitat from high to low water is filled with the ESI classification color. When data are available, the entire extent of wetlands are filled with colored patterns. The seaward edge of the wetland is color-coded with the ESI classification; the landward extent of the wetland is indicated by a dashed, colored line.

• Biological Resources. The distribution of biological resources is shown using many different conventions. The major convention is an icon associated with a point, line, or polygon that shows the species' areal distribution. The icon's reference number corresponds to a data table with details on species and life history. Biological resource data are organized into six major groups, each with a reference color: birds (green), mammals (brown), fish (blue), shellfish (orange), reptiles (red), and rare/endangered plants and special habitats (purple). These colors are used to fill hatched polygons and the icons. Each major group has subgroups with unique icons to visually indicate the type of organism or feature present. The icon or group of icons is usually located inside the polygon it represents; however, sometimes a line is connected between the icon and the polygon or point to make it easier to relate the two. Note that icons are used to indicate the types of resources present, but the actual data are the points and polygons. A red box around an icon indicates the presence of a species on the state or Federal list of threatened or endangered species.

The number listed below each icon refers to the first column of a data table for each map. The data tables, organized by group (birds, fish, etc.), include the following information: species name, status as threatened or endangered on state and Federal lists, concentration (specifically for each point or polygon), presence by month, and special life-history time periods. When a polygon contains multiple groups, the one number under the group of icons is listed under each group heading in the data tables. Where possible, the same number is used on multiple maps. For example, all bald eagle nests with the same seasonality could have the same number throughout the atlas, or the same assemblage of fish would have the same number wherever it occurred.

A data table has a separate listing for every unique combination of species, concentration, seasonality, life-history stage, and source. By looking at the monthly seasonality data in the table for each map, the species present at the time of concern can be easily identified. An 'X' or number is placed under each month in which any life stage of the species is present in the area represented by the point or polygon. Numbers are used typically for fish and shellfish where data on relative abundance are available. The final columns in the data tables include the months when reproductive activities occur or early life stages are present. Users should pay close attention to the data tables because they contain much of the information needed to identify the most sensitive resources at different times of the year.

Points, lines, and polygons on a map represent the distribution of the resources. Green points show bird nesting sites, including bald eagle nests and dense colonial nesters (e.g., heron rookeries and seabird nesting colonies). Animals and habitats are also represented as: 1) hatched polygons in the color for the animal group (e.g., green for birds); 2) black hatched polygons which contain multiple groups of resources (birds and fish in the same tidal channels); 3) solid lines (usually used for fish in small streams); or 4) in "common in ..." boxes. When showing the biological resource polygons would make the maps too difficult to read (usually when multiple polygons cover a large area), the polygons are not plotted and the presence of the resource is indicated by placing the icon in a box labeled "common in ..." The box contains an appropriate geographic reference. Different boxes can be used on the same map when, for example: "common in Winyah Bay" or "common in tidal creeks." The data for these resources are still fully present in the database but are not shown to make the maps more readable.

• Human-use Resources. Most of the human-use resources are point features indicated by a black-and-white icon. Managed lands, such as refuges and sanctuaries, have their boundaries shown as a dot-dash line with an icon and name placed inside. Where the feature is a known point location (e.g., a drinking water intake, boat ramp, marina), the exact location is shown as a small black dot and a line is drawn from it to the icon. Activities such as commercial and recreational fishing and areas such as recreational beaches are also indicated by an icon placed in the general area without any lines to points or polygons since the boundaries are not readily defined.

Some features, like historic and archaeological sites, are location-sensitive: the agency managing the resource believes the exact location should not be shown in order to protect the site. In these cases, the icon is placed in the general area of the resource, but the exact location is not shown.

Columbia River: ESIMAP 19

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X								X	X		-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
30	Bald eagle	T	T		2 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
77	Killdeer					X	X			X	X	X	X	X	X	X		-	-	-
	Trumpeter swan					X	X	X	X	X			X	X	X	X		-	-	-
	Tundra swan					X	X	X	X	X			X	X	X	X		-	-	-
	Waterfowl				250000	X	X								X	X		-	-	-
	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds				15000			X	X	X			X	X	X			-	-	-
	Spotted sandpiper					X	X	X	X	X			X	X	X	X		-	-	-
81	Sandhill crane				PRESENT	X	X	X	X	X				X	X	X		-	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
86	Great blue heron				6 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
87	Sandhill crane				100-200	X	X	X	X	X				X	X	X		-	-	-
	Greater white-fronted goose					X	X	X	X	X		X	X	X	X	X		-	-	-
	Ducks				100S	X	X								X	X		-	-	-
	Tundra swan					X	X	X	X	X				X	X	X		-	-	-
	Canada goose				1000S	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
88	Waterfowl				HIGH	X	X								X	X		-	-	-
	Sandhill crane					X	X	X	X	X					X	X	X	-	-	-
	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X								X	X		-	-	-
91	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
92	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
93	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
89	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
224	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

HABITAT:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
81	Water howellia	T	T	WA	PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
77	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
77	Northern river otter				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Beaver				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
21	BOAT RAMP		
25	BOAT RAMP		

PARK:

HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

WILDLIFE REFUGE:

HUN#	Name	Contact	Phone
109	RIDGEFIELD NWR	USFWS REFUGE MANAGER	360/887-4106
110	SAUVIE ISLAND WILDLIFE AREA	ODFW	503/621-3488

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Columbia River: ESIMAP 20

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X									X	X	-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X									X	X	-	-	-
99	Waterfowl				HIGH	X	X									X	X	-	-	-
101	Waterfowl					X	X									X	X	-	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
98	Common carp					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	White crappie					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Smallmouth bass					X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	-	JAN-DEC
	Walleye					X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	-	JAN-DEC
102	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
103	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
209	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
213	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
220	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
221	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
100	Western painted turtle				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
26	BOAT RAMP		

HATCHERY:

HUN#	Name	Contact	Phone
54	VANCOUVER REGION FIVE OFFICE	WDFW	

PARK:

HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

(b) (7)(F)

LEGEND

- CONTAINMENT BERM/WALL
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE
- DIRECTION OF DISCHARGE
- UPPER TERMINAL DRAINAGE AREA
- P2 DRAINAGE AREA
- P3 DRAINAGE AREA

N

0 120 240

SCALE: 1" = 120'

REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE DRAINAGE PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

2

(b)(7)(F)

LEGEND

- CONTAINMENT BERM/WALL
- EVACUATION ROUTE
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE

N

0 120 240

SCALE: 1" = 120'

REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE EVACUATION PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
COMPLIANCE AND
ENFORCEMENT

September 26, 2013

Don Marti
NuStar Energy
9420 NW St Helens Rd
Portland, Oregon 97231

Re: Facility Response Plan FRP 81

Dear Mr. Marti:

Pursuant to the Clean Water Act, 33 U.S.C. Section 1321(j)(5), as amended by the Oil Pollution Act of 1990, The Environmental Protection Agency has reviewed your Facility Response Plan (FRP) and finds that it meets the requirements of Section 311(j)(5) of the Clean Water Act and 40 CFR 112.20(c)(4). The next 5 year plan will be due September 26, 2018.

Note that, pursuant to 40 CFR 112.20(d)(1), the owner or operator of a facility for which a response plan is required shall revise and resubmit revised portions of the response plan to EPA within 60 days of each facility change that may materially affect the response to a worst-case discharge. Changes which may require revisions to a response plan include:

- a change in the facility's configuration;
- a change in the type of oil handled, stored or transferred;
- a change in the capabilities of the oil spill response organization;
- a change in the facility's spill prevention and response equipment or emergency response procedures; and
- any other change that materially affects the implementation of the response plan.

In addition, 40 CFR Section 112.20(d)(2) provides that changes in personnel and telephone number lists included in an FRP do not require EPA approval, but should be supplied to EPA as the revisions occur. If you have questions regarding this correspondence, please contact me at (206) 553-1886 or Janet Wien at 206-553-8634 or wien.janet@epa.gov.

Sincerely,

Michael I Sibley II
On Scene Coordinator (OSC)
Emergency Preparedness and Prevention Unit

cc: Michael Zollitsch, Oregon Dept of Environmental Quality, 811 SW Sixth Ave, Portland, Oregon 97204

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Marine Safety Unit Portland

6767 North Basin Ave
Portland, OR 97217
Phone: (503) 240-9333
Fax: (503) 240-2586

16611
FEB 20 2014

FIN#: PDX20054
MISLE#: 4799018

NuStar Energy L.P.
Attn: Steve Kober
9420 NW St. Helens Rd.
Portland, OR 97231

Dear Sir:

My office has completed a final review of the Facility Response Plan that was submitted to meet the requirements of the Oil Pollution Act of 1990. No deficiencies were noted, and the plan is hereby approved. The expiration date of this approval is five years from the date stamp of approval. Please ensure you resubmit an updated plan every 5 years from this date, in accordance with 33 CFR 154.1060.

You are reminded to review your response plan annually as required in 33 CFR Section 154.1065 (a). If revisions are necessary, then you must submit the revisions to the Captain of the Port (COTP) and all other plan holders for information or approval, as appropriate. Changes at the facility that significantly affect the implementation of your plan must be submitted to the COTP within 30 days of the change.

I remind you that your plan is a vital working document and that implementing the plan will help ensure effective oil spill response and mitigation. Please ensure that all parties with responsibilities under the plan are familiar with the plan's procedures and requirements.

A copy of this letter shall be kept with your approved Facility Response Plan.

If you have any questions, please contact the Marine Safety Unit Portland Waterways Management and Facility Inspections Division at (503) 240-9333.

Sincerely,

P. A. ROPP
Captain, U. S. Coast Guard
Captain of the Port
By direction

U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

March 18, 2014

Steven Kober
Terminal Manager
Shore Terminals LLC
9420 N.W. St. Helens Road
Portland, OR 97231

**RE: LETTER OF CORRECTION: Portland Terminal, Sequence Number: 1383
June 14, 2013**

Dear Mr. Kober:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has received and reviewed Shore Terminals LLC's oil spill response plan for Portland Terminal dated June 14, 2013.

We have identified deficiencies in the Plan and cannot approve it without corrections being made. These corrections should be addressed as highlighted in the NEEDED ACTION section and submitted to PHMSA within thirty (30) days from the date of this letter. If you are unable to address these issues within that time, you may request an extension via mail or to the email address listed below.

Should you have any questions or concerns, please contact me at (202) 366-4595 or by email at PHMSA.OPA90@dot.gov. Please include the sequence number and your PHMSA Operator Identification Number on any future correspondence.

Sincerely,

David K. Lehman, Acting Director
Emergency Support and Security Division
Office of Pipeline Safety

Attachment: Action Needed on Response Plan Sequence #1383

cc: PHMSA Western Region
Greg Desmond, Senior Project Manager, Technical Response Planning Corp
1610 Woodstead Court, Ste. 355, The Woodlands TX 77380

Action Needed on Response Plan Sequence #1383

Line Section Requirements

49 CFR § 194.113(b)(4) states, "The information summary for the response zone appendix , required in §194.107, must include…(4) A list of line sections for each pipeline contained in the response zone, identified by milepost or survey station number, or other operator designation."

Findings: There are inconsistencies with the line section descriptions. Figure 1-2, Portland Terminal Information Summary, lists five line sections. The first line section, St-3 to (b) (7)(F) Station, is listed as 1 foot with 8-inch diameter; this appears incorrect. The largest line section listed is 1,129 feet with 14-inch diameter. Whereas, Appendix D.7.3 states the drain down volume of the largest line is(b) (7)(F) . This drain down volume is significantly larger than the drain down volume from any of the listed lines.

NEEDED ACTION: Amend Figure 1-2 to clarify the line sections listed fo(b) (7)(F) Station and the largest line section noted above (1,129 feet) as they compare to the drain down volume of the worst case discharge calculations in Appendix D.7.3.

Worst Case Discharge Determination Methodology

49 CFR § 194.105(a) states, "Each operator shall determine the worst case discharge for each of its response zones and provide the methodology, including calculations, used to arrive at the volume."

The methodology referenced in the regulation above includes the comparison of the three volumes of Worst Case Discharge sources: pipeline, breakout tank, and maximum historic discharge.

Findings: Calculations for the pipeline's worst case discharge are included in Appendix D.7.3, but cannot be verified with the information provide. The calculations list the drain down volume(b) (7)(F) bbls, which is must larger than any of the line sections listed in Figure 1-2.

NEEDED ACTION: Amend the Plan to provide a comprehensive worst case discharge determination methodology, as required by 49 CFR § 194.105(a) to clarify the conflicting information regarding the tank credits and worst case discharge calculations as noted above in Appendix D.7.3.

Notification Procedures

49 CFR § 194.107(c)(ii) states, "Each response plan must include:… (ii) Immediate notification procedures.

AND
49 CFR § 195.52(a)(4), states "Notice requirements. At the earliest practicable moment following discovery of a release of the hazardous liquid or carbon dioxide transported resulting in an event described in §195.50, the operator of the system must give notice, in accordance with paragraph…(4) Resulted in pollution of any stream, river, lake, reservoir, or other similar body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or upon adjoining shorelines…"

Findings: Figure 3.1.1, Emergency Notification Flow Chart, shows notification of Regulatory Agencies, including NRC, at the bottom of the chart. However, the Plan does not state the circumstance requiring National Response Center (NRC) notification and the timeliness of these notifications.

NEEDED ACTION: Amend the Plan to discuss notification procedures to the NRC at the earliest practicable moment (within 2 hours) following the discovery of a release of hazardous liquid, as required above.

(b)(7)(F)

LEGEND

- CONTAINMENT BERM/WALL
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE
- TRANSFER PIPING

N

0 120 240

SCALE: 1" = 120'

REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE PIPING PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

4

Square Footage Calculations																		
Containment Area Name or Number	(b) (7)(F)	m 1A																
Tank Number																		
Diameter																		
Radius		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Square Footage		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total square footage of tanks displacement (Line 6 Totals)																		(b) (7)(F)
Square Footage of Area (Avg inclusion area)	Area from survey or calculation Enter square feet of area.																	
Total Square Footage of Displacement Tanks	Derived from above calculation (Line 7)																	
Net Square Footage	Area minus tank displacement (Line 8 minus line 9)																	
Average Fill Depth	Based on lowest wall height. Enter in decimal feet.																	
Net Cubic Footage of Area	Square footage X wall height (Line 10 X line 11)																	
Volume of Area (Gallons)	Net Cubic footage X 7.48. This number represents the secondary containment capacity for the tank table Enter this number on the tank table.																	
Rainfall adjustments and capacity adequacy																		
Avaerage Fill Depth	From line 11 above																	
Enter 25 yr / 24 Hr rainfall (in decimal feet)	From Precipitation chart. Enter in inches.																	
Rainfall equivalent in decimal feet	Converted to decimal feet																	
Adjusted Fill Depth	Wall height minus precipitation (Line 15 minus line 16)																	
Seconday Containment Volume (With Rainfall Allowance) In Cu. Ft.	Cubic footage of area (Line 10) X adjusted fill depth (Line 17)																	
Secondary Containment Volume (With Rainfall Allowance) in Gallons	Adjusted cubic footage X 7.48 (Line 18 X 7.48)																	
Largest Tank Number In Area	From tank data. Enter the tank identifier (number) of the largest tank in the area.																	
Volume of Largest Tank (Gallons)	Tank volume in gallons (Enter in gallons)																	
Volume Factor of Largest Tank	Results must be greater than 1.00																	

Notes

Square Footage Calculations																		
Containment Area Name or Number	Portland Berm 1B																	
Tank Number	(b) (7)(F)																	
Diameter																		
Radius		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Square Footage		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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Volume of Largest Tank (Gallons)	Tank volume in gallons (Enter in gallons)																	
Volume Factor of Largest Tank	Results must be greater than 1.00																	

Notes

Square Footage Calculations																
Containment Area Name or Number	Portland Berm 1C															
Tank Number	(b) (7)(F)															
Diameter																
Radius		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Square Footage		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total square footage of tanks displacement (Line 6 Totals)																(b) (7)(F)
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Volume of Largest Tank (Gallons)	Tank volume in gallons (Enter in gallons)															
Volume Factor of Largest Tank	Results must be greater than 1.00															

Notes

Square Footage Calculations																		
Containment Area Name or Number	1D																	
Tank Number	(b) (7)(F)																	
Diameter																		
Radius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Square Footage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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Volume of Largest Tank (Gallons)	Tank volume in gallons (Enter in gallons)																	
Volume Factor of Largest Tank	Results must be greater than 1.00																	

Notes

Square Footage Calculations														
Containment Area Name or Number	Portland Berm 2													
Tank Number	(b) (7)(F)													
Diameter														
Radius		0	0	0	0	0	0	0	0	0	0	0	0	0
Square Footage		0	0	0	0	0	0	0	0	0	0	0	0	0
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Notes

Square Footage Calculations																
Containment Area Name or Number																
Tank Number	(b) (7)(F)															
Diameter																
Radius		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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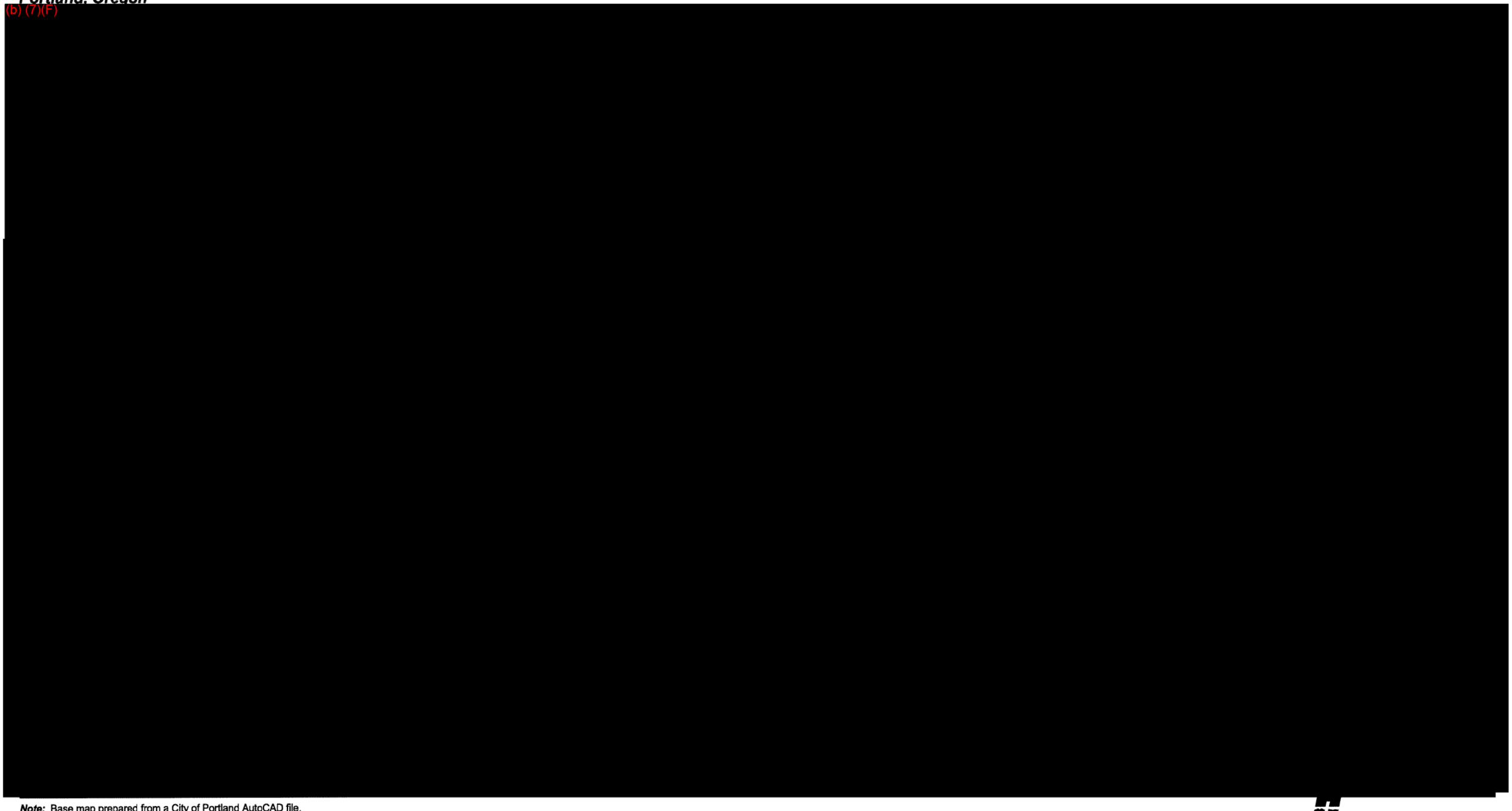
Notes

Square Footage Calculations									
Containment Area Name or Number	(b) (7)(F)								
Tank Number									
Diameter									
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Volume of Largest Tank (Gallons)	Tank volume in gallons (Enter in gallons)								
Volume Factor of Largest Tank	Results must be greater than 1.00								

Notes
Areas from survey drawing: contour = 96,355 Sq Ft, toe = 94,541 Sq Ft. Average is 95,448. This was used for data field on line 8. Height of 5 06 derived from drawing. Lowest point along dike (driveway)

Site Plan
ST Services, Portland Terminal
Portland, Oregon

(b) (7)(F)



Note: Base map prepared from a City of Portland AutoCAD file.

Legend:

- Catch Basin
- Ⓢ Emergency Spill Response Material Location
- Ⓦ Emergency Wash

0 200 400
Scale in Feet

HARTCROWSER
15448-00 ***10/03***
Figure 2

TECHNICAL RESPONSE PLANNING CORPORATION

QUALITY SERVICES SINCE 1995

June 4, 2013

U.S. EPA
Attn: Janet Wien
1200 6th Ave., Suite 900
ECL 116
Seattle, WA 98101-3140

RE: Facility Response Plan for the Shore Terminals LLC Portland Terminal (EPA FRP # FRP-81)

Dear FRP Coordinator:

Enclosed is a flash drive of the Shore Terminals LLC Portland Terminal Facility Response Plan and Emergency Response Action Plan, as requested. Please direct all questions and correspondence to Buddy Stubblefield at 9420 N.W. St. Helens Road, Portland, OR 97231 or (916) 753 4756.

Sincerely,
TECHNICAL RESPONSE PLANNING CORPORATION

Greg Desmond
Senior Project Manager

Federal Express

1610 Woodstead Court, Ste. 355 | The Woodlands, Texas 77380 | Office: (281) 955-9600 | Fax: (281) 955-0369 | E-mail: info@trpcorp.com | Internet: www emergency-response-planning com

April 30, 2008

UPS Tracking No. 1Z 3AF 434 02 9880 3605

U. S. EPA
Region 10 (ECL-116)
SPCC/FRP Coordinator
1200 6th Avenue
Seattle, WA 98101

RE: Integrated Contingency Plan
Shore Terminals LLC, a NuStar Energy L.P. company
Portland Terminal – EPA FRP-81

Dear SPCC/FRP Coordinator:

Please find the enclosed complete and updated Integrated Contingency Plan for the above referenced facility, which reflects a new plan format. Please accept this submittal for consideration of the five-year agency review, as required by 40 CFR 112.120(c)(4).

If you have any questions regarding this submittal, please feel free to contact me at 210.918.3186.

Sincerely,

Aaron W. Martinez
HSE Training and ER Specialist

Enclosures

April 30, 2008

UPS Tracking No. 1Z 3AF 434 02 9992 9399

Captain of the Port
U. S. Coast Guard
Sector Portland
6767 N Basin Ave
Portland, OR 97217

RE: Integrated Contingency Plan
Shore Terminals LLC, A NuStar Energy L.P. company
Portland Terminal – USCG FRP# P-030

Dear COTP:

Please find the enclosed complete and updated Integrated Contingency Plan (ICP) for the above referenced facility, which incorporates a new plan format. Please accept this ICP (incorporating the Facility Response Plan) for consideration of the five-year agency review, as required by 33 CFR 154.1060(e).

An updated copy of the Dock Operations Manual is being sent under separate cover.

If you have any questions regarding this submittal, please feel free to contact me at 210.918.3186.

Sincerely,

Aaron W. Martinez
HSE Training and ER Specialist

Enclosures

April 30, 2008

UPS Tracking No. 1Z 3AF 434 02 9893 3573

Captain of the Port
U. S. Coast Guard
Sector Portland
6767 N Basin Ave
Portland, OR 97217

RE: Dock Operations Manual
Shore Terminals LLC, A NuStar Energy L.P. company
Portland Terminal – USCG FRP# P-030

Dear COTP:

Please find the enclosed complete and updated Dock Operations Manual (DOM) for the above referenced facility, which incorporates a new plan format. As required by 33 CFR 154.325(a), two copies of the DOM are being submitted for your review.

An updated copy of the Integrated Contingency Plan is being sent under separate cover.

If you have any questions regarding this submittal, please feel free to contact me at 210.918.3186.

Sincerely,

Aaron W. Martinez
HSE Training and ER Specialist

Enclosures

April 30, 2008

UPS Tracking No. 1Z 3AF 434 02 9532 4629

U. S. Department of Transportation
Pipeline and Hazardous Material Safety Administration
Response Plans Officer
1200 New Jersey Avenue SE
Room E22-210
Washington, D.C. 20590

RE: Integrated Contingency Plan
Shore Terminals LLC, a NuStar Energy L.P. company
Portland Terminal – PHMSA FRP# 1383 and 1562

Dear Response Plans Officer:

Please find the enclosed complete and updated Integrated Contingency Plan (ICP) for the above referenced facility, which incorporates a new plan format. Two copies of this ICP (incorporating the Facility Response Plan) are being submitted in electronic format on compact discs for consideration of the five-year agency review, as required by 49 CFR194.121(a)(2).

If you have any questions regarding this submittal, please feel free to contact me at 210.918.3186.

Sincerely,

Aaron W. Martinez
HSE Training and ER Specialist

Enclosures

April 30, 2008

UPS Tracking No. 1Z 3AF 434 02 9790 7380

Oregon State Department of Environmental Quality
Spill Prevention and Response Program
811 SW Sixth Avenue
Portland, OR 97204-1396

RE: Integrated Contingency Plan
Shore Terminals LLC, a NuStar Energy L.P. company
Portland Terminal – EPA FRP-81

Dear Spill Prevention and Response Program:

Please find the enclosed complete and updated Integrated Contingency Plan for the above referenced facility, which reflects a new plan format. Please accept this submittal for consideration of the five-year agency review, as required by OAR 340-141-0220(4).

If you have any questions regarding this submittal, please feel free to contact me at 210.918.3186.

Sincerely,

Aaron W. Martinez
HSE Training and ER Specialist

Enclosures

April 30, 2008

UPS Tracking No. 1Z 3AF 434 02 9921 4017

Clean Rivers Cooperative, Inc.
200 SW Market St
Portland, OR 97201

RE: Integrated Contingency Plan
Shore Terminals LLC, a NuStar Energy L.P. company
Portland Terminal – USCG FRP# P-030 / EPA FRP# 81

Dear Clean Rivers Cooperative:

Please find the enclosed complete and updated Integrated Contingency Plan (ICP) for the above referenced facility, which incorporates a new plan format.

If you have any questions regarding this submittal, please feel free to contact me at 210.918.3186.

Sincerely,

Aaron W. Martinez
HSE Training and ER Specialist

Enclosures



Bc w/o enclosures:

John Roller – Stockton
Bill Stowell - Tacoma
Mike Poirier - Stockton
Bill Dungan – Portland

Close Window

Tracking Summary

Tracking Numbers	
Tracking Number:	1Z 3AF 434 02 9880 360 5
Type:	Package
Status:	**Delivered**
Delivered On:	05/02/2008 12:07 P.M.
Delivered To:	SEATTLE, WA, US
Signed By:	MIKE
Service:	2ND DAY AIR
Tracking Number:	1Z 3AF 434 02 9992 939 9
Type:	Package
Status:	**Delivered**
Delivered On:	05/02/2008 10:53 A.M.
Delivered To:	PORTLAND, OR, US
Signed By:	PAGE
Service:	2ND DAY AIR
Tracking Number:	1Z 3AF 434 02 9893 357 3
Type:	Package
Status:	**Delivered**
Delivered On:	05/02/2008 10:53 A.M.
Delivered To:	PORTLAND, OR, US
Signed By:	PAGE
Service:	2ND DAY AIR
Tracking Number:	1Z 3AF 434 02 9532 462 9
Type:	Package
Status:	**Delivered**
Delivered On:	05/02/2008 2:13 P.M.
Delivered To:	WASHINGTON, DC, US
Signed By:	GARCIA
Service:	2ND DAY AIR
Tracking Number:	1Z 3AF 434 02 9790 738 0
Type:	Package
Status:	**Delivered**
Delivered On:	05/02/2008 12:50 P.M.
Delivered To:	PORTLAND, OR, US
Signed By:	FREZER
Service:	2ND DAY AIR
Tracking Number:	1Z 3AF 434 02 9921 401 7
Type:	Package

Status:	**Delivered**
Delivered On:	05/05/2008 1:10 P.M.
Delivered To:	PORTLAND, OR, US
Signed By:	GREEN
Service:	2ND DAY AIR

Tracking results provided by UPS: 06/10/2008 3:06 P.M. ET

NOTICE: UPS authorizes you to use UPS tracking systems solely to track shipments tendered by or for you to UPS for delivery and for no other purpose. Any other use of UPS tracking systems and information is strictly prohibited.

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TECHNICAL RESPONSE PLANNING CORPORATION

QUALITY SERVICES SINCE 1995

May 27, 2014

Facility Response Plans Officer
Office of Pipeline Safety
Pipeline and Hazardous Material Safety Administration
Department of Transportation
PHP 80
1200 New Jersey Avenue, SE
Washington, D.C. 20590-0001

RE: Facility Response Plan and Emergency Response Action Plan for the Shore Terminals LLC Portland Terminal (PHMSA Sequence Numbers 1383 and 1562)

Dear Facility Response Plans Officer:

Enclosed are two CDs of the above referenced plan for your review and approval. Please direct all questions and correspondence to Buddy Stubblefield at 9420 N.W. St. Helens Road, Portland, OR 97231 or (916) 753 4756.

Sincerely,
TECHNICAL RESPONSE PLANNING CORPORATION

Greg Desmond
Senior Project Manager

Federal Express

1610 Woodstead Court, Ste. 355 | The Woodlands, Texas 77380 | Office: (281) 955-9600 | Fax: (281) 955-0369 | E-mail: info@trpcorp.com | Internet: www emergency-response-planning.com

TECHNICAL RESPONSE PLANNING CORPORATION

QUALITY SERVICES SINCE 1995

June 24, 2013

Facility Response Plans Officer
Office of Pipeline Safety
Pipeline and Hazardous Material Safety Administration
Department of Transportation
PHP 80
1200 New Jersey Avenue, SE
Washington, D.C. 20590-0001

RE: Facility Response Plan for the Shore Terminals LLC Portland Terminal (PHMSA Sequence Numbers 1383 and 1562)

Dear Facility Response Plans Officer:

Enclosed are two flash drives of the Shore Terminals LLC Portland Terminal Facility Response Plan and Emergency Response Action Plan, as requested. Please direct all questions and correspondence to Buddy Stubblefield at 9420 N.W. St. Helens Road, Portland, OR 97231 or (916) 753 4756.

Sincerely,
TECHNICAL RESPONSE PLANNING CORPORATION

Greg Desmond
Senior Project Manager

Federal Express

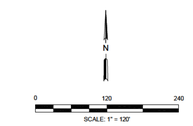
1610 Woodstead Court, Ste. 355 | The Woodlands, Texas 77380 | Office: (281) 955-9600 | Fax: (281) 955-0369 | E-mail: info@trpcorp.com | Internet: www emergency-response-planning com

(b) (7)(F)

[redacted]

LEGEND

- CONTAINMENT BERM/WALL
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE



REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

1

U.S. Department of Homeland Security

United States Coast Guard

Commander
United States Coast Guard
Sector Portland

6767 N. Basin Ave.
Portland, Oregon 97217-3992
Phone: 503-240-2333
Fax: 503-240-2586

16611
07 December 2007

FIN# PDX20054

Shore Terminal Services, Portland Terminal
Attn: Mr. Mike Poirier
9420 NW St. Helens Rd.
Portland, OR 97231

Dear Sir:

In accordance with Title 33 Code of Federal Regulations (CFR) Section 154.325(d), this letter is issued to Shore Terminal Services, Portland Terminal to certify that the Operations Manual submitted on 25 September 2007, was "Examined by the Coast Guard" and met all applicable requirements for a transfer facility outlined in 33 CFR Parts 154 and 156.

Please submit any future amendments to the Operations Manual to this office in accordance with the procedures outlined in 33 CFR Section 154.320.

Maintain a copy of this letter with each copy of your Operations Manual. Your cooperation and effort to safeguard the environment and the port are greatly appreciated.

If you have any questions, please contact the Facilities Inspection Branch at (503)-240-2333.

Sincerely,

P. G. GERRITY
Captain, U. S. Coast Guard
Captain of the Port

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Sector Portland

6767 N. Basin Ave
Portland, Oregon 97217-3992
Phone: 503-240-9333
Fax: 503-240-9586

16474
08 July 2009

FIN # PDX20054
MISLE# 3505050

NuStar Portland Terminal
Attn: Bill Dungan
9420 NW St. Helens Road
Portland, OR 97231

Dear Sir:

My office has completed a final review of the NuStar Portland Terminal facility response plan that was submitted to meet the requirements of the Oil Pollution Act of 1990 (OPA 90). No deficiencies were noted, and the plan is hereby approved. The expiration date of this approval is five years from the date of this letter. You must resubmit the plan to the Coast Guard for re-approval six months prior to expiration as required by Title 33 Code of Federal Regulations (CFR) Section 154.1065.

You are reminded to review your response plan annually as required in 33 CFR Section 154.1065 (a). If revisions are necessary, then you must submit the revisions to the Captain of the Port (COTP) and all other plan holders for information or approval, as appropriate. Changes at the facility that significantly affect the implementation of your plan must be submitted to the COTP within 30 days of the change.

I commend your efforts in developing a response plan that reflects your company's operating procedures and organizational structure. I remind you that your plan is a vital working document and that implementing the plan will help ensure effective oil spill response and mitigation. Please ensure that all parties with responsibilities under the plan are familiar with the plan's procedures and requirements.

Please keep in mind that NuStar Portland Terminal is prohibited from handling, storing, transporting, transferring, or lightering oil unless it is operating in full compliance with this plan.

A copy of this letter shall be kept with your approved Facility Response Plan.

If you have any questions, please contact the Facilities Inspection Branch at (503) 240-9333.

Sincerely,

F. G. Myer
Captain, U. S. Coast Guard
Captain of the Port

September 25, 2007

Captain of the Port
U.S. Coast Guard
Portland, Oregon
6767 N. Basin Avenue
Portland, Oregon 97217

Dear Sir,

Shore Terminals LLC, a NuStar Energy, L.P. company, is submitting this Letter of Intent to Operate a large oil transfer facility. It is submitted in compliance with Section 154.110, Subpart A and Section 154.710, Subpart D of Part 154, Subchapter O, Chapter 1, Title 33 of the Code of Federal Regulations on Pollution Prevention as published in Volume 37, number 246 in the Federal Register on Thursday, December 21, 1972.

Terminal Operator / Owner: Shore Terminals, LLC, a NuStar Energy, L.P. Company
2330 North loop 1604 West
San Antonio, Texas 78248

Terminal Information: Nustar
9420 NW St. Helens Road
Portland, Oregon 97231
Terminal Manager – William (Bill) Dungan
(503) 286-6732 (phone)
(503) 969-4550 (fax)

The facility is geographically located at 9420 NW St. Helens Road in Portland, Oregon and is bounded by the Willamette River on the northeast and St. Helens Road (Hwy 30) on the southwest.

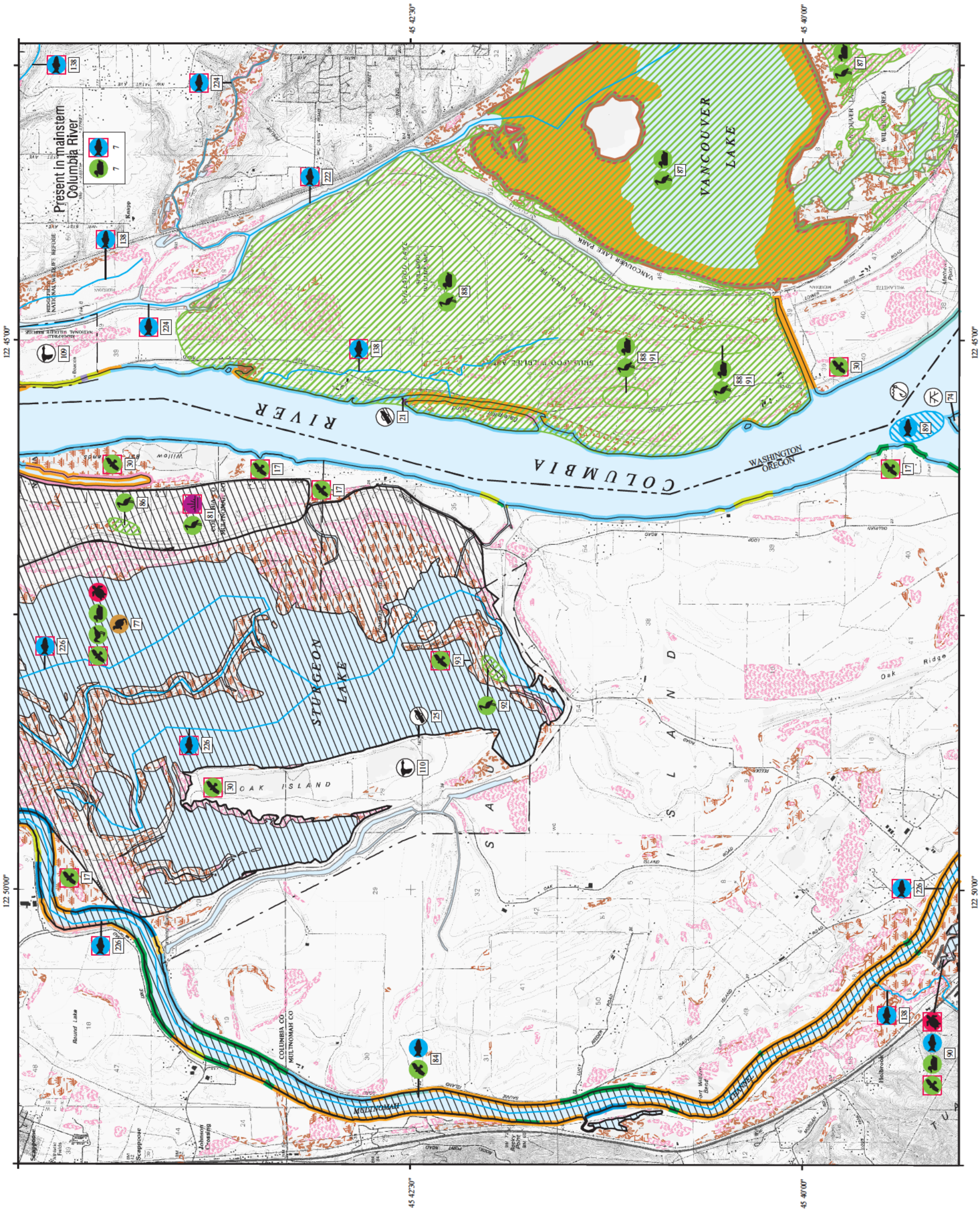
Below is the current list of persons designated as "Persons In Charge" of facility oil transfer operations:

William Dungan (QI), Todd Clark (QI), Eduardo Abreu (PIC), Danny Bundy (PIC), Robert Dowell (PIC), Mark Jacko (PIC), Mike Ochs (PIC), Lawrence Rice (PIC), Randy Taylor (PIC), William Padillas (PIC)

ERAP

LINK FILES

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE HABITATS (ESI)

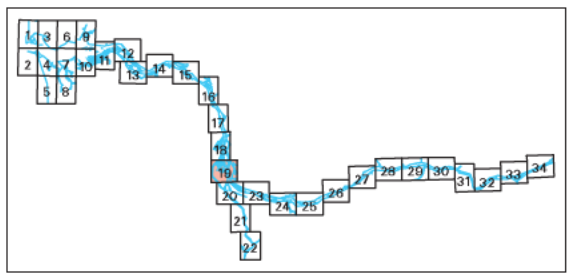
- 1A EXPOSED ROCKY SHORES
  1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
  3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
  9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB-SHRUB WETLANDS

N E S W

SCALE 1:45000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE



Not For Navigation

Published: June 2004

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

Columbia River **ESI-19**

Columbia River: ESIMAP 19

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X								X	X		-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
30	Bald eagle	T	T		2 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
77	Killdeer					X	X			X	X	X	X	X	X	X		-	-	-
	Trumpeter swan					X	X	X	X	X			X	X	X	X		-	-	-
	Tundra swan					X	X	X	X	X			X	X	X	X		-	-	-
	Waterfowl				250000	X	X								X	X		-	-	-
	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds				15000			X	X	X			X	X	X			-	-	-
	Spotted sandpiper					X	X	X	X	X			X	X	X	X		-	-	-
81	Sandhill crane				PRESENT	X	X	X	X	X				X	X	X		-	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
86	Great blue heron				6 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
87	Sandhill crane				100-200	X	X	X	X	X				X	X	X		-	-	-
	Greater white-fronted goose					X	X	X	X	X		X	X	X	X	X		-	-	-
	Ducks				100S	X	X								X	X		-	-	-
	Tundra swan					X	X	X	X	X				X	X	X		-	-	-
	Canada goose				1000S	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
88	Waterfowl				HIGH	X	X								X	X		-	-	-
	Sandhill crane					X	X	X	X	X					X	X	X	-	-	-
	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X								X	X		-	-	-
91	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
92	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
93	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
89	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
224	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

HABITAT:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
81	Water howellia	T	T	WA	PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
77	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
77	Northern river otter				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Beaver				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
21	BOAT RAMP		
25	BOAT RAMP		

PARK:

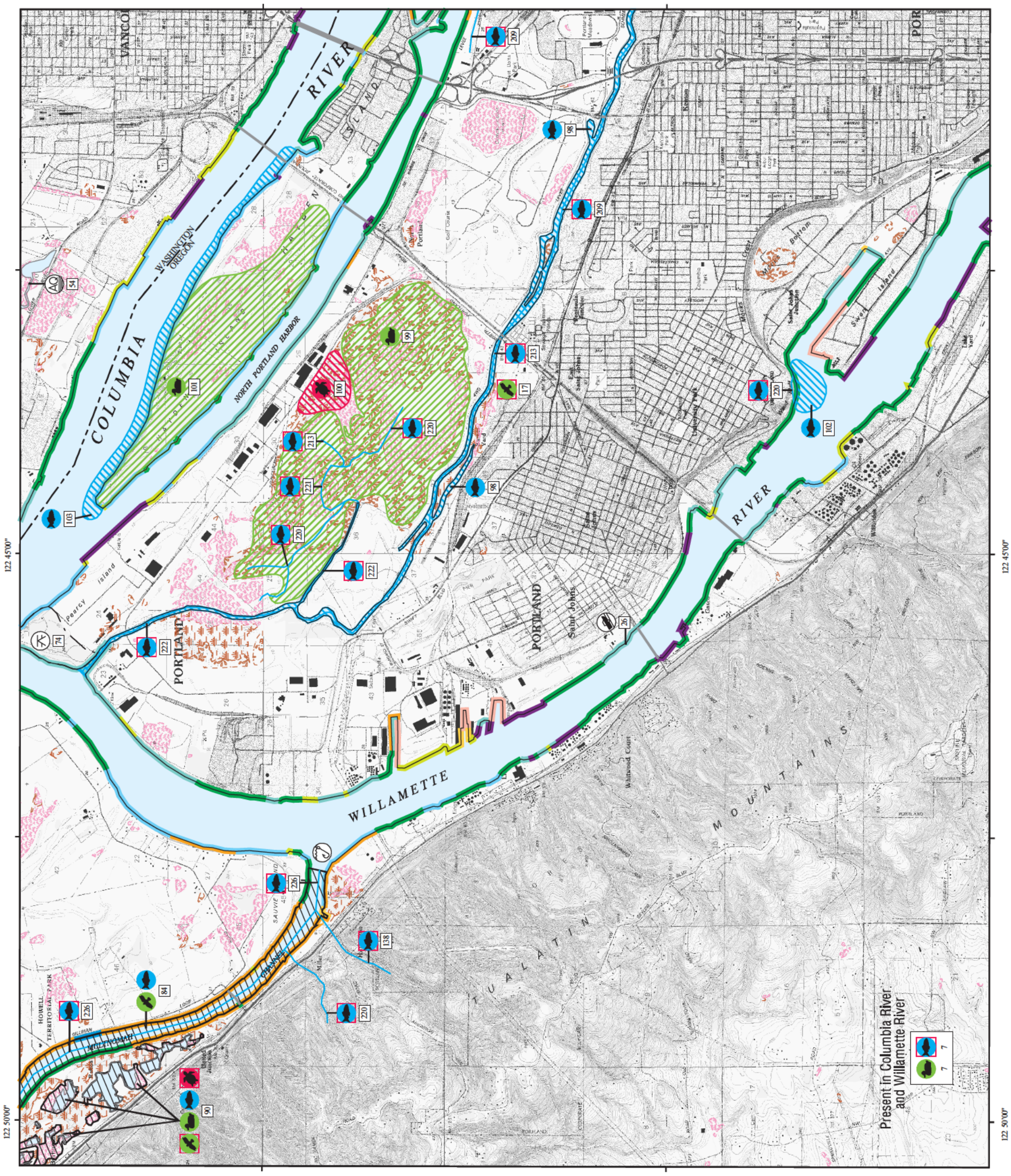
HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

WILDLIFE REFUGE:

HUN#	Name	Contact	Phone
109	RIDGEFIELD NWR	USFWS REFUGE MANAGER	360/887-4106
110	SAUVIE ISLAND WILDLIFE AREA	ODFW	503/621-3488

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

ENVIRONMENTAL SENSITIVITY INDEX MAP



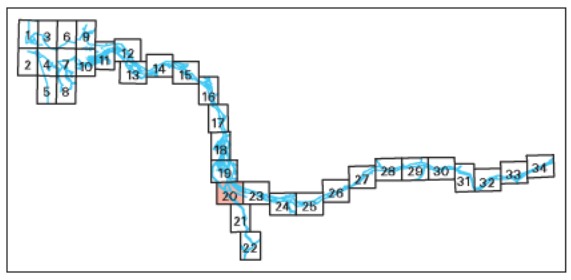
SHORELINE HABITATS (ESI)

- 1A EXPOSED ROCKY SHORES
  1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
  3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
  9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB-SHRUB WETLANDS

SCALE 1:45000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE



Not For Navigation

Published: June 2004

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

Columbia River **ESI-20**

Columbia River: ESIMAP 20

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X									X	X	-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X									X	X	-	-	-
99	Waterfowl				HIGH	X	X									X	X	-	-	-
101	Waterfowl					X	X									X	X	-	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
98	Common carp					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	White crappie					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Smallmouth bass					X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	-	JAN-DEC
	Walleye					X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	-	JAN-DEC
102	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
103	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
209	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
213	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
220	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
221	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
100	Western painted turtle				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
26	BOAT RAMP		

HATCHERY:

HUN#	Name	Contact	Phone
54	VANCOUVER REGION FIVE OFFICE	WDFW	

PARK:

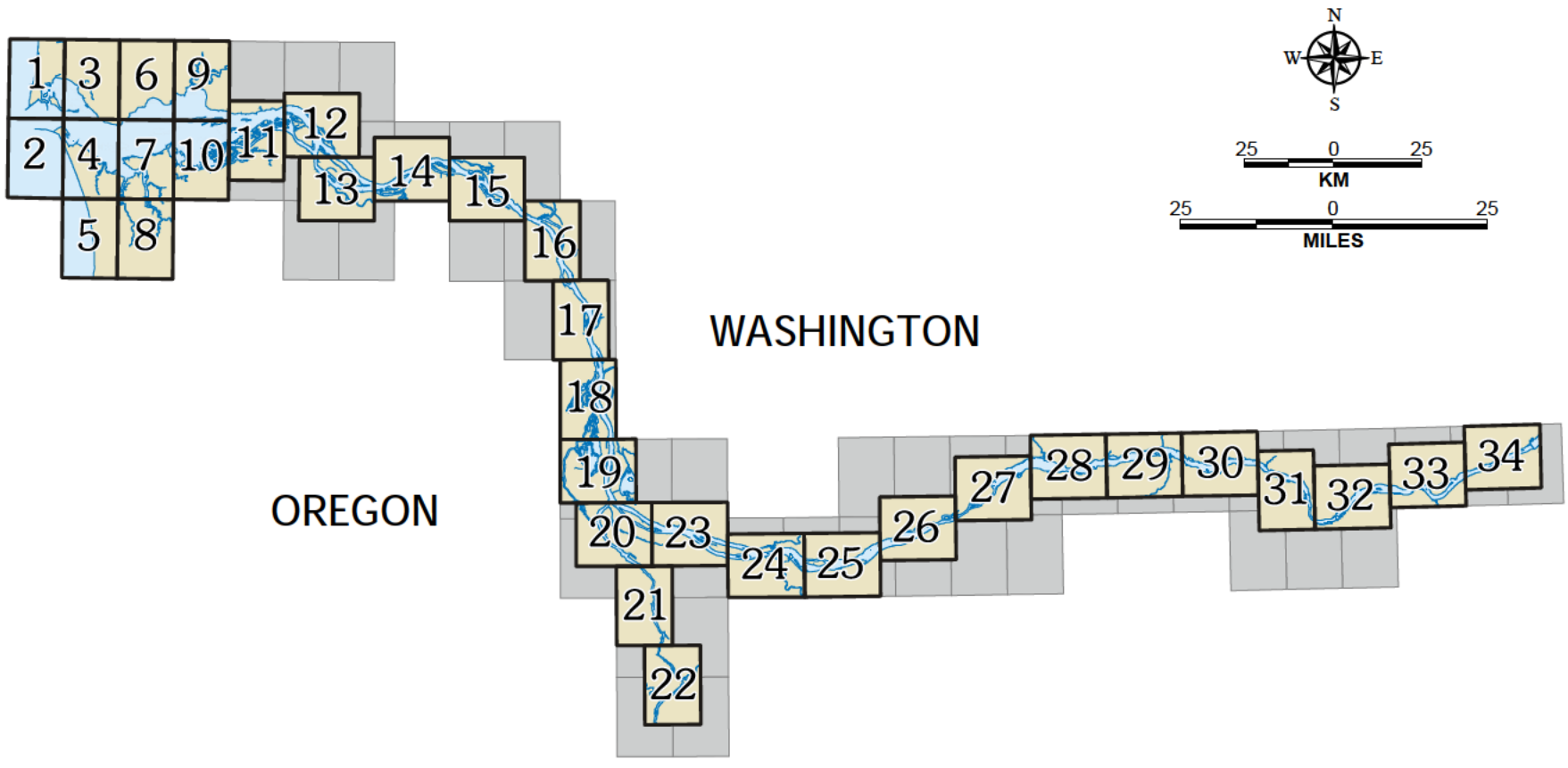
HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Sensitivity of Estuarine and Riverine Environments and Wildlife to Spilled Oil

COLUMBIA RIVER

Atlas



Supported by:

National Oceanic and Atmospheric Administration

National Ocean Service

Coastal Storms Initiative

Office of Response and Restoration
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JUNE 2004

ENVIRONMENTAL SENSITIVITY INDEX: COLUMBIA RIVER

INTRODUCTION

Environmental Sensitivity Index (ESI) maps have been developed for the estuarine and riverine areas of the Columbia River up to the John Day Dam and the Willamette River up to the locks at Oregon City. The ESI maps are a compilation of information from three main categories: shoreline habitats; sensitive biological resources; and human-use resources.

The individual map pages in this atlas are divided according to the U.S. Geological Survey (USGS) topographic quadrangle index. Black and white scanned images of these maps are used as a backdrop for each map page in the atlas. The name and date on the bottom right of each map page refer to the corresponding USGS quadrangle and its publication or latest photorevision date.

SHORELINE HABITAT MAPPING

The shoreline habitats of the Columbia River from the jetties up to the John Day Dam and the Willamette River from its mouth up to Oregon City were mapped during overflights and ground surveys conducted by an experienced coastal geologist in October 2003. The overflights were conducted at elevations of 400-600 feet and slow air speed. During this work, the ESI shoreline classification was denoted directly onto the shoreline depicted on 1:24,000-scale USGS topographic maps. Where appropriate, revisions to the existing shoreline were made and, where necessary, multiple habitats were described for each shoreline segment.

To determine the sensitivity of a particular intertidal shoreline habitat, the following factors are integrated:

1) Shoreline type (substrate, grain size, tidal elevation, origin)
2) Exposure to wave and tidal energy
3) Biological productivity and sensitivity
4) Ease of cleanup

Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affect the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury and ease of cleanup of spilled oil are also important factors in the ESI ranking. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking. The list below includes the shoreline habitats delineated for the Columbia River region, presented in order of increasing sensitivity to spilled oil.

1A) Exposed Rocky Shores
1B) Exposed, Solid Man-made Structures
2A) Exposed Wave-cut Platforms in Bedrock
3A) Fine- to Medium-grained Sand Beaches
3B) Scarps and Steep Slopes in Sand
4) Coarse-grained Sand Beaches
5) Mixed Sand and Gravel Beaches
6A) Gravel Beaches
6B) Riprap
7) Exposed Tidal Flats
8A) Sheltered Rocky Shores
8B) Sheltered, Solid Man-made Structures
8C) Sheltered Riprap
9A) Sheltered Tidal Flats
9B) Sheltered, Vegetated Low Banks
10A) Salt- and Brackish-water Marshes
10B) Freshwater Marshes
10C) Swamps
10D) Scrub-Shrub Wetlands

All of the shoreline habitats are described on pages 7-13 in terms of their physical description, predicted oil behavior, and response considerations.

Wide intertidal habitats, such as rock platforms and tidal flats, were mapped as polygons where appropriate. Only the outer edge of wetland habitats was mapped during the overflights. To provide information on the areal extent of wetlands along the river, wetland polgyons derived from the U.S. Fish and Wildlife Service's National Wetlands Inventory were plotted on the maps. These polygonal wetland types were not checked or edited extensively as a part of this project.

SENSITIVE BIOLOGICAL RESOURCES

Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource experts from Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Oregon State University (OSU), Washington Department of Ecology (WADOE), Washington State Parks (WSP), Oregon State Parks (OSP), Department of the Interior (DOI), Bureau of Land Management (BLM), and the Lower Columbia River Estuary Program (LCREP). Information collected and depicted on these maps denotes the key biological resources that are most likely at risk in the event of an oil spill. Seven major categories of biological resources are included in this atlas: terrestrial mammals, marine mammals, birds, reptiles, fish, invertebrates, and benthic habitats/rare plants.

MARINE MAMMALS
- Pinnipeds

BIRDS
- Diving Birds
- Gulls and Terns
- Passerine Birds
- Raptors
- Shorebirds
- Wading Birds
- Waterfowl

TERRESTRIAL MAMMALS
- Small Mammals
- Ungulates

FISH
- Fish

REPTILES
- Turtles

INVERTEBRATES
- Bivalves
- Crabs

HABITATS
- Floating or Submersed Aquatic Vegetation

TERRESTRIAL MAMMALS

Terrestrial mammals depicted in this atlas include one endangered species as well as several common species. The federally endangered Columbian white-tailed deer (*Odeocoileus virginianus leucurus*) is a prevalent terrestrial mammal in Columbia River estuary. This sub-specie of deer inhabits low-lying mainland areas and islands long the Columbia River from about Skamakowa, Washington, to Port Westward, Oregon. Habitat loss and low productivity have severely reduced the number of deer present and population numbers now range from about 300-500 individuals. The majority of the remaining population inhabits the Julia Butler Hansen National Wildlife Refuge (NWR), which is located in the eastern reaches of the estuary. In addition, areas with highly abundant populations of semi-aquatic fur-bearing mammals, such as the river otter, are also shown on the maps. River otter, mink, beaver, and nutria distributions are based on expert opinion (2004), USFWS maps (1984), and Oil Spill Recovery Plan maps (1979). These distributions are depicted mainly in aquatic habitats such as in or along certain rivers or on islands within the Columbia River mainstem.

The expert contact for the Columbian white-tailed deer is Alan Clark (USFWS) at the Julia Butler Hansen NWR (360-795-3915).

Terrestrial mammals are displayed on the maps as polygons with a brown vertical hatch pattern, or as point occurrences indicated by a small brown dot. In cases where multiple resource types inhabit the same polygon (such as mammals and birds), a black hatch, multi-group pattern is used rather than a brown hatch pattern. A brown icon with a small mammal silhouette is used to indicate the presence of terrestrial mammals and is associated with all polygons or points containing these resources. In the case of the Columbian white-tailed deer, a brown icon with a deer silhouette is used in association with points or polygons containing this species.

The RAR# under the icon (or icon group) on the map references a table on the reverse side of the map. In this table, the first column gives the species name. The second column indicates whether the species is listed as a species of special concern (C), threatened (T), or endangered (E) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentrations for terrestrial mammals were represented with either an estimate of individuals present or, in the absence of specific numbers, by using a descriptive term, such as "present" or "high". "Present" is used for endangered or rare species that were known to occur at a site where more detailed concentration information was not available. Descriptive concentrations are based on the opinion of local resource managers or experts concerning relative concentrations within the study area. In many cases, concentration information is not well known. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an "X" is placed in the month column.

MARINE MAMMALS

Marine mammals depicted in the Columbia River atlas include Steller sea lions (federally threatened), California sea lions, and harbor seals. Seal areas shown on the maps represent major haul-out sites and pupping areas. Of the three pinniped species occurring in the Columbia River, only the harbor seal breeds in the estuary and can be considered a resident. The other two species, California sea lion and Steller sea lion, are migratory and use the estuary seasonally. Haul-out sites for all species have been indicated on the maps as either a point or a polygon. In addition to haul-out areas shown on the maps, harbor seals and California sea lions may be present throughout the estuary and may venture further up river and into some of the tributaries. Harbor seal feeding concentrations are often located in waters adjacent to major haul-out sites, but occur in other areas as well. Information on marine mammal distribution and abundance was provided by ODFW staff and WDFW priority habitat digital data. Though not considered threatened or endangered species, it should be noted that harbor seals and California sea lions are legally protected by the Marine Mammal Protection Act.

Expert contacts for marine mammals in the Columbia River are Robin Brown (ODFW, Corvallis, OR), 541/757-4186; Matthew Tennis (ODFW, Astoria, OR); and Brent Norberg (NOAA, Seattle, WA), 206/526-6733.

The species that were mapped are described below:

Steller sea lion - (Federal threatened, listed 1990)

Steller sea lions are migratory inhabitants of the Columbia River and can be found primarily on the South Jetty in the mouth of the estuary. Most of the Steller sea lions utilizing this haul out are females and young. Relatively few large males are present. Maximum densities of Steller sea lions (80-100) occur in January and through the winter and spring. Few Stellar sea lions are present in the summer and fall.

California sea lion

California sea lions utilize the rocky tip at the South Jetty in the mouth of the Columbia River as their primary haul-out site. They may also be found throughout the estuary and during the winter they are numerous in the upriver portion of the estuary. The use of the river from January through March corresponds to the annual run of smelt, lamprey, and steelhead.

Harbor seal

The harbor seal is the only permanent resident of the Columbia River estuary. Populations fluctuate from about 500 in the summer to 1,500 in the winter with abundances being greatest in the winter and mid-spring. Harbor seals tend to utilize sand bars and rocky islands as haul-out sites and may be present at Desdemona, Taylor, and Miller sands as well as several other locations at low tide.

Marine mammal areas are displayed on the maps as polygons with a brown hatch pattern. In cases where multiple resource types inhabit the same polygon (such as marine mammals and fish), a black hatch, multi-group pattern is used rather than a brown hatch pattern. A brown icon with a seal silhouette is used to indicate the presence of marine mammals and is associated with all polygons containing these resources.

The RAR# under the icon (or icon group) on the map references a table on the reverse side of the map. In this table, the first column gives the species name. The second column indicates whether the species is listed as a species of special concern (C), threatened (T), or endangered (E) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration was represented as the annual peak number of individuals present at a specific haul out site. In the absence of specific numbers, concentration was represented as a descriptive term, such as "high". Descriptive concentrations are based on the opinion of local resource managers or experts concerning relative concentrations within the study area. In many cases, concentration information is not well known. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an "X" is placed in the month column. The final columns list the time periods for sensitive life-history activities, such as mating and pupping.

BIRDS

Birds in this atlas are divided into several species subgroups based on taxonomy, morphology, behavior, and oil spill vulnerability and sensitivity. The species table lists all the birds included on the maps, sorted by subgroup. These species are included either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as threatened or endangered. Migratory or wintering concentration areas, nesting sites and colonies, and protected species are especially emphasized. Waterfowl, shorebird, and wading bird data were compiled from various reports and information provided by USFWS, ODFW, and adapted from WDFW digital priority habitat data. Also, data on Caspian terns and other seabirds were derived from the Columbia River Bird Research 2003 Season Summary (Roby et al. 2001).

Eagle nests and feeding areas - (Federal/state threatened)

Nesting locations for bald eagles are shown. These data are a compilation of surveys conducted over a 20-year period by OSU. Only nests that have been active within the last five years were included on the maps. Exact nest sites may vary from year to year. Bald eagle nest locations are shown as green points on the maps. These points may or may not indicate the exact position of the nests in order to protect sensitive nesting locations. Where multiple nests were found in the same location, a polygon was used to show the distribution of those nests. Locations are also shown where bald eagles have been documented as being present in high numbers feeding along rivers and in bays. Information on raptor feeding areas was gathered during interviews with ODFW and NOAA staff.

Terns and diving bird nesting and roosting

Locations are shown on the maps where terns and diving birds have been documented as nesting. Of particular note is East Sand Island in the Columbia River estuary, which supports the largest breeding colony of Caspian terns in the world (~9,900 pairs, Collis et al. 2002). This island also provides breeding habitat for the largest known Pacific coast colony of double-crested cormorants (~8,700 pairs) and large numbers of Brandt's cormorants (40-80 pairs). It is the largest nighttime roost for the brown pelican (federally endangered) (>10,000 individuals). Several additional islands and nearshore areas within the estuary also support large numbers of nesting and migrating terns and diving birds. Users should be aware that seabirds may be feeding and rafting in nearshore areas throughout the estuary in the vicinity and up to several miles away from their nests. During a spill, the experts listed below should be contacted for information on current locations.

Waterfowl

Waterfowl are seasonally abundant throughout the Columbia River during the fall and winter months. Locations are shown where waterfowl are nesting and feeding along the river as determined by expert opinion from ODFW, USFWS, and NOAA staff, as well as WDFW priority habitat data. USFWS waterfowl data were derived from aerial surveys conducted annually. Intertidal marshes and agricultural areas in the lower river provide key habitat for an abundance of waterfowl including mallards, northern pintails, wigeons, Canada geese, scaup, and scoters. These species also tend to utilize small embayments and coves along the Columbia River, as well as areas within the mainstem, as feeding and resting areas. Waterfowl species of particular concern include the dusky Canada goose and the Aleutian goose (federally threatened).

Wading bird roosting/nesting

Nesting and roosting locations for wading birds are shown on the maps. Nesting sites for wading birds such as the great blue heron were generally depicted on the maps as large polygons to protect the exact location of sensitive breeding areas. Roosting and foraging sites for the sandhilll crane (Washington state endangered) are also indicated on the maps. Sandhill cranes utilize open wetlands for roosting and are especially prevalent in the Ridgefield NWR Complex and the Sauvie Island Wildlife Management Area (Engler et al., 2004). Data concerning wading bird roosting, foraging, and nesting locations were compiled from expert information gathered from USFWS and ODFW staff and adapted from WDFW priority habitat digital data.

Migratory shorebird stopover

Areas where large concentrations of migratory shorebirds occur annually during the spring and fall months are indicated on the maps. During these months, several species of shorebirds utilize the Columbia River as a stopover in their migratory route including dunlin, sanderlings, sandpipers, and others. Substantial numbers of shorebirds may also overwinter in the estuary. Information on the locations of shorebird concentration areas was based on USFWS maps and expert information received from NOAA and USFWS staff.

Expert contacts for birds are Frank Issacs (bald eagles, OSU, Philomath, OR) 541/929-7154; Herman Biederbeck (ODFW, Tillamook, OR) 503/842-2741; Keith Kohl (ODFW, The Dalles, OR) 541/296-4628; Dan Roby (seabirds, OSU) 541/737-1955; Alan Clark (USFWS, Julia Butler Hansen NWR, Cathlamet, WA) 360/795-3915; Eric Anderson (USFWS, Ridgefield NWR complex) 360/887-

3883; and Mark Nebeker (ODFW, Sauvie Island Wildlife Area) 503/621-3488 ext. 25.

Birds are shown on the maps as polygons with a green hatch pattern. Nesting colonies are shown as green points or polygons in cases where multiple nests may extend over a wider area. The points may not necessarily be in the exact location of the nesting colonies. In cases where multiple resource types occupy the same polygon (such as birds and marine mammals), a black hatch, multi-group pattern is used rather than a green hatch pattern. A green icon (or icons) with the appropriate subgroup silhouette(s) is used to indicated the presence of different bird types (waterfowl, shorebirds, etc.). The appropriate icons are associated with all polygons containing birds.

The RAR# under the icon (or icon group) on the maps references a table on the reverse side of the map. In this table the first column contains the species common name. The second column indicated whether the species is listed as a species of special concern (C), threatened (T), or endangered (E) on the federal (F) list. The next column provides an estimate of the concentration of the species at the site. Concentration is usually represented by number of birds, although the term "high" may be used when an exact number is not known. Concentration numbers, when reported, are represented as the annual peak number of individuals present at a specific location. In some cases, concentration values have not been used if information was not available. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column. The last three columns denote the migratory or nesting seasonality, if applicable, for each species.

REPTILES

Few reptiles of concern are found along the Columbia River. The common western painted turtle is present in many areas along the river. In addition, the western pond turtle (Washington state endangered) has been released into several areas in an attempt to augment declining populations in the area. Nesting and foraging areas for the western pond turtle were determined based on expert knowledge and information provided by local USFWS staff.

The expert contact for the western pond turtle is Eric Anderson (USFWS, Ridgefield, WA) 306/887-3883.

Reptiles are depicted as polygons with a red hatch pattern. In cases where multiple resources types occupy the same polygon, a black hatch, multi-group pattern is used rather than a red hatch polygon. A red icon with a turtle silhouette is used to indicate the presence of reptiles and is associated with all polygons containing these resources.

The RAR# under the icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as a species of special concern (C), threatened (T) or endangered (E) on the federal (F) and/or state (S) lists. The next column provides an estimate of the concentration of the species at the site. Concentration is listed as "high" for areas of known usage by the western pond turtle. In some cases, concentration values have not been used because information was not available. Note that concentration should not be interpreted as the "level of concern" of "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column.

FISH

Fish species depicted for Columbia River include selected estuarine, anadromous, and freshwater species. Species of commercial, recreational, ecological, and/or conservation interest are emphasized. Fish are mapped as multi-species assemblages to the greatest extent possible. Regional fish distributions were depicted with the assistance of ODFW, WDFW, and NOAA fish biologists.

Anadromous fish

Wild and hatchery-raised stocks of anadromous fish are major components of the freshwater ecosystem of the Columbia River. Chinook, chum, Coho, and sockeye salmon, rainbow trout (steelhead), and others are present in the area and utilize tributary rivers and streams along the Columbia River, as well as some areas in the mainstem, as spawning grounds. When adult fish return to their natal streams, they tend to concentrate at stream mouths prior to moving upstream. Most spawning beds are well upstream in the tributaries and are beyond the limit of tidal excursions that could carry oils slicks inland. In contrast, juvenile salmon and other fish species may concentrate in shallow, near shore habitats in the mainstem river and are likely to be impacted during a spill.

Within the Columbia River, several of the anadromous fish species have federal or state listed runs (e.g., Snake River fall Chinook run). The specific runs and their associated state or federal listings are presented in Table 1. Anadromous stream location for each fish species was depicted on the maps from data compiled by NOAA from ODFW, WDFW, and Streamnet digital data. Other areas of high concentrations of juvenile and adults in the mainstem river were identified by ODFW, USFWS, and NOAA staff. A review of selected species utilizing the Columbia River is presented below. Note that life history and seasonal presence for the following species is generalized for the entire Columbia River and local biologists should be consulted for exact run timings.

Chinook salmon

Three runs of Chinook salmon (*Oncorhynchus tshawytscha*) return to the lower Columbia River including spring Chinook, "tule" fall Chinook, and "bright" fall Chinook. Spring Chinook generally return to freshwater in March and April and spawn in the late summer. Spring Chinook juveniles migrate to the ocean after rearing in the river for one year. The distinction between the fall runs of Chinook refers to the timing of spawning. Both types of fall Chinook return to the Columbia River from August to October/November. However, "tule" fall Chinook spawn almost immediately in large tributary mainstems, while the "brights" spawn from November to January farther upriver. Juveniles for both types of fall Chinook migrate downstream as sub-yearlings during their first spring and summer. For the purposes of simplification on these maps, the two fall runs are treated as one. Several of the Chinook salmon runs are federally or state listed, and a review of those species can be found in Table 1.

Rainbow trout (Steelhead)

Similar to the Chinook salmon, the rainbow trout (Steelhead) (*Oncorhynchus mykiss*) has both summer and winter runs. Summer Steelhead typically enter the Lower Columbia River between May and October and spawn between February and April. In contrast, winter run Steelhead return from the ocean between December and May and generally spawn in April and May. Juveniles of both runs may rear in freshwater from 1 to 4 years before returning to the ocean. Several of the Steelhead runs are federally or state listed, and a review of those species can be found in Table 1.

Chum Salmon

Chum salmon (*Oncorhynchus keta*) return to the Columbia River to spawn from September through November. Most spawning occurs in the lower portions of the Columbia River tributaries and in some portions of the mainstem river. Chum fry migrate downstream to the ocean immediately after emergence from spawning beds. Annual runs of Chum have declined dramatically and now average only 4,000 fish, about 3% of the historic run size. All populations of Chum were listed as threatened in 1999 (Table 1). Hardy, Hamilton, and Ives Island areas in the mainstem river near Pierce NWR retain some of the last remaining Chum spawning grounds in the lower Columbia River, thus care should be taken to protect these areas in the event of an oil spill.

Coho salmon

Coho salmon (*Oncorhynchus kisutch*) return to the Columbia River as three year olds during the fall with most spawning for this species occurring in September and October. Juvenile Coho will rear for one year in the river prior to migrating to the ocean. Coho salmon are currently a candidate species under review for listing under the Endangered Species Act (Table 1.). Most Coho salmon present in the Columbia River are hatchery raised and released fish. Wild populations are generally believed to have been extirpated or to consist of no more than a few hundred fish.

Sockeye salmon

Sockeye salmon (*Oncorhynchus nerka*) return to the Columbia River at 3-5 years of age in June and July. Peak spawning months for this species are September and October. Juvenile Sockeye generally rear for one full year in freshwater lakes before migrating to the ocean. Sockeye salmon have declined dramatically in recent years from historic levels, and a portion of the Sockeye run was listed as endangered in 1991 (Table 1).

Sturgeon

Two species of sturgeon occur in the Columbia River, white sturgeon (*Acipenser transmontanus*) and the green sturgeon (*A. medirostris*). Both species are considered to be facultatively anadromous with the ability to live in both fresh and saltwater, but with no requirement for marine residence in their life history. Green sturgeon generally do not range far upstream from the estuary, while the white sturgeon is distributed throughout the Columbia River from the mouth to the John Day dam. The lower Columbia River below Bonneville Dam exhibits the most highly productive populations of white sturgeon on the entire west coast.

Expert contacts for anadromous and warm water fish in the area include Steve Stone (NMFS, Portland, OR) 503/231-2317; Ben Meyer (NMFS, Portland, OR) 503/230-5425; Steve Pribyl (ODFW, The Dalles, OR) 503/296-4628; Thomas Stahl (ODFW, Willamette

River, OR) 503/657-2000 ext. 231; John North (ODFW, Clackamas, OR) 503/657-2000 ext.251; Tom Rien (ODFW, Clackamas, OR) 503/657-2000 ext. 404; Wayne van der Naald (ODFW, Clackamas, OR) 503/657-2000 ext. 237; and Dan Guy (NOAA, Lacey, WA) 360/534-9342.

Fish are generally shown on the maps as polygons with a blue hatch pattern. Anadromous streams were depicted as linear features using a bright blue color readily distinguishable from the light blue color and black outline used for general hydrographic features. In cases where multiple resource types occupy the same polygon (such as fish and waterfowl), a black hatch, multi-group pattern is used rather than a blue hatch pattern. A blue icon with a fish silhouette is used to indicate the presence of fish. This icon is associated with all polygons or arcs containing fish.

The RAR# under the icon or icon group references a table on the reverse side of the map. In this table, the first column gives the species name. The second column denotes whether the species has been designated a species of special concern (C), endangered (E), or threatened (T) on either the state (S) and/or federal (F) lists. For anadromous salmon species an asterisk (*) appears on the data table. For those species refer to Table 1 below for detailed status information. The next column provides an estimate of the concentration of the species at the site. Descriptive terms such as "high" were used in most cases based upon information provided by ODFW and USFWS staff and adapted from WDFW priority habitat data. Concentration values were not used when no information was available.

The seasonality for each species or resource is shown in the next twelve columns corresponding to the months of the year. If a species or resource is present at a location in a particular month an "X" is placed in the month column. The last column denotes different life-history stages or activities including spawning, eggs, larvae, juveniles, and adults.

TABLE 1. Anadromous fish present in the Columbia River and its tributaries. Specific runs are classified as threatened (T), endangered (E), or candidate (Cand.) on either the federal and/or state (Washington, WA; Oregon, OR) level where applicable. The date of listing through the Endangered Species Act (ESA) is also given. S-C=Sensitive-Critical, S-V=Sensitive-Vulnerable, NL=Not listed.

Anadromous Fish	OR	WA	Federal (ESA)	ESA Year Listed
Chinook Salmon (Fall and Spring)				
Lower Columbia R. ESU	S-C	Cand.	T	1999
Upper Willamette R. ESU spring run	T	NL	T	1999
Upper Columbia R. spring run ESU	NL	Cand.	E	1999
Snake R. fall run ESU	T	Cand.	T	1992
Snake R. spring/summer run ESU	T	Cand.	T	1992
Rainbow Trout (Steelhead) (Winter and Summer)				
Lower Columbia R. ESU	S-C	Cand.	T	1998
Middle Columbia R. ESU	S-C	Cand.	T	1999
Upper Columbia R. ESU		Cand.	E	1997
Upper Willamette R. ESU winter run	S-C	NL	T	1999
Snake R. basin ESU	S-C	Cand.	T	1999
Sockeye Salmon				
Snake River ESU	NL	Cand.	E	1991
Coho Salmon				
Lower Columbia R./SW Wash. ESU	E (OR)	NL	Cand.	1995
Chum Salmon				
Columbia River ESU	S-C	Cand.	T	1999
Bull Trout				
Bull Trout-Columbia River Basin	S-C	NL	T	1998
Smelt (Euchalon)	NL	Cand.	NL	
White Sturgeon	NL	NL	NL	
Green Sturgeon	NL	NL	NL	

INVERTEBRATES

Invertebrate species of commercial, subsistence, recreational, ecological, and/or conservation interest are emphasized in this atlas and include crabs, clams, and mussels. Invertebrate distributions are based on information supplied by ODFW staff and WDFW priority habitat data.

The expert contact for invertebrates/shellfish in the Columbia River estuary is Matthew Hunter (ODFW, Astoria, OR) 503/325-2462.

Invertebrates are shown on the maps as polygons with an orange hatch pattern. An orange icon with a crab or bivalve silhouette is used to indicate the presence of these species. The icons are associated with all polygons or point features containing invertebrates.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Descriptive terms such as "high" were used in most cases based upon information provided by ODFW staff and WDFW priority habitat data. Concentration values were not used when no information was available.

The seasonality for each species or resource is shown in the next twelve columns corresponding to the months of the year. If a species or resource is present at a location in a particular month an "X" is placed in the month column. The last column denotes different life-history stages for invertebrates including spawning, eggs, larvae, juveniles, and adults.

BENTHIC HABITATS/RARE PLANTS

Eelgrass beds were mapped in the Columbia River estuary using expert opinion of NOAA and ODFW staff in conjunction with USFWS maps. Areas of concern for eelgrass include Grays Bay, Youngs Bay, and Bakers Bay in the estuary. Additional eelgrass beds may be present in other areas within the estuary.

Individual plant species of particular concern depicted on the maps include the wetland species water howellia (*Howellia aquaticus*) (federal threatened) and Columbia yellow cress (*Rorippa columbiae*) (Washington State threatened). Water howellia occurs in the western wetland habitats of Ridgefield NWR while the Columbia yellow cress occurs in the seasonally inundated cobble habitats near Pierce NWR. Both species were mapped using maps provided by USFWS through the Ridgefield National Wildlife complex. Care should be taken in the event of a spill to prevent impacts to these species from oil as well as trampling during periods of annual growth.

The expert contact for water howellia and Columbia yellow cress is Eric Anderson (Ridgefield, WA) 360/887-3883.

Submersed habitats and rare plants are depicted as polygons shaded with a purple hatch pattern. In cases where multiple resource types occupy the same polygon (such as eelgrass and fish), a black hatch, multi-group pattern is used rather than a purple hatch polygon. A purple icon with the appropriate silhouette is used to indicate the presence of submersed habitats or plants and is associated with all polygons or point features containing these resources. The RAR# under the icon references a table on the reverse side of the map. In this table, the first column gives the species name. The next column provides an estimate of the concentration of the species at the site. Concentration is generally listed using a descriptive term, such as "high," "medium," or "low." Records for rare and endangered species may also contain "present" in the concentration field where more detailed concentration descriptions are not appropriate or not available. The species seasonality is shown in the next twelve columns, representing the months of the year. If the species is present at that location in a particular month, an "X" is placed in the month column. Submersed habitats and rare plants were mapped as being present year round.

HUMAN-USE FEATURES

The human use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations. All the features are represented by icons indicating the type of human-use resource present. Many of the point features were mapped using digital data sources, expert information, published sources, and USGS topographical maps. Boat ramps and marina locations were supplemented by information gathered from the shoreline mapping overflights. Hardcopy maps were used to supplement or refine the digital management area data.



Aquaculture/Hatchery: Locations of aquaculture sites. When known, the site name, owner/manager, and contact information are provided on the data tables for each map. This information was provided by ODFW and WDFW staff.

Boat Ramp: Location of boat ramps. Boat ramp site names are provided on the data tables for each map, when available.

Coast Guard: Coast Guard station and marina.

Ferry: Sites where ferry landings are located.

Lock/Dam: Location of locks, dams, or similar structures.

Marina: Location of marinas. Marina names are provided on the data tables for each map, when available.

National Forest: Areas managed by USDA Forest Service.

Park: Areas managed by either Oregon State Parks or Washington State Parks for recreational and natural resource purposes. The property name, management agency, contact information, and telephone number are provided on the data table for each map.

Recreational Fishing: Location of recreational fishing sites. This information was provided by local experts.

Subsistence Fishing: Areas utilized by native Americans in Oregon and Washington for the collection of fish and shellfish.

Water Intake: Location of water intake. For most water intakes, the site name, owner/manager, contact person, and telephone number are provided on the data table for each map.

Wildlife Refuge/Management Areas: Areas managed by the USFWS as National Wildlife Refuges or by the State as Wildlife Management Areas. The property name, management agency, contact information, and telephone number are provided on the data table for each map.

GEOGRAPHIC INFORMATION SYSTEM

The entire atlas product is stored in digital form in a Geographic Information System (GIS) as spatial data layers and associated databases. The format for the data varies depending on the type of information or features for which the data are being stored.

Under separate cover is a metadata document that details the data dictionary, processing techniques, data lineage, and other descriptive information for the digital data sets and maps that were used to create this atlas. Below is a brief synopsis of the information contained in the digital version. Refer to the metadata file for a full explanation of the data and its structure.

SHORELINE CLASSIFICATIONS

The ESI shoreline habitat classification is stored as lines and polygons with associated attributes. In many cases, a shoreline may have two or three different classifications or colored lines on the shoreline. These multiple classifications are represented on the maps by double and triple line patterns and in the database by ESI#1/ESI#2, where ESI#1 is the landward-most classification and ESI#2 is the seaward-most classification. In addition to the line features, exposed wave-cut platforms (ESI = 2A), tidal flats (ESI = 7, ESI = 9A), marshes (ESI=10A, ESI=10B), swamps (ESI=10C), and Scrub-Shrub Wetlands (ESI = 10D) are also stored as polygons. Therefore, the legend on each map may contain two patterns depicted on a map: a linear feature as well as a polygonal feature.

SENSITIVE BIOLOGICAL RESOURCES

Biological resources are stored as polygons or points. Associated with each feature is a unique identification number that is linked to a series of data tables that further identify the resources. The main biological resource table consists of a list of species identification numbers for each site, the concentration of each species at each site, and identification codes for seasonality and source information. This data table is linked to other tables that describe the seasonality and life-history time-periods for each species (at month resolution) for the specified map feature. Other data tables linked to the first table include: the species identification table, which includes common and scientific names; the species status table, which gives information for state and/or federal threatened or endangered listings; and the source database, which provides source metadata at the feature-species level (specific sources are listed for each species occurring at each mapped feature in the biology coverages).

HUMAN-USE FEATURES

Human-use features are represented as lines, points, or polygons. The resource name, the owner/manager, a contact person, and phone number are included in the database for management areas, water intakes, marinas, and aquaculture sites when available. All metadata sources are documented at the feature level.

REFERENCES

Listed below are the major hardcopy reference materials used during this project. In some instances, reference materials were not directly used as source materials, but were instead used or interpreted by scientists or resource managers who provided expert knowledge or personal communication concerning resources depicted in the atlas.

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ACKNOWLEDGEMENTS

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Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), the National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Oregon State University (OSU), Washington State Parks (WSP), Oregon State Parks (OSP), Washington Department of Ecology (WADOE), Department of the Interior (DOI), the Bureau of Land Management (BLM), and the Lower Columbia River Estuary Program (LCREP) staff from several divisions and programs contributed a vast amount of information to this effort, including first-hand expertise, publications, reports, maps, and digital data. Specific individuals and references used directly as source material are detailed in the metadata report that accompanies the digital data set. At Research Planning, Inc. (RPI) of South Carolina, numerous scientific, GIS, and graphics personnel were involved with different phases of the project. Shoreline habitat mapping was conducted by Colin Plank. The biological and human-use data were collected, compiled, and edited by Amy Gras-Mead and Christine Lord. Jon Whitlock, Lee Diveley, and Chris Locke entered, processed, and produced the GIS data under the supervision of Mark White, GIS director. Cartographic design and graphic art production was provided by Joe Holmes. Vermell Simon and Wendy Early prepared the final text documents and metadata.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural and human-use resources for the purposes of oil and hazardous materials spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held by WDFW, ODFW, USFWS, NOS, NMFS, BLM, or other agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural and cultural resource agencies, or in place of field surveys. This atlas should not be used for navigation.

SPECIES LIST

*Common Name	*Species Name

MARINE MAMMALS

PINNIPED

Steller sea lion	*Eumetopias jubatus*
Harbor seal	*Phoca vitulina*
California sea lion	*Zalophus californianus*

TERRESTRIAL MAMMALS

SMALL MAMMAL

Northern river otter	*Lutra canadensis*
Beaver	*Castor canadensis*
Muskrat	*Ondatra zibethicus*
Mink	*Mustela vison*
Nutria	*Myocastor coypus*

UNGULATE

Columbian white-tailed deer	*Odocoileus virginianus leucurus*

BIRDS

DIVING BIRDS

Western grebe	*Aechmophorus occidentalis*
Double-crested cormorant	*Phalacrocorax auritus*
Brandt's cormorant	*Phalacrocorax penicillatus*
Pelagic cormorant	*Phalacrocorax pelagicus*
Brown pelican	*Pelecanus occidentalis*
Loons	*Gavia spp.*
Grebes	

GULLS AND TERNS

Glaucous-winged gull	*Larus glaucescens*
Western gull	*Larus occidentalis*
Ring-billed gull	*Larus delawarensis*
Caspian tern	*Sterna caspia*
Gulls	

PASSERINES

Purple martin	*Progne subis*

RAPTORS

Bald eagle	*Haliaeetus leucocephalus*
Osprey	*Pandion haliaetus*
Peregrine falcon	*Falco peregrinus*
Goshawk	*Accipiter gentilis*
Turkey vulture	*Cathartes aura*

SHOREBIRDS

Spotted sandpiper	*Actitis macularia*
Dunlin	*Calidris alpina*
Western sandpiper	*Calidris mauri*
Sanderling	*Calidris alba*
Killdeer	*Charadrius vociferus*
Shorebirds	

WADING BIRDS

Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Green heron	*Butorides virescens*
Sandhill crane	*Grus canadensis*
Wading birds	

WATERFOWL

Tundra swan	*Cygnus columbianus*
Canada goose	*Branta canadensis*
Greater white-fronted goose	*Anser albifrons*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Green-winged teal	*Anas crecca*
Canvasback	*Aythya valisineria*
Common goldeneye	*Bucephala clangula*
Harlequin duck	*Histrionicus histrionicus*
White-winged scoter	*Melanitta fusca*
Surf scoter	*Melanitta perspicillata*
Common merganser	*Mergus merganser*
American coot	*Fulica americana*
American wigeon	*Anas americana*
Trumpeter swan	*Cygnus buccinator*
Dusky Canada goose	*Branta canadensis occidentalis*
Wood duck	*Aix sponsa*
Aleutian Canada goose	*Branta canadensis leucopareia*
Geese	
Scaup	*Aythya spp.*
Waterfowl	
Dabbling ducks	
Diving ducks	
Ducks	
Swans	*Cygnus spp.*

*Common Name	*Species Name

REPTILE

TURTLE

Western pond turtle	*Clemmys marmorata*
Western painted turtle	*Chrysemys picta bellii*

FISH

FISH

White sturgeon	*Acipenser transmontanus*
Green sturgeon	*Acipenser medirostris*
Coastal Cutthroat trout	*Oncorhynchus clarkii clarkii*
Coho salmon	*Oncorhynchus kisutch*
Sockeye salmon	*Oncorhynchus nerka*
Chum salmon	*Oncorhynchus keta*
Eulachon	*Thaleichthys pacificus*
Salmon	
American shad	*Alosa sapidissima*
Pacific lamprey	*Lampetra tridentata*
Chinook salmon (fall)	*Oncorhynchus tshawytscha (fall)*
Chinook salmon (winter)	*Oncorhynchus tshawytscha (winter)*
Chinook salmon (spring)	*Oncorhynchus tshawytscha (spring)*
Rainbow trout (summer)	*Oncorhynchus mykiss (summer)*
Rainbow trout (winter)	*Oncorhynchus mykiss (winter)*
Bull trout	*Salvelinus confluentus*
Chinook salmon (summer)	*Oncorhynchus tshawytscha*
Starry flounder	*Platichthys stellatus*
Common carp	*Cyprinus carpio*
Smallmouth bass	*Micropterus dolomieu*
Walleye	*Stizostedion vitreum vitreum*
White crappie	*Pomoxis annularis*

INVERTEBRATES

BIVALVES

Softshell clam	*Mya arenaria*
Pacific razor clam	*Siliqua patula*
Pacific littleneck	*Protothaca staminea*
Nuttall cockle	*Clinocardium nuttallii*
Freshwater mussel	*Anodonta spp.*

CRABS

Dungeness crab	*Cancer magister*

HABITATS

FLOATING AQUATIC VEGETATION (FAV)

Water howellia	*Howellia aquatilis*

SUBMERSED AQUATIC VEGETATION (SAV)

Eelgrass	*Zostera marina*
Columbian yellowcress	*Rorippa columbiae*

* Threatened and endangered species and species of special concern are designated by underlining

SHORELINE DESCRIPTIONS

EXPOSED ROCKY SHORES — ESI = 1A

DESCRIPTION

- The intertidal zone is steep (greater than 30° slope), with very little width; solid and composed of bedrock
- Sediment accumulations are uncommon because waves and currents remove debris slumped from the eroding cliffs
- There is strong vertical zonation of intertidal biological communities in the estuarine parts of the river
- This shoreline type is regularly exposed to wave action and strong currents
- Wave reflection is a common phenomena along the outer coast
- Species density and diversity vary greatly depending on exposure and salinity, but barnacles, snails, mussels, amphipods, and macroalgae can be abundant
- Present sparsely throughout the estuary, the most spectacular example is Cape Disappointment at the mouth; common along the river mainstem

PREDICTED OIL BEHAVIOR

- In the lower estuary and outer coast, oil is held offshore by waves reflecting off the steep, hard surfaces; Any oil that is deposited is rapidly removed from exposed faces
- Along the river, oil can form a band at the high water line
- The most resistant oil would remain as a patchy band at or above the high-water line



- Impacts to intertidal communities are expected to be short-term in duration. An exception would be where heavy concentrations of a light refined product comes ashore very quickly

RESPONSE CONSIDERATIONS

- Cleanup is usually not required
- Access can be difficult and dangerous

EXPOSED, SOLID MAN-MADE STRUCTURES — ESI = 1B

DESCRIPTION

- These structures are solid, man-made structures such as seawalls, groins, revetments, piers, and port facilities
- Many structures are constructed of concrete, wood, or metal
- Often there is no exposed substrate at low tide, but multiple habitats are indicated if present
- They are built to protect the shore from erosion by waves, boat wakes, and currents, and thus are exposed to rapid natural removal processes
- Attached animals and plants are sparse to moderate
- They are common along commercial zones and waterways

PREDICTED OIL BEHAVIOR

- Oil can be held offshore by waves reflecting off the vertical, hard surface in exposed settings
- Oil readily adheres to the dry, rough surfaces at the high-tide line, but it does not adhere to wet substrates
- The most resistant oil would remain as a patchy band at or above the high-tide line



RESPONSE CONSIDERATIONS

- Cleanup is usually not required
- High-pressure water spraying may be conducted to remove persistent oil in crevices, improve aesthetics, and prevent direct contact with oiled surfaces

EXPOSED WAVE-CUT PLATFORMS IN BEDROCK — ESI = 2A

DESCRIPTION

- They are characterized by a flat or gently sloping shelf or platform that is exposed to regular waves or currents
- Although the platform is composed of bedrock, portions of the platform may be covered by a thin patches of sediments
- The surface of the platform is irregular with numerous crevices; tidal pools are common
- Species density and diversity varies greatly along the salinity gradients
- Present throughout the river, with the largest areas near the John Day dam

PREDICTED OIL BEHAVIOR

- Oil will not adhere to the wet rock surface, but could penetrate crevices or patches of sediments
- Persistence of oil is usually short-term, except in wave shadows or where the oil was deposited high above normal wave activity



RESPONSE CONSIDERATIONS

- Cleanup is usually not required except for areas of high recreational use
- Where the shoreline is accessible, it may be feasible to manually remove heavy oil accumulations and oiled debris

FINE- TO MEDIUM-GRAINED SAND BEACHES ESI = 3A

DESCRIPTION

- These beaches are flat to moderately sloping and relatively hard packed
- There can be heavy accumulations of wrack present
- They are important habitats for migratory and summer nesting birds
- Common within the estuary, best examples are on Sand Island

PREDICTED OIL BEHAVIOR

- Light oil accumulations will be deposited as oily swashes or bands along the upper intertidal zone
- Heavy oil accumulations will cover the entire beach surface; oil will be lifted off the lower beach with the rising tide
- Maximum penetration of oil into fine- to medium-grained sand is about 10-15 cm
- Burial of oiled layers by clean sand within the first week after a spill typically will be less than 30 cm along the upper beach face
- Organisms living in the beach sediment may be killed by smothering or lethal oil concentrations in the interstitial water
- Biological impacts include temporary declines in infauna, which can affect important shorebird foraging areas

RESPONSE CONSIDERATIONS

- These beaches are among the easiest shoreline types to clean
- Cleanup should concentrate on removing oil and oily debris from the upper swash zone once oil has come ashore



- Traffic through both oiled and dune/riparian areas should be severely limited, to prevent contamination of clean areas
- Manual cleanup is advised to minimize the volume of sand removed from the shore and requiring disposal
- All efforts should focus on preventing the mixture of oil deeper into the sediments by vehicular and foot traffic
- Mechanical reworking of lightly oiled sediments from the high-tide line to the middle intertidal zone may be effective along outer beaches

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SCARPS AND STEEP SLOPES IN SAND ESI = 3B

DESCRIPTION

- These scarps are composed of relatively soft, unconsolidated sediments
- The scarps show evidence of active erosion, and beaches in front of the scarps are narrow or absent
- They are common generally at cut-banks of smaller tributaries

PREDICTED OIL BEHAVIOR

- Any stranded oil will form a band along the high-water line.
- There is some potential for oil penetration into any sediment accumulations at the base of the scarp, but active erosion of the scarp will also erode the oil

RESPONSE CONSIDERATIONS

- In some cases, cleanup is not necessary because of the short residence time of the oil
- The need for removal of oiled sediments should be carefully evaluated because of the potential for increased erosion
- Manual labor and close supervision should be used so that the minimal amount of sediment is removed during cleanup



COARSE-GRAINED SAND BEACHES ESI = 4

DESCRIPTION

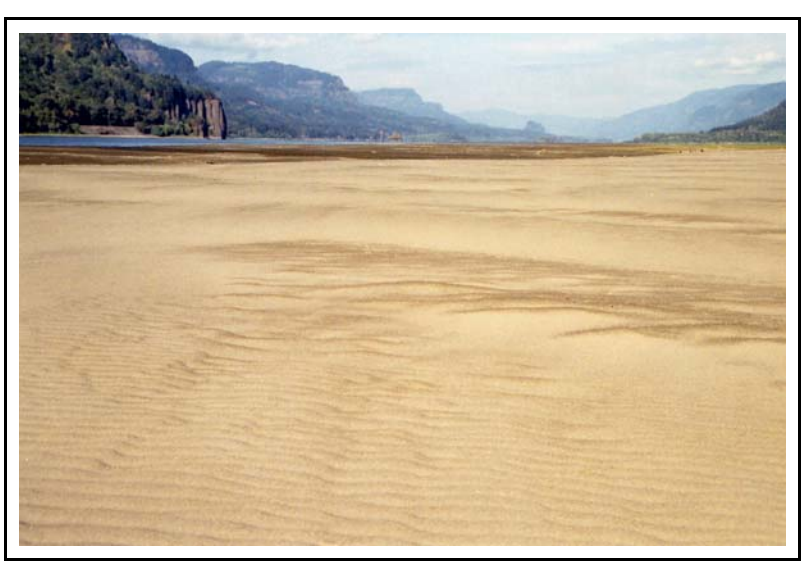
- Highly variable beachface slopes; sediments are soft and permeable with low trafficability
- The rate of sediment mobility is relatively high, as the beachface is reworked by boat wakes
- Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical
- Very common over entire length of river

PREDICTED OIL BEHAVIOR

- During small spills oil is deposited primarily as a band along the high-water line
- Under heavy accumulations oil may spread across the entire intertidal zone, though it will be lifted off the lower part of the beach during rising tides or water levels in the river
- Penetration up to 25 cm is possible
- Burial of oiled layers by clean sand can be rapid
- Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water

RESPONSE CONSIDERATIONS

- Cleanup more difficult than for finer-grained beaches, because equipment tends to grind oil into the substrate due to the loosely packed and permeable nature of these coarser-grained sediments; therefore, special care must be exercised while using heavy equipment to prevent mixing oil deeper into the beach sediment



- Use of heavy equipment for oil/sand removal may also result in the export of excessive amounts of sand; therefore, where feasible and for smaller amounts of oil, manual cleanup may be desirable
- Vehicular and foot traffic through oiled areas and riparian habitat should be limited to prevent contamination of clean areas and disturbance of riparian vegetation
- Removal of sediment should be limited as much as possible to avoid erosion problems on the beach in the future; however, the common occurrence of multiple buried oil layers in these types of beaches increases the amount of sediment to be handled and disposed of

MIXED SAND AND GRAVEL BEACHES — ESI = 5



DESCRIPTION

- Moderately sloping beach composed of a mixture of sand and gravel (gravel component should comprise between 20 to 80 percent of total sediments)
- Because of the mixed sediment sizes, there may be zones of pure sand, pebbles, or cobbles
- There can be large-scale changes in the sediment distribution patterns depending upon season, because of the transport of the sand fraction offshore during storms
- Because of sediment desiccation and mobility on exposed beaches, there are low densities of attached animals and plants
- Uncommon in the lower estuary, occurring as small pocket beaches within the estuary and near Cape Disappointment
- Common along the river, generally found at the mouths of smaller tributaries such as the Sandy River in Troutdale

PREDICTED OIL BEHAVIOR

- During small spills, oil will be deposited along and above the high-tide swash
- Large spills will spread across the entire intertidal area
- Oil penetration into the beach sediments may be up to 50 cm; however, the sand fraction can be quite mobile, and oil behavior is much like on a sand beach if the sand fraction exceeds about 40 percent
- Burial of oil may be deep at and above the high-tide line, where oil tends to persist, particularly where beaches are only intermittently exposed to reworking by waves
- In sheltered pockets on the beach, pavements of asphalted sediments can form if there is no removal of heavy oil accumulations
- Once formed, asphalt pavements can persist for many years

RESPONSE CONSIDERATIONS

- Heavy accumulations of pooled oil should be removed quickly from the upper beachface
- All oiled debris should be removed
- Sediment removal should be limited as much as possible
- Low-pressure flushing may be used to float oil away from the sediments for recovery by skimmers or sorbents. High-pressure spraying should be avoided because of the potential for transporting contaminated finer sediments (sand) to the lower intertidal or subtidal zones
- Mechanical reworking of oiled sediments from the high-tide zone to the upper intertidal zone may be effective in areas regularly exposed to wave activity (as evidenced by storm berms). However, oiled sediments should not be relocated below the mid-tide zone
- In-place tilling may be used to reach deeply buried oil layers in the middle zone on exposed beaches

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GRAVEL BEACHES — ESI = 6A



DESCRIPTION

- Gravel beaches can be steep, with multiple wave-built berms forming the upper beach. Gravel beaches have the lowest trafficability of all beach types and may contain shell and woody debris
- Because of the high mobility of sediments on exposed gravel beaches, there are low densities of animals and plants
- Common, especially on the north side of estuary and very common along the river mainstem

PREDICTED OIL BEHAVIOR

- Deep penetration of stranded oil is likely on gravel beaches because of their high permeability
- Long-term persistence will be controlled by the depth of routine reworking by waves and boat wakes
- Along sheltered portions of the shorelines, chronic sheening and the formation of asphalt pavements is likely where accumulations are heavy

RESPONSE CONSIDERATIONS

- Heavy accumulations of pooled oil should be removed quickly from the upper beachface
- All oiled debris should be removed
- Sediment removal should be limited as much as possible
- Low-pressure flushing can be used to float oil away from the sediments for recovery by skimmers or sorbents
- Mechanical reworking of oiled sediments from the high-tide zone to the upper intertidal zone may be effective in areas regularly exposed to wave activity (as evidenced by storm berms). However, oiled sediments should not be relocated below the mid-tide zone
- In-place tilling may be used to reach deeply buried oil layers in the middle zone on exposed beaches

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RIPRAP — ESI = 6B



DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of rock
- Riprap structures are used for shoreline protection and as jetties in harbors
- Attached biota are sparse on exposed riprap
- They are common in Astoria and over the entire length of river, associated with boat ramps, dams, and railroads

PREDICTED OIL BEHAVIOR

- Deep penetration of oil between the blocks is likely
- Oil adheres readily to the rough surfaces of the blocks
- Uncleaned oil can cause chronic leaching until the oil hardens

RESPONSE CONSIDERATIONS

- When the oil is fresh and liquid, high pressure spraying and/or water flooding may be effective, making sure to recover all liberated oil
- Heavy and weathered oils are more difficult to remove, requiring scraping and/or hot-water spraying

EXPOSED TIDAL FLATS — ESI = 7

DESCRIPTION

- Exposed tidal flats are broad, flat intertidal areas composed primarily of sand and minor amounts of gravel (in a few areas)
- The presence of sand and gravel indicates that tidal currents and waves are strong enough to mobilize the sediments
- Biological utilization can be very high, with large numbers of infauna, heavy use by birds for roosting and foraging, and use by foraging fish
- They are very common in the lower estuary and sometimes occur on the seaward, more exposed edge of a larger mudflat

PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of exposed tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil does not penetrate water-saturated sediments
- Biological damage may be severe, primarily to infauna, thereby reducing food sources for birds and other predators



RESPONSE CONSIDERATIONS

- Currents and waves can be very effective in natural removal of the oil
- Cleanup is very difficult (and possible only during low tides)
- The use of heavy machinery should be restricted to prevent mixing of oil into the sediments

SHELTERED ROCKY SHORES — ESI = 8A

DESCRIPTION

- The substrate is solid and composed of bedrock
- This shoreline type is sheltered from large waves and strong currents
- Sediments may accumulate at the base of this shoreline type
- The slope of the intertidal zone is generally moderate to steep (greater than 15°) with little width
- Sheltered rocky shores are moderately common in the lower estuary; Not common along the river mainstem, mostly occurred along the banks of the Willamette River

PREDICTED OIL BEHAVIOR

- Heavy oils tend to coat the dry, irregular surface
- Stranded oil will persist because of low energy setting

RESPONSE CONSIDERATIONS

- Low-pressure flushing at ambient temperatures is most effective when the oil is fresh and still liquid
- Care must be taken during flushing operations to prevent oily effluents from affecting biologically rich, lower intertidal levels
- Where the high-tide area is accessible, it may be feasible to remove heavy oil accumulations and oiled debris



SHELTERED, SOLID MAN-MADE STRUCTURES — ESI = 8B

DESCRIPTION

- These structures are solid man-made structures such as seawalls, groins, revetments, piers, and port facilities
- Structures are constructed of concrete, wood, or metal
- Often there is no exposed beach at low water, but multiple habitats are indicated if present
- Attached animal and plant life is highly variable
- They are common in developed commercial waterfront areas such as around Astoria and Portland, also common along the Willamette River and in association with dams

PREDICTED OIL BEHAVIOR

- Oil will adhere readily to rough surfaces, particularly along the high-tide line, forming a distinct oil band
- The lower intertidal zone usually stays wet (particularly if algae covered), preventing oil from adhering to the surface

RESPONSE CONSIDERATIONS

- Cleanup of seawalls is usually conducted for aesthetic reasons or to prevent leaching of oil
- Low- to high-pressure spraying at ambient water temperatures is most effective when the oil is fresh



SHELTERED RIPRAP **ESI = 8C**

DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of rock
- These structures are found inside harbors and bays in highly developed areas, sheltered from direct exposure to waves
- Attached animal and plant life can be present
- Sheltered riprap is very uncommon in the mapped area

PREDICTED OIL BEHAVIOR

- Deep penetration of oil between the boulders is likely
- Oil adheres readily to the rough surfaces
- If oil is left uncleaned, it may cause chronic leaching until the oil hardens

RESPONSE CONSIDERATIONS

- High-pressure spraying may be required to remove oil for aesthetic reasons and to prevent leaching of oil from the structure



- Cleanup crews should make sure to recover all released oil

SHELTERED TIDAL FLATS **ESI = 9A**

DESCRIPTION

- Sheltered tidal flats are composed primarily of mud with minor amounts of sand and shell
- They are present in calm-water habitats, sheltered from major wave activity, and frequently backed by marshes
- The sediments are very soft and cannot support even light foot traffic in many areas
- They can have heavy wrack deposits along the upper fringe
- Large concentrations of shellfish, worms, and snails can be found on and in the sediments
- They are heavily utilized by birds for feeding
- Large sheltered muddy flats are very common throughout the lower estuary, generally associated with islands of saltmarsh such as Russian Island

PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of sheltered tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil will not penetrate the water-saturated sediments, but could penetrate burrows and desiccation cracks or other crevices in muddy sediments
- In areas of high suspended sediments, sorption of oil can result in deposition of contaminated sediments on the flats



- Biological damage may be severe

RESPONSE CONSIDERATIONS

- These are high-priority areas necessitating the use of spill protection devices to limit oil-spill impact; deflection or sorbent booms and open water skimmers should be used
- Cleanup of the flat surface is very difficult because of the soft substrate; many methods may be restricted
- Low-pressure flushing and deployment of sorbents from shallow-draft boats may be helpful

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SHELTERED, VEGETATED LOW BANKS **ESI = 9B**

DESCRIPTION

- These habitats are composed of low banks with grasses or shrubs along smaller tributaries
- They can be flooded occasionally by high water
- These habitats can be important for fish, shellfish, birds, and terrestrial mammals
- They are occur in the riverine sections, along the smaller tributaries, with minimal tidal water level changes

PREDICTED OIL BEHAVIOR

- During low water, it is unlikely that oil in the main river would affect these areas; however, during high river levels, oil could flow into them
- Oil will coat any vegetation at the water line
- Oil can contaminate and become trapped in debris

RESPONSE CONSIDERATIONS

- Low-pressure flushing may be effective in small waterbodies, to flush oil trapped along the banks and in debris to collection sites
- Care should be taken to prevent mixing of oil into sediments during response activities
- Deployment of sorbents may be necessary to recover sheens after gross oil removal



SALT- AND BRACKISH-WATER MARSHES **ESI = 10A**

DESCRIPTION

- Intertidal wetlands containing emergent, herbaceous vegetation
- Width of the marsh can vary widely, from a narrow fringe to extensive areas
- Marsh soils can range from sand to high-organic peats
- Exposed areas are located along bays with wide fetches and along heavily trafficked waterways
- Sheltered areas are not exposed to significant wave or boat wake activity
- Resident flora and fauna are abundant with numerous species with high utilization by birds, fish, and shellfish
- They are very common in the lower estuary, particularly in the Lewis and Clark National Wildlife Refuge

PREDICTED OIL BEHAVIOR

- Oil adheres readily to intertidal vegetation
- The band of coating will vary widely, depending upon the water level at the time oil slicks are in the vegetation. There may be multiple bands
- Large slicks will persist through multiple tidal cycles and coat the entire stem from the high-tide line to the base
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, although lighter oils can penetrate deeper, to the limit of tidal influence
- Medium to heavy oils do not readily adhere to or penetrate the fine sediments, but can pool on the surface or in burrows
- Light oils can penetrate the top few centimeters of sediment and deeply into burrows and cracks (up to one meter)



RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery; natural removal processes and rates should be evaluated prior to conducting cleanup
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Cleanup activities should be carefully supervised to avoid vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

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FRESHWATER MARSHES **ESI = 10B**

DESCRIPTION

- These are grassy wetlands composed of emergent herbaceous vegetation in tidal freshwater settings
- Marsh soils can vary widely from sand and gravel to peat
- Resident flora and fauna are abundant
- Common throughout riverine areas as both extensive islands and narrow fringing marsh

PREDICTED OIL BEHAVIOR

- Oil adheres readily to the vegetation
- The band of coating will vary widely, depending upon the water level changes at the time oil slicks are in the vegetation. There may be multiple bands
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, although lighter oils can penetrate deeper

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery; natural removal processes and rates should be evaluated prior to conducting cleanup
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Cleanup activities should be carefully supervised to avoid vegetation damage



- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

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SWAMPS **ESI = 10C**

DESCRIPTION

- Swamps consist of shrubs and hardwood forested wetlands. Vegetation is taller, on average, than 6 meters
- Sediments are silty clay with large amounts of organic debris
- They are seasonally flooded, though there are areas that are permanently flooded, mostly along the floodplains of tributaries or man-made impoundments
- Flora and fauna are abundant with numerous species
- They occur in inland areas, often along stream floodplains and as isolated wetlands

PREDICTED OIL BEHAVIOR

- They are risk of oiling from river spills during high-water events and spills from land
- Oil can penetrate into loose organic-rich soils and root cavities where there is no standing water
- Woody vegetation is less sensitive than grasses to oil

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. Cleanup is usually difficult and intrusive



- Oily debris can be removed where there is access
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Woody vegetation should not be cut

SCRUB-SHRUB WETLANDS **ESI = 10D**



DESCRIPTION

- Scrub-shrub wetlands consist of woody vegetation less than 6 meters tall including true shrubs, small trees, and trees and shrubs that are stunted due to environmental conditions
- The sediments are silty clay mixed with organic debris
- They grow above normal spring high tides, thus they are seldom inundated by salt water
- Resident flora and fauna are abundant
- They are usually found in association with artificial ponds created by railroad tracks

PREDICTED OIL BEHAVIOR

- They are generally not a risk of oiling from marine spills because of their position above normal high tides
- They could become oiled during very high water levels, from land-based spills, or during cleanup of adjacent areas
- Woody vegetation is less sensitive than grasses to oil

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Oily debris can be removed where there is access
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Woody vegetation should not be cut

COLUMBIA RIVER

SHORELINE HABITATS

- 1A EXPOSED ROCKY SHORES
- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB / SHRUB WETLANDS

SENSITIVE BIOLOGICAL RESOURCES

BIRD

- DIVING BIRD
- GULL / TERN
- PASSERINE
- RAPTOR
- SHOREBIRD
- WADING BIRD
- WATERFOWL
- NESTING SITE

MARINE MAMMAL

- PINNIPED
- HAUL-OUT SITE

TERRESTRIAL MAMMAL

- SMALL MAMMAL
- UNGULATE

INVERTEBRATE

- BIVALVE
- CRAB

FISH

- FISH
- ANADROMOUS STREAM

REPTILE / AMPHIBIAN

- TURTLE

HABITAT

- FLOATING OR SUBMERGED AQUATIC VEGETATION

MULTIPLE ELEMENTS

- THREATENED / ENDANGERED
- 123 RAR NUMBER

HUMAN-USE FEATURES

- AQUACULTURE / HATCHERY
- BOAT RAMP
- COAST GUARD
- FERRY
- LOCK AND DAM
- MARINA
- NATIONAL FOREST
- PARK
- RECREATIONAL FISHING
- SUBSISTENCE FISHING
- WATER INTAKE
- WILDLIFE REFUGE
- 123 HUMAN-USE NUMBER
- MANAGEMENT AREA
- BRIDGE

Guidelines for Interpreting ESI Maps

To help users interpret the ESI maps and tabular data, we offer the following guidelines for use in addition to the map legend:

• Shoreline Habitats. The "shoreline," representing the boundary between land and water, is color-coded with the ESI classification. Most shoreline habitats are shown as a line, with no areal dimension. Where there is more than one shoreline type (e.g., a beach in front of a seawall), the colors for each habitat are shown, with the color for the landward habitat on the land side of the shoreline and the color for the seaward habitat on the water side. In areas where the intertidal zone is wide (e.g., wide tidal flats, wave-cut rocky platforms), the habitat from high to low water is filled with the ESI classification color. When data are available, the entire extent of wetlands are filled with colored patterns. The seaward edge of the wetland is color-coded with the ESI classification; the landward extent of the wetland is indicated by a dashed, colored line.

• Biological Resources. The distribution of biological resources is shown using many different conventions. The major convention is an icon associated with a point, line, or polygon that shows the species' areal distribution. The icon's reference number corresponds to a data table with details on species and life history. Biological resource data are organized into six major groups, each with a reference color: birds (green), mammals (brown), fish (blue), shellfish (orange), reptiles (red), and rare/endangered plants and special habitats (purple). These colors are used to fill hatched polygons and the icons. Each major group has subgroups with unique icons to visually indicate the type of organism or feature present. The icon or group of icons is usually located inside the polygon it represents; however, sometimes a line is connected between the icon and the polygon or point to make it easier to relate the two. Note that icons are used to indicate the types of resources present, but the actual data are the points and polygons. A red box around an icon indicates the presence of a species on the state or Federal list of threatened or endangered species.

The number listed below each icon refers to the first column of a data table for each map. The data tables, organized by group (birds, fish, etc.), include the following information: species name, status as threatened or endangered on state and Federal lists, concentration (specifically for each point or polygon), presence by month, and special life-history time periods. When a polygon contains multiple groups, the one number under the group of icons is listed under each group heading in the data tables. Where possible, the same number is used on multiple maps. For example, all bald eagle nests with the same seasonality could have the same number throughout the atlas, or the same assemblage of fish would have the same number wherever it occurred.

A data table has a separate listing for every unique combination of species, concentration, seasonality, life-history stage, and source. By looking at the monthly seasonality data in the table for each map, the species present at the time of concern can be easily identified. An 'X' or number is placed under each month in which any life stage of the species is present in the area represented by the point or polygon. Numbers are used typically for fish and shellfish where data on relative abundance are available. The final columns in the data tables include the months when reproductive activities occur or early life stages are present. Users should pay close attention to the data tables because they contain much of the information needed to identify the most sensitive resources at different times of the year.

Points, lines, and polygons on a map represent the distribution of the resources. Green points show bird nesting sites, including bald eagle nests and dense colonial nesters (e.g., heron rookeries and seabird nesting colonies). Animals and habitats are also represented as: 1) hatched polygons in the color for the animal group (e.g., green for birds); 2) black hatched polygons which contain multiple groups of resources (birds and fish in the same tidal channels); 3) solid lines (usually used for fish in small streams); or 4) in "common in ..." boxes. When showing the biological resource polygons would make the maps too difficult to read (usually when multiple polygons cover a large area), the polygons are not plotted and the presence of the resource is indicated by placing the icon in a box labeled "common in ..." The box contains an appropriate geographic reference. Different boxes can be used on the same map when, for example: "common in Winyah Bay" or "common in tidal creeks." The data for these resources are still fully present in the database but are not shown to make the maps more readable.

• Human-use Resources. Most of the human-use resources are point features indicated by a black-and-white icon. Managed lands, such as refuges and sanctuaries, have their boundaries shown as a dot-dash line with an icon and name placed inside. Where the feature is a known point location (e.g., a drinking water intake, boat ramp, marina), the exact location is shown as a small black dot and a line is drawn from it to the icon. Activities such as commercial and recreational fishing and areas such as recreational beaches are also indicated by an icon placed in the general area without any lines to points or polygons since the boundaries are not readily defined.

Some features, like historic and archaeological sites, are location-sensitive: the agency managing the resource believes the exact location should not be shown in order to protect the site. In these cases, the icon is placed in the general area of the resource, but the exact location is not shown.

Columbia River: ESIMAP 19

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X								X	X		-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
30	Bald eagle	T	T		2 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
77	Killdeer					X	X			X	X	X	X	X	X	X		-	-	-
	Trumpeter swan					X	X	X	X	X			X	X	X	X		-	-	-
	Tundra swan					X	X	X	X	X			X	X	X	X		-	-	-
	Waterfowl				250000	X	X								X	X		-	-	-
	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds				15000			X	X	X			X	X	X			-	-	-
	Spotted sandpiper					X	X	X	X	X			X	X	X	X		-	-	-
81	Sandhill crane				PRESENT	X	X	X	X	X				X	X	X		-	-	-
84	Osprey							X	X	X	X	X	X	X				MAR-SEP	-	-
86	Great blue heron				6 PAIRS	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
87	Sandhill crane				100-200	X	X	X	X	X				X	X	X		-	-	-
	Greater white-fronted goose					X	X	X	X	X		X	X	X	X	X		-	-	-
	Ducks				100S	X	X								X	X		-	-	-
	Tundra swan					X	X	X	X	X				X	X	X		-	-	-
	Canada goose				1000S	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
88	Waterfowl				HIGH	X	X								X	X		-	-	-
	Sandhill crane					X	X	X	X	X					X	X		-	-	-
	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X								X	X		-	-	-
91	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
92	Great blue heron					X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
93	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
89	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
224	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

HABITAT:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
81	Water howellia	T	T	WA	PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
77	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
77	Northern river otter				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Beaver				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
21	BOAT RAMP		
25	BOAT RAMP		

PARK:

HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

WILDLIFE REFUGE:

HUN#	Name	Contact	Phone
109	RIDGEFIELD NWR	USFWS REFUGE MANAGER	360/887-4106
110	SAUVIE ISLAND WILDLIFE AREA	ODFW	503/621-3488

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Columbia River: ESIMAP 20

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
7	Canada goose					X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Common goldeneye					X	X									X	X	-	-	-
	Scaup					X	X	X	X	X			X	X	X	X		-	-	-
	Dabbling ducks					X	X	X	X	X			X	X	X	X		-	-	-
17	Bald eagle	T	T		1 PAIR	X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
84	Osprey						X	X	X	X	X	X	X					MAR-SEP	-	-
90	Bald eagle	T	T			X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl				HIGH	X	X									X	X	-	-	-
99	Waterfowl				HIGH	X	X									X	X	-	-	-
101	Waterfowl					X	X									X	X	-	-	-

FISH:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
7	Chinook salmon (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-NOV	SEP-APR	-	MAR-SEP	JUN-NOV
	Sockeye salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	-	-	JAN-DEC	AUG-FEB
	White sturgeon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Coastal Cutthroat trout	C		OR		X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAY	JAN-JUN	-	JAN-DEC	JAN-DEC
	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chum salmon	*	*			X	X	X	X	X			X	X	X	X		NOV-DEC	DEC-MAR	-	FEB-MAY	OCT-DEC
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP
	Steelhead (summer)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	JAN-JUN	JAN-JUN	-	JAN-DEC	MAR-OCT
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Bull trout	C	T			X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-JAN	-	JAN-DEC	JAN-DEC
84	Salmon					X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	JAN-DEC	JAN-DEC
90	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
98	Common carp					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	White crappie					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Smallmouth bass					X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	-	JAN-DEC
	Walleye					X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	-	JAN-DEC
102	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
103	Salmon				HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
138	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
209	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
213	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
220	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
221	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
222	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
226	Coho salmon	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-JAN	OCT-MAR	-	JAN-DEC	AUG-JAN
	Chinook salmon (fall)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	OCT-DEC	OCT-FEB	-	FEB-NOV	AUG-DEC
	Steelhead (winter)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-JUN	-	JAN-DEC	NOV-MAR
	Chinook salmon (spring)	*	*			X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	SEP-DEC	-	JAN-DEC	JAN-SEP

REPTILE:

RAR#	Species	S	F	ST	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
90	Western pond turtle	E	C	WA		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western pond turtle	C	C	OR		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Western painted turtle					X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
100	Western painted turtle				PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-

HUMAN USE RESOURCES:

BOAT RAMP:

HUN#	Name	Contact	Phone
26	BOAT RAMP		

HATCHERY:

HUN#	Name	Contact	Phone
54	VANCOUVER REGION FIVE OFFICE	WDFW	

PARK:

HUN#	Name	Contact	Phone
74	KELLY POINT PARK	PARK MANAGER	503/823-2223

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

(b) (7)(F)

LEGEND

- CONTAINMENT BERM/WALL
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE
- DIRECTION OF DISCHARGE
- UPPER TERMINAL DRAINAGE AREA
- P2 DRAINAGE AREA
- P3 DRAINAGE AREA

N

0 120 240

SCALE: 1" = 120'

REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE DRAINAGE PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

2

(b) (7)(F)

[redacted]

LEGEND

- CONTAINMENT BERM/WALL
- EVACUATION ROUTE
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE

N

0 120 240

SCALE: 1" = 120'

REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE EVACUATION PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

3

Site Plan
ST Services, Portland Terminal
Portland, Oregon

(b) (7)(F)

Note: Base map prepared from a City of Portland AutoCAD file.

Legend:

- Ⓒ Catch Basin
- Ⓢ Emergency Spill Response Material Location
- Ⓦ Emergency Wash

0 200 400
Scale in Feet

HARTCROWSER
15448-00 ***10/03***
Figure 2

(b) (7)(F)

LEGEND

- CONTAINMENT BERM/WALL
- FIRE HYDRANT OR WATER SYSTEM
- EMERGENCY SHUT-OFF VALVE

N

0 120 240

SCALE: 1" = 120'

REV	DATE	DESCRIPTION	DSN	CHK	API
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

SECOR

57 Lafayette Circle,2nd Floor
Lafayette, CA
PHONE:(925) 299-9300 **FAX:**(925) 299-9302

FOR:

NuStar

TITLE:

SITE PLAN
Portland Terminal
9420 NW St. Helens Road
Portland, OR

DRAWN BY: DRM	DESIGNED BY:
CHECKED BY:	APPROVED BY:
PROJECT NUMBER: 89IN.32202.02	SCALE: AS SHOWN
DATE: 11/8/07	F LE PATH: P:\NUSTAR\PORTLAND

FIGURE

1